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REAL ECONOMY NEWS WEEKLY

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A SANSA image of farmland from an Earth observation satellite

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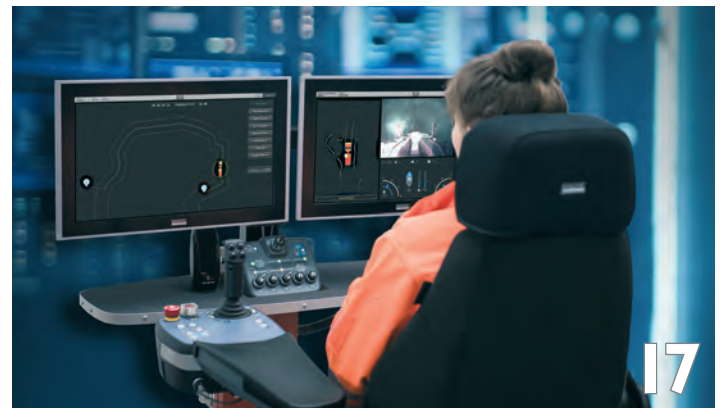
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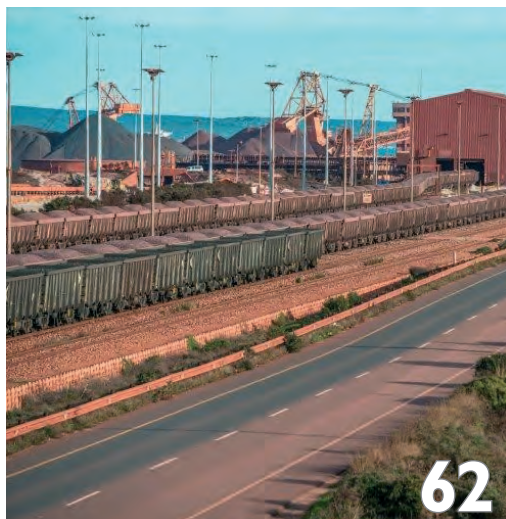
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PUSH PAUSE II

"I have never killed a man, but I have read many obituaries with great pleasure."

– Clarence Darrow



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FIRST WORD

We must go all out to make South Africa a country of choice

“ We South Africans can do nothing about our past but we can do something about our future and among the key needs is for us to have a sense of common purpose around the rebuilding of this economy. A lot of money goes into educating our people and other countries are benefiting from that investment by luring our professionals into their economies. As a country of choice, we would also be able to lure the skills we need to this country, where public-private partnerships are already emerging quite encouragingly to alleviate electricity, logistics and crime woes. We should ensure that these partnerships and the structures that go with them are retained to promote a country-of-choice strategy that ensures that the people we need to build our economy are happy to come here, to the extent that they are not averse to potentially making this country their home.”



Martin Creamer | Publishing Editor

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PUSH PAUSE ||

A Member of Parliament to Disraeli: “Sir, you will either die on the gallows, or of some unspeakable disease.”
 “That depends, Sir,” said Disraeli, “whether I embrace your policies or your mistress.”



DANGEROUS DECLINE: While it is positive that the Blue Drop, Green Drop and No Drop reports are again being published after a gap of several years, the reports themselves point to a worrying decline in the status of the country’s water supply. The drop in drinking water quality is particularly worrying, as is confirmation of a dangerous collapse of the country’s wastewater treatment works and a sharp rise in the number of local authorities that are failing to meet minimum compliance standards. Unless arrested, this decay will have deathly consequences as we witnessed recently with the cholera outbreak.

PERSPECTIVES



Source: Bloomberg

“Business has every interest in seeing universal health coverage in South Africa, but it must be sustainable, and provided in a way that best uses the scarce resources of the State.”

Business Leadership South Africa CEO **Busi Mavuso**

ENERGY TRANSITION

Explaining is losing

THE HACKNEYED POLITICAL PHRASE ‘if you’re explaining, you’re losing’ probably best describes the predicament in which the South African government finds itself currently on a range of topics.

The fact that President **Cyril Ramaphosa** has decided that he needs to send Ministerial envoys to meet G7 countries to explain South Africa’s nonaligned stance on the Russia-Ukraine war is the highest-profile case in point. It is far from being the only area where speak-before-you-think statements, or confusing mixed messages are placing the country in difficulties, however.

Public anger is palpable every time a Minister or politician makes an evidence-free prediction regarding the timeframe for when loadshedding will end. Communication about the affordability of the rapidly approaching National Health Insurance financing system has been so poor that one can only assume the scheme to be entirely unaffordable. The excuses made regarding the failure by law-enforcement agencies to follow up on chilling allegations of industrial-scale criminality and sabotage at Eskom are as unbelievable as Ministerial promises that pit latrines will be eliminated across all public schools.

Disturbingly, South Africa’s muddled approach to Russia’s invasion of Ukraine, which could result in South Africa facing secondary sanctions or losing market access, is not the only international-relations issue where government has some serious explaining to do.

Government’s poorly communicated stance on the future of its aged and decidedly unreliable coal fleet has also caused unease among those governments that recently decided to extend concessional finance to South Africa to support its transition away from coal.

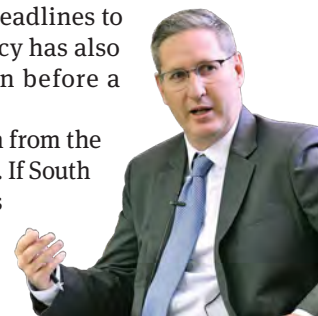
While it is now common knowledge that Germany offered to withdraw from the \$8.5-billion Just Energy Transition Partnership (JETP) after Mineral Resources and Energy Minister **Gwede Mantashe** made his infamous “guinea pig” statement, unease rose further when it emerged that South Africa was considering breaking with stated policy to extend the life of its coal plants.

The remedy was proposed by Electricity Minister Dr **Kgosientso Ramokgopa** after he toured several Eskom power stations and amid a particularly intense episode of power cuts. The recommendation was made absent any analysis of the costs, including the cost associated with a perception that South Africa was reneging on the decarbonisation commitments made in its Nationally Determined Contribution and, by extension, to the JETP participants.

The statement has since triggered a series of belated explanations designed to address the confusion it caused. Crucially, the Presidency has sought to draw a distinction between “coal extensions” and “delayed decommissioning”, asserting that it was never government’s intention to extend the life of the coal plants but simply to shift closure deadlines to help it mitigate loadshedding. The Presidency has also promised that no decisions will be taken before a thorough analysis of the costs.

Why this was not explained with precision from the very outset is baffling but, sadly, unsurprising. If South Africa is to restore trust, government needs to begin saying exactly what it means, and mean exactly what it says.

Terence Creamer | Editor



OFFICIAL COLLAPSE: Sudan’s official gold industry, the country’s largest revenue earner, has collapsed after a deadly conflict broke out in the country in April. Sudan officially exported 34.5 t of gold worth over \$2-billion last year. **Mubarak Ardol**, general-director of Sudanese Mineral Resources Limited, has confirmed that official exports have ground to a halt, while processing equipment has been damaged, and the headquarters of several gold companies looted. However, both the Sudanese army and Rapid Support Forces have also been accused of smuggling large amounts of illicit gold out of the country.

FACTS IN FIGURES

9

The percentage by which the demand for gold will drop to 4 375 t in 2023, according to consultancy Metals Focus.

560

The value of copper in billion rands that mining company Copper 360 has at its 12 mines, according to its CEO **Jan Nelson**.

SHEILA BARRADAS | CREAMER MEDIA RESEARCH COORDINATOR & SENIOR DEPUTY EDITOR

ELECTRICITY

Energising Reform

Private offtake market adds new impetus to black energy group's pioneering IPP journey

TERENCE CREAMER | CREAMER MEDIA EDITOR

The journey by South Africa's Pele Energy Group (PEG) from a fledgling energy investor to a pioneering black-owned and -managed independent power producer (IPP) is receiving fresh impetus from an unexpected source: the robust private-offtake market that has been stimulated by a recent reform allowing for distributed generation projects of any size to proceed without a licence.

MD **Gqi Raoleka** reports that the company has steadily expanded its portfolio from 800 MW in 2016 – when *Engineering News & Mining Weekly* ran a feature on how the five young black professionals who founded PEG had aspirations to become a fully fledged IPP – to approximately 2 000 MW currently.

In addition, it has a wind and solar project pipeline that could result in that portfolio more than doubling over the coming three to five years, and has moved not only to take far larger equity stakes in projects led by established IPPs, but also to position PEG as a lead sponsor in certain instances.

It has already started to progressively take far larger equity positions in projects linked to South Africa's most recent Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) bid windows than was the case in earlier rounds when it took

up stakes of between 20% and 31%.

During REIPPPP Bid Window 5 (BW5), PEG bid alongside Engie and won three 75 MW solar projects, namely Graspan, in the Northern Cape, as well as Grootspuit and Sannaspos, in the Free State.

"We hold 47.775% across all three projects, with Engie holding 49.725% and the local community holding 2.5%," Raoleka reports, indicating that the company is, thus, maturing into a "pari passu" investment partner.

Similar arrangements were developed for BW6, but as was the case for several other wind bidders during the round, PEG's projects were unsuccessful, as they were located in areas where Eskom determined that the grid infrastructure had already been fully absorbed.

Raoleka and PEG's other founders – **Obakeng Moloabi, Fumani Mthembu, Boipelo Moloabi and Thapelo Motlogeloa** – are not satisfied, however, and are currently in the process of pursuing certain projects as the lead sponsor.

It already has something of a template in place at the 36 MW Solar CPV 1, located in the Western Cape, where PEG is the power plant manager, as well as the majority 55% shareholder, with the Public Investment Corporation holding 40% and the local

community 5%.

The project remains its flagship and has given the company the crucial hands-on experience it requires as it targets even greater independence and growth, including growth in employment, which has increased from 20 employees seven years ago to 90 today.

Raoleka expects its employee numbers to rise to about 136 by year-end should all its near-term projects materialise, including those where it is the dominant partner.

Interestingly, the company's inaugural project as lead sponsor is likely to arise from outside of the REIPPPP framework, which offered PEG its initial opportunity to break into the market by stipulating black ownership and management participation as a qualifying criteria.

"We are in the process of closing a portfolio of just under 1 GW of private offtake projects," Raoleka tells *Engineering News & Mining Weekly*, adding that clients in the mining sector have been particularly supportive of ensuring that the company plays a lead role in these projects.

"That's the exciting thing about having a multiple-offtake reality in South Africa, as under REIPPPP we couldn't focus on developing a long-term relationship with a specific client.

"Now we have mining clients that are keen to build a long-standing relationship with us, not only because they have long-life assets, but they also understand the value of partnering with black companies and existing communities, particularly those located near their mines," he explains.

Raoleka is unable to name the client ahead of financial close, but says that milestone is expected to be achieved within the coming months.

He also expects additional private-to-private opportunities to emerge as a result of the investment that is arising following the amendment to Schedule 2 of the Electricity Regulation Act, which initially removed the licensing requirement for distributed-generation projects below 100 MW but was later adjusted to remove that threshold altogether.

President **Cyril Ramaphosa** reported recently that there were more than 100 active projects in this category at various stages of development, representing over 10 000 MW of new generation capacity and over R200-billion of potential private-sector investment.

That said, PEG will continue to pursue public procurement opportunities and is also widening its scope beyond renewables to include battery energy storage and possibly gas-to-power.

In these new areas, it will initially participate as a minority equity partner, however.

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PIONEERING BLACK IPP

Pele Energy Group, whose founders are (from left to right) Thapelo Motlogeloa, Gqi Raoleka, Fumani Mthembu, Obakeng Moloabi and Boipelo Moloabi, has expanded its portfolio from 800 MW in 2016 to 2 000 MW currently

RENEWABLE ENERGY & THE GRID

Renewables Pipeline

Renewable Energy Grid Survey points to 66 GW of wind, solar projects at various stages of development

TERENCE CREAMER | CREAMER MEDIA EDITOR

A new survey of South Africa’s renewable-energy development pipeline, and its potential implications for grid planning and investment, reveals that some 66 GW of wind and solar projects are at various stages of development in South Africa and that a number of these projects are envisaged to be coupled with battery storage.

The pipeline also includes some 2 GW of gas-to-power.

The ‘2023 South African Renewable Energy Grid Survey’, which has been compiled by Eskom in collaboration with the South African Wind Energy Association (SAWEA) and the South African Photovoltaic Industry Association (SAPVIA), indicates that about 18 GW is at an advanced stage of development.

This means that environmental approvals have been granted, the site measurement campaign and feasibility work have been completed and a power purchase agreement has either been signed, is close to signature, or the project is ready to participate in the next public procurement bid window. Projects in this category would, thus, be able to enter into commercial operation within three years if granted a grid connection by Eskom or a municipality.

Another 21 GW is defined as being under development, while a further 27 GW is described as being at an early stage of development.

Eskom senior manager for strategic planning **Ronald Marais** reports that the survey has been undertaken in an effort to enhance grid planning, given the importance of the grid to ensuring that new generation is connected

expeditiously so as to reduce, and eventually eliminate, loadshedding.

“The survey is a key input to the Transmission Development Plan assumptions for spatial allocation of renewable generation.

“This provides key locations for strengthening and providing access,” Marais tells *Engineering News & Mining Weekly*.

The results point to an emerging trend for potential investors to pair variable solar photovoltaic (PV) and wind projects with battery storage, with more than 19 GW of the solar PV and 7.5 GW of the wind projects surveyed coupled with batteries.

Some 21 GW of wind and 13 GW of solar is being progressed independently of storage, while about 300 MW of battery storage was being pursued independently of a renewables generator.

SAWEA CEO **Niveshen Govender** says the survey offers the renewables industry an opportunity to help influence grid planning.

He notes that, from a wind perspective, developments are initially located predominantly in the Northern, Western and Eastern Cape provinces, but that from 2027 onwards both KwaZulu-Natal and Mpumalanga emerge as important wind jurisdictions.

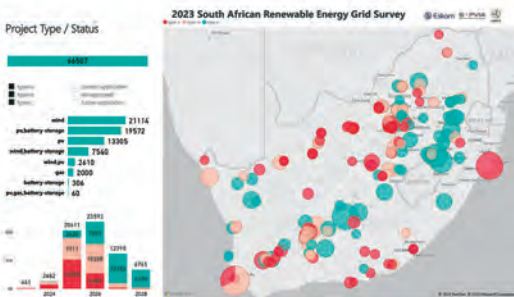
Govender believes the survey has reinforced the need for co-location of technologies such as wind, solar and batteries to optimise the use of the grid, as well as for curtailment to support the future development of renewables.

“The curtailment regime needs to be well thought out and well managed within the contractual structures to ensure positive outcomes.

“Furthermore, the overwhelming majority of industry responses indicated a willingness for curtailment in grid-constrained areas, with many suggesting up to 5% being acceptable – this is very much in line with international examples,” Govender says.


SAPVIA spokesperson **Frank Spencer** tells *Engineering News & Mining Weekly* that not all the projects in the development pipeline can actually be built or connected, owing to both grid and skills constraints.

“But what it does show is tremendous interest from the private sector to develop power projects in South Africa and help solve loadshedding challenges,” Spencer adds. ■



PROJECT LOCATIONS

The project development pipeline in the Renewable Energy Grid Survey, with the advanced projects shown in red



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BATTERY MATERIALS

JSE Bound

Lithium-pioneering Marula to be additionally listed on local bourse, CEO tells Junior Indaba

MARTIN CREAMER | CREAMER MEDIA PUBLISHING EDITOR

In conjunction with a proposed Aim listing in London, Marula Mining is going to have an additional listing on the Johannesburg Stock Exchange (JSE), Marula Mining CEO **Jason Brewer** told the Junior Indaba this month.

“We’re in the process of appointing our advisers,” said Brewer, who spoke of Copper 360 as having done “a fantastic job” with its April listing on the JSE’s AltX, “and we’ll see how we progress.”

Battery metals investment and exploration company Marula, with its Blesberg lithium and tantalum mine in the Northern Cape, has received a funding boost by clinching a partnership with Q Global Commodities, headed by South Africa’s **Quinton van der Burgh**.

Marula is currently listed on the Aquis Stock Exchange in London.

“We’re very much focused on making sure we are an African-focused company. Whilst listed in London, to be honest guys, it’s post box for us. Our whole operating administrative team is based out of Nairobi. We have an office in Kimberley. We have an office in Dar es Salaam, and literally just there in Sandton, we have our major shareholder and our funding partner in place, which is critical for us.

“One of the big reasons about being here and coming here on the JSE is we did a transaction earlier this year with Quinton van der Bergh, who is probably best known from the coal mining sector.

“He’s diversifying into the metals, the hard rock, and certainly into battery metals. He’s coming on. Q Global Commodities are going



FUNDING PARTNERSHIP

Quinton van der Burgh (left), CEO of Q Global Commodities, which is to take a 15% interest in Marula Mining, headed by CEO Jason Brewer (right)

to be taking a 51% interest in us. Quinton is going to be taking his first seat, I believe, on a listed company, and they are investing a lot. Basically he funds us through all our projects, the project here in South Africa, the three projects in Tanzania, and the ones we’re going to be announcing duly in Zimbabwe and Kenya. So, Patrycja (a reference to JSE business development manager **Patrycja Kula**, who was present in the audience) we’ll be working very closely with your team to make sure we add to those 12 junior mining companies on the exchange,” Brewer told the Indaba, chaired by mining luminary **Bernard Swanepoel**.

“We’re working with communities we live with and that brings on additional responsibilities. In the space of six months, we’ve grown our workforce from three to just over 100 people, here in the Northern Cape and up

• From page 8

Hitherto, PEG has been able to raise the capital it requires to participate in electricity projects through a preference share funding arrangement with Investec.

The most recent transaction concluded in March 2020 has provided the company with the wherewithal to fund both its growth and working capital requirements.

“We are working with a consortium of leading financial institutions to significantly

increase the group’s investment capacity to fund out a 2 GW to 3 GW pipeline of renewable opportunities,” Raoleka says.

However, he does not discount the prospect of taking PEG public at some point given the capital-intensive nature of the electricity projects and the massive opportunities that changes in the sector are presenting for an emerging black-owned and -managed IPP.

“We’ve been fortunate in that South Africa’s sophisticated financial markets have enabled

in Tanzania, so we’re moving very quickly, and certainly by the end of the year, we’re probably going to be about 250 to 300 people.

“Blesberg, operated intermittently for more than 80 years, has 250 000 t to 400 000 t of stockpiled waste. This was a small operation mined primarily for its tantalite.

“Within that pegmatite is very high grade spodumene, lithium. We’ve done multiple samples there. It’s running between 5% and 8% of what is typically exported as a spodumene concentrate, so we started reprocessing those dumps in November. We secured a prepayment from a Swiss-based trading group for \$5-million to completely buy out all the minority shareholders and fund the initial development there.

“Just last month, we took delivery of six brand-new bits of mobile mining equipment, courtesy of Q Global Commodities, courtesy of Bell Equipment. That has allowed us in the space of a month to double production, double the movement of volumes from that mine.

“We are now delivering the spodumene concentrate through to our offtaker. The first deliveries are taking place this week.

“We’ve had a pilot plant in Joburg taking that spodumene and producing lithium carbonate, something we’re focused on – not just producing a raw product but producing an intermediate product,” said Brewer.

The lithium carbonate produced in the pilot plant has been tested and the process is being independently verified with a view to producing an initial 1 000 t/y of lithium carbonate which is going for roughly \$40 000/t.

“For a company of our size producing at a revenue base just purely on that is going to be something very significant for us,” said Brewer. ■■

To watch a video of Marula Mining CEO Jason Brewer’s Junior Indaba presentation covered by *Engineering News & Mining Weekly*’s Martin Creamer, scan the barcode or visit www.miningweekly.com.



us to fund our business through preference-share structures that have kept our equity 100% black.

“Our last capital raise was in 2020 and we are pursuing a similar structure in 2023 to fund our next three- to five-year cycle.

“But we’re also quite clear that if we want to be a large IPP in South Africa and in the rest of the continent, we will not be able to compete using only a limited pool of capital,” Raoleka concludes. ■■

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ELECTRICITY

Perfect Fit?

Gravity energy storage systems an option at South Africa's coal power stations – consultancy

MARLENY ARNOLDI | CREAMER MEDIA SENIOR CONTRIBUTING EDITOR ONLINE

Consultancy Sizana Solutions says gravity energy storage systems (GESS) fit in “beautifully” with South Africa’s just energy transition, as they can create multiple thousands of jobs while constructing energy storage assets and drive environmental restoration, especially at soon-to-be-decommissioned coal-fired power stations.

Sizana, the appointed consultant of NYSE-listed Energy Vault in Southern Africa, affirms that there are multiple viable opportunities for GESS in the country, particularly as it offers a lower life-cycle cost compared with most other energy storage mediums, owing to its long life and no degradation.

In fact, Sizana CEO **Les Lange** explains, GESS can be deployed anywhere that a building can be built – it does not need a naturally elevated topology and it can be rated for longer durations of between four and 16 hours, compared with lithium-ion batteries, for example, which are typically rated for between two and four hours.

GESS technology is also flexible in its power-to-energy ratio, being able to deploy any configuration of megawatt and megawatt hours, depending on the application.

Lange explains that GESS has a low life-cycle cost, despite being more expensive than, for example, lithium-ion batteries to build initially.

He adds that a GESS system can last for 35 years without degradation, compared with electrochemical batteries that degrade over time and only last for about ten years, depending on how many times it is operated.

Importantly, more than 80% of the content required for an Energy Vault GESS system can be manufactured or is already being manufactured in South Africa, whereas battery components are mostly imported.

There is also no limit to the number of cycles GESS can do with a round trip efficiency above 80% and an availability of 95%.

GESS has a larger footprint and height, compared with batteries. For example, Energy Vault’s first full-scale GESS project in China is built on a 1.2 ha piece of land.



PIONEERING

Energy Vault’s first full-scale gravity energy storage system being built in China

That said, the project is large at 25 MW for four hours or 100 MWh. Lange estimates that every megawatt-hour requires 120 m² of space, with a height of between 120 m and 140 m.

Energy Vault’s GESS project in China will be commissioned this year. Its learnings will serve as a basis for more intensive market engagement in other parts of the world, such as South Africa.

Lange says Sizana has lined up interested parties in Southern Africa, including large industry, mining companies, independent power producers, Eskom, the Department of Mineral Resources and Energy, and metros such as the City of Cape Town, to consider taking up GESS once the technology proves itself in China.

He tells *Engineering News & Mining Weekly* that coal-fired power stations are ideal for GESS, since the mobile masses can sequester ash and construction waste materials.

This not only helps to restore the environment and provide an effective waste management solution, but also enables unused power station structures to not become redundant or end up as waste.

Eskom will decommission several of its older coal-fired power stations in the foreseeable future. Government officials are considering potentially extending the lives of these stations further amid the country’s power supply constraints.

It will, however, be possible to construct GESS at these power stations while they are

still in operation.

Meanwhile, as the country gears up to generate more renewable energy, GESS offers ancillary services and stabilisation to the national grid.

It will store when the sun can provide energy throughout the day or at night during off-peak periods and discharge the energy during peak demand or loadshedding periods.

Lange highlights that a massive opportunity for metros is to use GESS to sequester construction waste.

A metro such as Cape Town generates about 1.7-million tonnes of construction waste every year. “GESS makes it possible to convert much of that waste into energy storage assets.”

He further explains that industrial users such as cement manufacturers and mining companies can use GESS to sequester mine dumps and tailings waste, while offering long-term energy storage.

Mines can also install GESS at decommissioned shafts, which saves on capital costs and the need to rehabilitate the area.

Lange notes that large water treatment plants can use GESS to

sequester water treatment residue, which is a waste material produced during the water purification process. GESS will assist to make these plants more energy resilient and mitigate loadshedding.

Responding to why there has not been much uptake of GESS in South Africa yet, Lange says interested parties are waiting for the technology to first be proven and demonstrated, which will happen this year in China.

“We are positive that the floodgates will open soon,” he states.

Lange elaborates that Sizana has had positive engagements with interested parties to undertake feasibility studies for deployment of Energy Vault’s GESS technology.

He anticipates the feasibility study will take between 6 and 12 months to complete.

Moreover, Lange states that some of the older power stations have an estimated 35-million tonnes of accumulated ash that needs to be disposed of in a safe manner, as is the case at the Grootvlei power station.

One can only imagine the liability of having to ensure those ash dumps never pollute the environment.

He is confident the South African authorities will soon accept GESS as a proven technology and a viable medium for energy storage in South Africa, as it builds renewable energy capacity, looks to stabilise the national grid, needs to create jobs and needs imminent large-scale waste management solutions. ■■



**WHEN WE INVEST IN
INFRASTRUCTURE PROJECTS
THAT ADDRESS
CLIMATE CHANGE,
*WE BEND THE ARC OF HISTORY
TOWARDS SHARED PROSPERITY***

The DBSA's Climate Finance Facility (CFF) is dedicated to increasing climate related investment in Southern Africa by playing a catalytic role using a blended finance approach. The CFF will use its debt capital, co-funded by the Green Climate Fund, to fill market gaps and target green infrastructure projects in the mining and private sector. This is part of our commitment towards the mitigation and adaptation to climate change, promoting a greener economy and driving sustainability in the mining sector.

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The Council for Geoscience plays a critical role in promoting exploration in South Africa: the road to attaining 5% of the global exploration expenditure

Written by Asinne Tshibubudze and Mosa B. Mabuza (Council for Geoscience, Pretoria)

While there are numerous challenges facing the mining industry in South Africa, it is ultimately up to us, as South Africans, to prevent mining in this country from declining into a sunset industry. We alone hold the power to overcome environmental, social and financial challenges by implementing rational strategies and policies and, by so doing, to harness the benefit of mining for the good of all South Africans.

South Africa is endowed with one of the world's pre-eminent pristine geological landscapes, covering time scales from the Precambrian to the Cenozoic. Within each geological time-frame, we have explored and exploited several mineral systems. For example, we have plumbed the depths of the Archaean and Paleoproterozoic terrains to explore for shear-hosted gold deposits in Archaean greenstone belts, sediment-hosted Cu-Pb-Zn-Ag, lithium, graphite, stratabound manganese and iron, placer gold and uranium and magmatic-hosted platinum group metals. In the past, we explored many of the terrains hosting these mineral systems, with major and reasonable discoveries alike having been made. That said, recently advanced and deployed explo-

ration techniques in other parts of the world have prepared the way for us, as South Africans, to discover and develop a wealth of new mineral and petroleum deposits on our own doorstep.

For the longest time, South Africans have lived with the rhetoric held forth by critics who claim that the South African mining industry is dying because of a lack of new discoveries on a pipeline, while the old mines are rapidly approaching their end of life. The lack of new discoveries is ascribed to inadequate funding of local exploration with expenditure on this sector currently around 1% of the global available exploration expenditure. Because of a lack of funding, very few projects are being developed, with fewer still graduating to the mining stage.

The exploration industry globally is mainly anchored on junior explorers/miners. The absence of this sector in South Africa may well account for our stagnant mining industry. Junior explorers/miners are critical to ensuring that a range of well-diversified projects are gradually becoming available with a clear prospect of progressing to the mining stage. For mining projects to come to fruition, funding needs to be provisioned. The West African Craton,

Guiana Shield and the Australian and Canadian Cratons are some global examples where junior explorers/miners are thriving and making discoveries supported by an enabling environment and investment from the Canadian and Australian markets.

It is important to note that the Council for Geoscience (CGS) has a rich history of generating and delineating targets based on regional mapping and geochemical soil data analysis spanning over 100 years. In this regard, the primary mandate of the CGS, as legislated by the Geoscience Act 100 of 1993, is to undertake both onshore and offshore geoscientific research. Moreover, through the Amendment of the principal Act, the mandate of the CGS has been extended to include promoting the search for, and the exploitation of, minerals in South Africa, as well as to undertake reconnaissance operations, prospecting and other related activities with a view to catalysing exploration activities in the country. Accordingly, the CGS has adopted a framework to provide prospecting research and related activities in the mineral sector to assist collaborators in respect of prospecting activities while, at the same time, creating income streams for the CGS to enable it to thrive as an organisation and to expand its activities.

The CGS has identified critical metallogenic areas marked as high-priority zones for key critical minerals such as copper, lithium, graphite, iron, manganese and rare earth elements (REEs). The organisation has deployed scientists in all nine provinces of South Africa. They are mapping and highlighting key occurrences within South African borders, including its offshore area, by undertaking detailed research coupled with drilling as part of the exploration programme.

The CGS exploration programme involves data acquisition using high-resolution ground mapping, geochemical sampling, hydrological mapping and



CGS team of scientists, drillers and technical assistants preparing themselves to start drilling a reverse circulation borehole in the Giyani Greenstone Belt.

geophysical surveys, including magnetics, magnetotellurics, induced polarisation and stratigraphic and mineral drilling. These methods have been tested in Limpopo–Giyani greenstone belt for gold exploration and in the Northern Cape province for copper, nickel and manganese exploration.

In the Giyani greenstone belt, these methods have been applied in conjunction with more than 300 historical boreholes distributed over the greenstone belt, resulting in the drilling of targets. Mineralised zones exhibiting a gold grade of >5g/t have been intersected at shallow depths of between 10 m and 20 m. CGS scientists have also delineated REE and phosphate targets in the Schiel Complex. In the Northern Cape province, a detailed pilot project undertaken as a joint venture with entrepreneurs is underway to test an area for manganese and iron ore in the vicinity of the Kalahari. This is proving to be a quick and focussed approach to de-risking virgin terrains and, consequently, increasing the confidence level and interest of investors in greenfield exploration of the pristine South African geological landscape.

The CGS will continue to test and de-risk additional targets, making the data available to the public as we continue to contribute and enable exploration in South Africa. The provision of 1:50 000-scale maps and historical data via our portal is improving the delineation of exploration targets and, in so doing, greatly assisting explorers. The use of the CGS data portal continues to enable and enhance agile exploration work.

Concerns regarding the cadastral system and government policies have been identified as contributing factors to the current stagnation of the exploration industry in South Africa. While one might argue that most of our problems in South Africa are self-inflicted, there are many African countries such as Burkina Faso, Mali and Niger who boast a flourishing exploration industry and who are frequently commissioning new mines. These achievements are attained despite unstable geopolitics and the absence of mining cadastres.



CGS technical assistant collecting a soil sample during a high-resolution soil sampling campaign in the Giyani Greenstone Belt.



Intersection of haematite ore during reverse circulation drilling in the Northern Cape Province.

As South Africans involved in the mineral exploration industry, the CGS firmly believes that it is possible for South Africa to achieve a 5% share of the global exploration expenditure. To accomplish this goal, we need to work together, both as State institutions and private entities. Above all, we must not

leave it up to either the government or the private sector alone to achieve the 5% target. Therefore, Government has initiated a process to ensure that our pristine geology is attractive to local and international investors alike. The CGS has a critical role to play in this regard.

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Council for Geoscience

WATER

Private Water?

South Africa seeks private water investment with new procurement office

BLOOMBERG

South Africa is setting up an office to facilitate private investment in the water industry in a bid to arrest its collapse and emulate the success of the nation's electricity procurement agency that's attracted more than \$10-billion of private money into renewable energy.

The Water Partnership Office (WPO) is being set up by the State-run Development Bank of Southern Africa, and initial funding for its establishment may come from the Green Climate Fund (GCF), a more than \$12-billion international financing facility.

"What the Independent Power Producers Office did for renewable energy," the WPO wants to do for water, **Catherine Koffman**, group executive for project preparation at the Johannesburg-based lender, said in an interview.

The new office is another sign that South Africa's government is trying to lure more private investment to arrest a decline in the quality of services of everything from energy and water to freight rail and ports. A national

water plan released in 2019 said R900-billion (\$47-billion) needs to be spent on water-supply and storage infrastructure by 2030.

The energy agency holds auctions for the provision of electricity by private companies for use in the national grid.

Executive Appointment

An offer has been made to an executive who will run the water office, Koffman said, without identifying the person. The GCF's board will meet this month and will consider approving the funding, she said.

The office's creation has been a result of work between the DBSA, the National Treasury and the Department of Water and Sanitation, she said.

The GCF, which is based in South Korea, didn't respond to an emailed request for comment.

The quality of South Africa's water provision has suffered as cities have grown and infrastructure has failed to keep pace. A cholera outbreak last month in Tshwane, the

municipal area that includes the national capital of Pretoria, highlighted the state of a wastewater treatment plant that supplies many of the city of about 3.6-million's poorest citizens.

In addition to the growth of its urban areas, the country is grappling with climate change. The nation is already one of the world's 30 driest: rainfall, while variable across its territory, averages less than 500 mm.

Companies have moved factories away from areas that can't supply adequate water. Astral Foods, the country's top poultry producer, sued government over its inability to provide adequate water supplies to one of its facilities.

"There is a big focus on municipalities," Koffman said. "It's an area that's clearly starting to suffer."

The WPO will initially focus on six priority areas, including limiting wastage, water reuse, wastewater treatment, water-management contracts, seawater desalination and sanitation without the use of sewers, according to Koffman.

South Africa's water industry has already attracted foreign interest. Spain will consider funding projects that benefit companies from the European nation as part of a \$2.5-billion investment programme, and the Netherlands has helped fund assessments of water quality in the country.

"The market needs a pipeline" of projects, Koffman said. We are making sure the "programme has the support it needs when it pulls the trigger," she said. ■

ENVIRONMENTAL PROTECTION & MANUFACTURING

SA's first paperboard bottled wine launched

A BOUTIQUE estate in the mountains of Sir Lowry's Pass Village in the Helderberg basin, in the Western Cape, called Journey's End Vineyards, together with new wine brand Interpunkt, has launched a pioneering range of wines in sustainable paperboard bottles.

The sustainable wine packaging is a first for South Africa and will soon be available in select Checkers, Checkers Hyper and Checkers LiquorShop stores.

The sauvignon blanc and shiraz wine range has a reduced impact on the environment, being 100% recyclable and five times lighter than a normal glass bottle.

Interpunkt has also endeavoured to make the two wines more engaging, accessible and inclusive by removing the specialist and potentially intimidating language that is often used on wine labels. Instead, the wines are simply described as "fresh and zesty" and "juicy and easy drinking" respectively.

Interpunkt founder **Andrew Ingham** believes consumers come first and should

be offered delicious and sustainable wines without the fuss.

"All too often wine brands are talking and selling to one group of consumers only – the 'wine engaged'. Yet, the biggest group of wine drinkers, about 68%, are new to wine, occasional wine drinkers or unengaged.

"By introducing wine drinkers to a new accessible brand in forward-thinking packaging, I believe we can show people that good wine is for everyone," he explains.

It is for this reason that Interpunkt chose to partner with Journey's End, which is not only known for its excellent wines and acclaimed winemakers, but also for its sustainable and ethical accreditations.

Journey's End has twice won the Ethical Company of the Year award, in 2020 and 2021, at The Drinks Business Green Awards, which is convened by the UK liquor trade magazine. ■

MARLENY ARNOLDI
SENIOR CONTRIBUTING EDITOR ONLINE



SUSTAINABLE PACKAGING

Journey's End and Interpunkt's new wine range is bottled in paperboard bottles

LABOUR

Worrying Dearth

Skills shortage an existential threat to the global mining industry

DARREN PARKER | CREAMER MEDIA CONTRIBUTING EDITOR ONLINE

A severe talent shortage is becoming a near existential challenge for mining companies globally, according to professional services firm PwC's 'Mine 2023: The era of reinvention' report.

In a presentation on the findings of the report on June 7, PwC Africa energy, utilities and resources partner **Vuyiswa Khutlang** said mining companies needed to attract more workers, particularly those with technological skills, to achieve their strategic objectives.

Unfortunately, many potential skilled workers do not see the industry as attractive.

She said the top 40 mining companies surveyed needed to rethink their workforce strategies to appeal to a wider group of employees.

According to the report, attracting the industry's next generation of talent requires a focus on the industry's "skills of the future", which are in artificial intelligence, robotics, automation and data analytics.

In a survey by the Mining Industry Human Resources Council of Canada, 70% of 15- to 30-year-olds said they would not consider a career in mining – the highest proportion of all industries.

PwC's Mine report showed that up to two-thirds of mining CEOs believed skill shortages would have either a large or a very large impact on profitability in the next ten years.

According to a study from the World Economic Forum, 73% of mining companies see local skills gaps as the biggest barrier to adopting new technology, which would not replace the need for humans in mining but would lead to the industry becoming more transparent, with improved

efficiencies, safety and carbon footprints.

For example, the number of autonomous haul trucks in operation globally grew by 39% in the year to May 2022, from 769 to 1 068.

"To meet the demand for these skill sets, leaders must look beyond the traditional mining talent pool and retrain existing workers," Khutlang noted.

With regard to targeting technology skills, the PwC report says that attracting the talent needed at tech-enabled mining sites will require several new approaches.

First, there will be a need to invest in education at both an on-site and community level to attract and retain talented employees who can be trained, reskilled or transferred.

Second, mining companies should collaborate more with governments, industry and peers on policy advocacy for issues such as the migration of skilled workers and support for remote mining communities to attract talent and fulfil workforce requirements.

Third, investment in communications is key to highlighting the industry's role in the energy transition and its use of technology to change the way miners work, which could help address the perception of mining as environmentally harmful, physically demanding, hazardous and remote.

"As it is, though, some workers lack confidence that even their current employers are training them in the use of technology," Khutlang said.

In PwC's Global Workforce Hopes and Fears Survey of 2022, 38% of workers at metals and mining companies said they were concerned about not getting sufficient training in digital and technology skills from their employer.

In addition to pushing technology skills development, the Mine report says it is important for the mining industry to drive diversity, equity and inclusion.

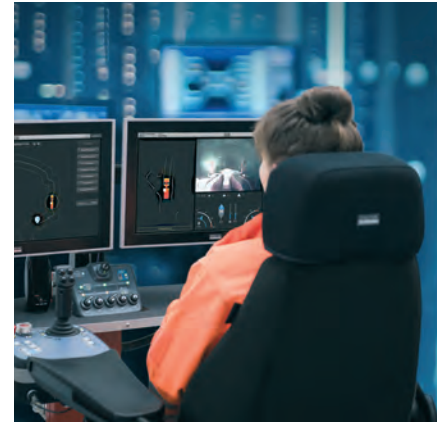
PwC says a diverse and inclusive culture is critical for attracting talent, as inclusive companies benefit from diversity of experience and diversity of thinking, which are two valuable qualities in an industry undergoing change.

In the mining industry, however, the survey found that diversity is still lacking across a wide range of workforce characteristics.

Khutlang said it was necessary for mining companies to understand the state of diversity, equity and inclusion in their businesses by gathering data and creating transparency with stakeholders.

"Embrace technology to remove barriers brought about by the remote location of many mine sites and allow a more accessible working environment," she said.

The PwC report recommends building a strategy that highlights diversity and inclusion as a prior-



TECH ANGST

A worker at a Sandvik Automine. According to PwC's Mine 2023 report, some workers lack confidence that their current employers are training them in the use of technology

ity and embeds it throughout the organisation.

Moreover, effort should be made to generate buy-in from leaders throughout the business to ensure that the tone at the top is aligned with the stated purpose, Khutlang said. ■■

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SPACE

LAUNCH PLATFORM

New space agency CEO outlines vision for stimulating local space industry

REBECCA CAMPBELL | CREAMER MEDIA SENIOR DEPUTY EDITOR

HARBINGER OF THE FUTURE?

A UKZN Phoenix-1B Mk IIr sounding rocket is launched at the Overberg Test Range

The South African National Space Agency's (SANSA's) recently appointed and third confirmed (as distinct from acting) CEO, **Humbulani Mudau**, is determined to use the solid "launch pad" created under the leadership of his predecessors and take the agency to new heights, both figuratively and literally. All the way into space, in fact.

Foundation

SANSA is organised into five divisions, which it normally calls "programmes", one of which is its head office, responsible for the "Administration programme". The operational programmes are Earth Observation, Space Engineering, Space Operations, and Space Science.

Earth Observation uses space to look at Earth. This programme gathers, processes, and both distributes and archives Earth observation data, supplied by satellites, and also uses this data to provide value-added services. Its services and products support socioeconomic development by assisting with environmental and resource management, health and disaster management, and align with both national and global Earth observation strategies. Its products and services are also used for research and development, scientific research, and human capital development.

Space Engineering is focused on the development, assembly and testing of satellite systems

and subsystems. Its ultimate aim is to support the development of a South African satellite manufacturing sector, which would also stimulate the development of advanced manufacturing in the country. Again, human capital development is an important part of its work.

Space Operations is currently located at Hartebeesthoek, west of Pretoria. Its function is to provide globally competitive, leading-edge, ground station facilities to support space launches from around the world, international (and, when relevant, national) satellite operations, including tracking, telemetry and control, in-orbit testing, mission control and space navigation. (South Africa has been providing such services since the 1950s.) It also carries out applied research, development and innovation and yet again develops human capital.

Space Science is concentrated at Hermanus, east-south-east of Cape Town, but oversees a network of instruments across South and Southern Africa, as well as on Marion and Gough islands and in Antarctica. It undertakes fundamental and applied research into space physics and geomagnetism. Its facilities include the only "24/7" space weather forecasting centre in Africa (see *Engineering News & Mining Weekly* December 16, 2022). And, of course, it also develops human capital.

Cross-cutting these programmes is SANSA's "Space Infrastructure Hub" project. This will be a combination of physical infrastructure

and Big Data-driven technologies. Phase 1 of the hub project has been approved and allocated funding, totalling about R1.2-billion over the next two financial years (FYs), by the National Treasury. Of this total, R800-million has been allocated for this FY, with the remaining some R400-million to be disbursed during the next (2024/25) FY. This funding is additional to the agency's normal funding grant from Parliament, of just over R163-million.

The focus of the Space Infrastructure Hub will be on the development of missions for future South African satellites (an essential prerequisite before a satellite can be designed), the development of satellite communications capabilities, and the development of local satellite navigation augmentation systems (which will increase the accuracy of global navigation satellite systems in South and Southern Africa). It will also support the further development of the Space Weather Centre, to guarantee uninterrupted 24/7 space weather services to the International Civil Aviation Organisation. Additionally, it will contribute to the further development of SANSA's new deep-space ground station, at Matijesfontein, in the Western Cape province.

"We've [also] just completed our first institutional review," reports Mudau. "A panel of external experts looked at SANSA and compiled a report, with findings and recommendations. This report said that our structure was still relevant, so any adjustments to it, in

the coming years, will be just tweaking it, not changing it. The institutional review was also very clear on two SANSA programmes which should be strengthened: Earth Observation and Space Engineering.”

Eye in the Sky

“I consider Earth Observation to be the core programme for SANSA,” he affirms. “It provides data essential to addressing a whole range of the critical challenges facing our country, and essential to helping us deal with extreme events, such as those linked to climate change, like the increasing frequency of severe floods in different parts of the country. So, it’s one of the areas that I will be focusing on, and building capacity.” In addition, to increase its own sources of revenues, SANSA plans to talk to major business sectors, such as mining and banking, to see what Earth observation services and products it could provide them with or develop for them.

Space Engineering is now focused on a national satellite development programme. This is, in fact, closely interrelated with the Earth Observation programme as the objective is to develop, launch and operate a South African Earth observation satellite (or satellites). The satellite can only be designed once Space Engineering’s specialists know what the user requirements are. SANSA Earth Observation is a key provider of such requirements, but not the only one; other government agencies, departments, universities and private-sector business associations also have requirements that have to be considered.

“The satellite development programme needs a very strong internal systems engineering capability, so we’re focusing on developing our capacity,” he explains. The plan is for SANSA Space Engineering to lead and oversee the satellite programme, by providing it with a systems engineering framework. But most of the actual manufacturing work, including the design and production of most (if not all) the satellite’s systems and subsystems, will be carried out by the country’s small but capable private-sector space industry and by local universities with space systems programmes, such as the Cape Peninsula University of Technology (CPUT) and the University of KwaZulu-Natal (UKZN).

A very important step in this satellite programme should take place this year: ownership of the country’s satellite assembly and test facility at Houwteq, south-east of Cape Town, should be transferred from the State-owned Denel defence industrial group to SANSA. This transfer has been agreed to, in principle, between the Department of Science and Innovation (DSI, which oversees SANSA) and the Department of Public Enterprises (which oversees Denel) and has the support of the Minister of Finance. The transfer should be

completed by the end of this calendar year.

“This transfer will be critical for the development of the satellite,” he states. “But it will also serve as a developer and accelerator for young researchers and startup companies.” SANSA plans to upgrade Houwteq once it takes control of the facility.

Prelude to Space

The reference to startups is not formulaic. Mudau’s intention is that SANSA, to the best of its ability, stimulates and supports the development of the South African private-sector space industry. That is the approach already adopted by many space agencies around the world, not least the US National Aeronautics and Space Administration (Nasa), with great success.

“We’re going to really look at what our mandate says,” he highlights. “That includes exploiting our space expertise: we can establish companies or institutes that can assist us in our work, or we can invest in such companies. For me, this is a powerful instrument that SANSA has been given in the [SANSA] Act. In the immediate future, we’ll be developing an investment strategy.”

Part of this investment strategy will be to bring private investors into what originated as SANSA programmes. “We’d start with government seed funding and then the private sector would come in, take over, and develop the project.”

One important area in which the private sector could make a decisive contribution is access to space. Or, to phrase it differently, the development of a national space launch capability. “More and more countries are developing their own space launch capabilities,” he stresses. These include Germany, Sweden, the UK and even New Zealand. In every case, these are private-sector initiatives facilitated by public-sector bodies. (In the case of New Zealand, the country hosts a commercial launch facility owned and operated by US Nasdaq-listed company Rocket Lab through its New Zealand subsidiary, which it used to launch its in-house developed Electron rocket, capable of carrying payloads of up to 300 kg into low Earth orbit.)

“Arniston (south-east of Cape Town) is very favourably located for polar orbital launches, and, with almost no air traffic in the area, has almost unlimited launch windows,” he points out. “We believe we can provide such launch services for Africa and for our Brics (Brazil, Russia, India, China and South Africa) partners. However, South Africa does not yet have the legal framework to facilitate the development of private-sector launch capabilities. We, SANSA, need to work closely with the Department of Trade, Industry and Competition, which is now developing a new space industry strategy and is looking at a new

Space Act, which would be very important in developing our local private-sector space industry. We’ll also need the necessary regulations to be developed.”

In the interim, SANSA aims to support UKZN in its programme to develop and test sounding (that is, suborbital) rockets. UKZN’s Aerospace Systems Research Institute, with support from the DSI, also has a project (designated SAFFIRE) to develop a liquid-fuelled rocket motor. To date, the UKZN team has successfully flown its Phoenix-1b Mk IIr sounding rocket, in March 2021, and its Phoenix-1D vehicle, in March this year, with a launch of its Phoenix-1C also planned for this year. The Phoenix series are powered by hybrid rocket motors and launched from Denel’s Overberg Test Range (OTR), situated next to Arniston. The Phoenix-1C will carry an experiment from SANSA as well as others from CPUT and a private company. None of the Phoenix rockets have yet reached space. To ensure it can provide continued support to UKZN’s endeavours, SANSA will also take over part of the OTR from Denel.

None of this should be taken to imply any neglect of SANSA’s world-renowned and respected Space Operations programme. This, too, has an exciting future with major developments already under way.

“Space Operations will be supporting deep-space missions,” he enthuses. “The DSI has signed a Letter of Intent to support Nasa’s upcoming lunar missions. SANSA will be part of the Artemis programme, which will return astronauts, including the first woman and person of colour, to the Moon. It’s very exciting for us.”

It is to support Artemis that the new ground station is being constructed at Matjiesfontein. However, SANSA hopes that, in due course, other new facilities will be established there and that Matjiesfontein will, in time, also serve as a backup for Hartebeesthoek.

Things to Come

Mudau also seeks to implant a transformational management culture at SANSA, which would include a culture of closer teamwork and cooperation within the organisation, as well as a tighter focus of meeting the needs of the agency’s customers and clients. This will help ensure that SANSA is a continuously high-performing agency, not only nationally but internationally, and will be the leading space agency in Africa.

“Being a transformational leader means building a team that engages in mentorship and promotes entrepreneurship within the organisation, to encourage innovation, to allow our brilliant engineers to innovate and be rewarded,” he explains. “We want to create a strong corporate culture and to make it an honour to work for SANSA.” ■

PGMS & CHROME

Growth Alliance

Jubilee Metals signs partnership agreement to expand its chrome footprint

DARREN PARKER | CREAMER MEDIA CONTRIBUTING EDITOR ONLINE

Diversified metals processing company Jubilee Metals has announced a significant new partnership agreement for its platinum group metal (PGM) and chrome operations in South Africa.

This partnership will expand the company's operational chrome footprint and enhance its processing capacity.

"This new partnership agreement presents a more integrated long-term relationship with an existing chrome producer that will offer a stronger integration of the processing solution with the source of the material, ensuring a long-term stable production profile.

"Under this new template agreement, Jubilee is offered much greater exposure to the earnings derived from the sale of chrome concentrate," Jubilee CEO **Leon Coetzer** says.

Through this agreement, Jubilee will augment its chrome processing capacity by an additional 360 000 t/y. This expansion aims to target an extra 200 000 t of chrome concentrate and 10 000 oz of PGMs feed to Inyoni.

The partnership also establishes a long-term relationship with a producing mining operation located on the western limb of the Bushveld Complex.

The terms of the agreement require Jubilee to upgrade its existing brownfield processing facility at the Inyoni mine. The upgrade will be accomplished through the retrofitting of Jubilee's process solution.

The goal is to achieve a processing capacity of 360 000 t/y of run-of-mine (RoM) by the end of June.

The accelerated upgrade of the plant has already begun, using the available processing infrastructure at Jubilee's current chrome operations.

Jubilee also has the option to expand the processing facility further, with the potential to reach capacity of 720 000 t/y, resulting in an expected production of 390 000 t/y of chrome concentrate.

Jubilee expects to invest \$8-million to complete the plant and says this will be funded



LEON COETZER

We aim to expand our South African operational footprint by 65% over the next 24 months

through the company's own cash flows and balance sheet.

The agreement will lead to an increase in Jubilee's potential earnings per tonne of chrome concentrate produced, offering a fivefold increase over existing toll treatment terms.

The company says this is a significant development, considering toll agreements currently yield a 4% margin at current prices.

The agreement aligns with the company's growth targets, Coetzer says.

"We aim to expand our South African operational footprint by 65% over the next 24 months to reach nearly two-million tonnes of chrome concentrate annually," he points out.

Jubilee believes its strategy to produce a diverse basket of commodities is further supported by the robust prices of chrome, which remain elevated, effectively balancing weaker PGM prices.

Additionally, Jubilee has been actively implementing emergency backup power at its operations, which will ensure 60% of its total chrome processing capacity is equipped with reliable power supply by the end of June. This power supply is crucial as it provides the necessary feed to the PGM operations, ensuring continuity and efficiency in production.

"At our Zambian copper operations, current expansion continues to progress and remains in line with guidance. I look forward to

providing further detail on the implementation of the Zambian copper strategy in due course as the results from the testing and design work are finalised," Coetzer noted.

Jubilee's chrome operations in South Africa play a key role in driving the performance and growth of the company's PGM operations. Chrome is recovered first from the chrome and PGMs-bearing ore before being processed further to recover the PGMs at the Inyoni facility.

To date, Jubilee has contracted its chrome operational capacity predominantly on a fixed chrome margin contract by tolling various chrome producers' materials while retaining the bulk of the earnings from the PGMs recovered.

Jubilee intends to position itself as a stronger participant in the revenues from the sale of the produced chrome concentrates. This will offer Jubilee greater exposure to the chrome market fundamentals, while retaining the protection of the increased processing efficiencies and the revenues of the PGMs recovered from the tailings of the chrome facilities.

The key term of the new agreement establishes a six-year initial partnership that may be

renewed for a further four years. Under the terms of the agreement, Jubilee is appointed as the exclusive process solution provider and committed to retrofit and operate an existing 360 000 t/y chrome processing facility, located adjacent to the chrome ore producer, while holding the option to expand the operation to a 720 000 t/y facility.

Jubilee plans to complete the expansion to 720 000 t/y within 12 months of starting operations at the retrofitted facility. The PGMs-rich tails produced will be processed at the expanded Inyoni facility.

Under the new agreement, Jubilee will process the RoM ore and produce chrome concentrate and a PGMs-rich tailings.

The earnings derived from the sale of the chrome concentrate and PGMs produced from the PGMs-rich tailings will be allocated based on the majority of the PGM earnings retained by Jubilee while participating in the chrome earnings at a more significant level.

Jubilee has recently completed the initial retrofitting of the 360 000 t/y facility to resemble Jubilee's existing operations and has started the commissioning of the facility.

The Jubilee projects team expects to reach the initial 360 000 t/y within 12 months, with the combined potential to add a further 390 000 t/y of chrome concentrate, thereby increasing Jubilee's total potential to 1.4-million tonnes a year. ■

RARE-EARTH MINERALS

Rare Progress

Rainbow starts operations at Phalaborwa magnet rare earths pilot plant

DARREN PARKER | CREAMER MEDIA CONTRIBUTING EDITOR ONLINE

London-listed Rainbow Rare Earths has announced that the front end of its pilot plant for the Phalaborwa project, in South Africa, has started operations and is on track to produce the first high-value mixed rare earth sulphate in the third quarter.

The company said this would confirm Phalaborwa's status as a near-term producer of magnet rare earths, capable of being commercialised on a standalone basis, thereby materially derisking the project.

"Work has continued apace on the Phalaborwa pilot plant and the production of the first mixed rare earth sulphate is expected shortly," Rainbow CEO **George Bennett** said on June 6, adding that the pilot plant back end, to produce separated magnet rare earth oxides, was also well advanced in terms of its construction, with commissioning scheduled to start in the third quarter.

The pilot plant is split into two phases. Phase 1 comprises a front end, where material from the historic gypsum stacks at the Phalaborwa site will be consolidated into a rare earth sulphate, containing economic quantities of the four most important rare earth elements used to make permanent magnets, being neodymium and praseodymium (NdPr), dysprosium and terbium.

The front-end process is situated at mineral processing and extractive metallurgy technology developer the Council for Mineral Technology (Mintek), in Johannesburg, where commissioning of the first stages is complete, in line with Rainbow's project development timetable and budget.

The front-end process incorporates the

front-end gypsum washing, acid leach, fluoride removal through continuous ion-exchange (CIX), rare earth precipitation and a sulphuric acid agitated baketo produce a high-value mixed rare earth sulphate.

This will subsequently be shipped to Rainbow's rare earth separation plant situated at K-Technologies (K-Tech), in the US, for separation into rare earth oxides.

The front end will produce its first mixed rare earth sulphate solids in the third quarter. Most rare earth mining projects produce a mixed rare earth mineral concentrate, a mixed rare earth sulphate, a mixed rare earth oxide or a mixed rare earth carbonate as their end product.

Rainbow believes this milestone will establish Phalaborwa as an economically viable producer of mixed rare earth sulphates on a standalone basis. The company has previously established that there is high demand in favourable jurisdictions for a mixed rare earth sulphate product ahead of the final beneficiation step that will be undertaken using the K-Tech process.

The mixed rare earth sulphate solids produced by the pilot plant front end at Mintek will be shipped to the US to undergo further downstream processing in the pilot plant back end, in order to deliver separated magnet rare earth oxides.

As part of Phase 2 – the back end of the pilot plant – K-Tech, in Florida, in the US, will water-leach the mixed rare earth sulphate into a pregnant leach solution, perform a cerium rejection step to minimise flows downstream – thereby further reducing operating costs and

capital expenditure – into the CIX circuit for loading onto the cation resin before stripping and going into the final continuous ion chromatography (CIC) step, which will produce the separated rare earth oxides using K-Tech's patented CIX/CIC technology.

The ability to produce separated rare earth oxides highlights Rainbow's unique position within the magnet rare earth supply chain, as it expects to be able to produce a separated rare earth oxide product at 99.95% purity that can be sold directly to permanent magnet manufacturers currently being developed in the US and other countries.

Rainbow is also exploring the option of permanently establishing its back-end rare earth oxide separation process in the US and has identified a potential site for a commercial scale plant.

"We are exploring the possibility of establishing this commercial final separation process permanently in the US, as we see it adding huge value to Rainbow.

"This would position the company as one of the first producers of separated rare earth oxides within the US, which is urgently trying to establish a domestic rare earths supply chain, given the importance of rare earths to decarbonisation, defence and other strategic products vital to the twenty-first century global economy," Bennett said. ■



WELL ADVANCED

Production of the first rare-earth sulphate at Rainbow Rare Earths' Phalaborwa site is expected to start shortly



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WATER

Unrelenting Decline

Reports highlight continuing deterioration in South Africa's water sector

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

The Department of Water and Sanitation (DWS) has published the Green, Blue and No Drop “Watch Reports”, precursors to the full and interim reports to be released later this year, revealing that there has been a decline in drinking water quality and an increase in nonrevenue water.

The Green Drop Watch Report indicates that 50% of those municipalities whose wastewater treatment systems were found to be in a critical state in the 2022 Green Drop report have failed to develop and implement plans to improve them.

Corrective action plans for only 168 of the 344 municipal wastewater systems that were found to be in a critical state by the 2022 Green Drop report have been submitted to the department, said DWS director-general **Dr Sean Phillips**.

Following the publication of the Green Drop Certification Programme report, in April 2022, the DWS issued noncompliance notices to 90 municipalities, requesting the municipalities to submit corrective action plans to address the shortcomings identified in the Green Drop report.

Phillips commented that this indicates that the performance of municipal wastewater systems have been declining since 2013, when the last Green Drop assessment report was published prior to the programmes resuscitation in 2021.

In 2013, a total of 248 – or 30% – of 824 municipal wastewater systems were determined to be in a critical condition. By 2022, the number had increased to 334, or 39%, of the 850 systems tested.

The Green Drop Watch report, which outlines what has been done to address the wastewater systems of the water services authorities that scored less than 30% in the 2022 Green Drop Report, shows that only 34 of the 168 plans submitted to the department were being implemented, with the balance being in the planning phase or with no progress having been reported.

Further, only 43 of the 90 municipalities requested support from the DWS to develop corrective action plans.

Consequently, the DWS issued directives to compel those municipalities which did not provide corrective action plans to submit



SEAN PHILLIPS

South Africa's municipal wastewater systems have been declining since 2013

them, and, in some cases, the DWS has opened criminal charges against some of the municipalities which have not submitted corrective action plans, Phillips pointed out.

The Blue Drop Watch report, which sampled 151 out of 1035 water treatment systems in the country, found that 3% of the sampled systems are in a critical infrastructural condition, 12% are in a poor infrastructural condition and 49% are in an average infrastructural condition.

Of the 151 systems sampled, 31% were in a good condition and 5% in an excellent condition.

Only 39% of the systems were rated as excellent in terms of microbiological water quality compliance, 11% good, 9% poor and 41% bad.

In the 2012 Blue Drop report, only 10% of municipalities had bad or poor microbiological water quality, as opposed to 50% in this sample.

In terms of chemical water quality compliance, 17% of systems were found to be

excellent, 13% good, 15% poor and 55% bad.

The DWS has issued directives to the municipalities identified in the Watch Report as having systems with poor or bad compliance, which require the municipalities to inform the consumers they supply.

The DWS has also issued directives to the 11 municipalities that did not report water quality data or provide evidence that they have been testing their water quality to issue advisory notices to their residents that their water might not be safe to drink if it has not been properly tested.

Meanwhile, the No Drop Watch Report, which assesses the status of water losses and nonrevenue water, found that, of the total volume of water treated for municipal use, estimated at 4.3-million cubic metres a year, nearly half, at two-million cubic metres a year, is estimated to be nonrevenue water.

This is a significant increase on the 35% reported in the 2015 No Drop report.

The high levels of physical losses in municipal distribution systems contribute to South Africa's high level of per capita water consumption, which Phillips indicated stood at about 216 litres per capita a day.

In addition to the compliance notices and directives issued and legal action taken, in some cases, against the municipalities, the DWS is supporting and intervening in many municipalities across the country to improve water and sanitation services.

According to Phillips, Water and Sanitation Minister **Senzo Mchunu** has agreed on improvement plans with various mayors, and the department is assisting the municipalities with grant funding to address infrastructure deficits.

Further, the department and water boards are also assisting the municipalities with technical expertise and management support.

The department is also in the process of strengthening its role as the regulator of water services, which includes developing more comprehensive and more stringent norms and standards for water services and standardising its regulatory processes so that they are more consistent with its regulatory actions.

The results of the 2023 Watch Reports indicate that legislative reforms may also be required to ensure that water service providers are professionally managed, capable, efficient and financially viable institutions, with the department in the process of consulting with water-sector stakeholders regarding such reforms.

The Interim Green Drop and full Blue Drop reports will be released in July, while the full No Drop report will be released in September. ■

WATER

Plea for Urgency

Body calls for immediate measures to arrest collapse of SA's water treatment facilities

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

The Scientific Advisory Group on Emergencies (SAGE) is recommending several urgent measures to prevent a widening collapse of South Africa's water treatment facilities amid a cholera outbreak.

While the source of the cholera outbreak, which is currently centred around Hammanskraal, in Tshwane, with cases also reported in the Free State and Mpumalanga, is yet to be determined, SAGE noted that it is likely that several factors contributed to the outbreak, including dysfunctional wastewater treatment facilities.

"SAGE concurs with Department of Water and Sanitation (DWS) officials that poor water quality in Hammanskraal is likely due to the failure of the Rooiwal wastewater treatment works to meet the desirable final effluent quality for discharge to the Apies river, which, in turn, flows into the Leeukraal dam, where the Temba water treatment works abstracts water for treatment and distribution," the group said in its Strategic Advisory on Wastewater Management in South Africa.

SAGE, which is housed within the Academy of Science of South Africa (ASSAf) and is steered by members of ASSAf and the South African Young Academy of Science, believes that the loss of lives to cholera in Hammanskraal was avoidable and is symptomatic of a widening collapse of water treatment facilities countrywide.

"Left unchecked, such an unfolding collapse could precipitate multiple concurrent health and environmental emergencies," it said in the statement issued earlier this month, which outlined a series of recommendations to mitigate the risk of any potential collapse of water treatment facilities in South Africa.

According to SAGE, the DWS should, leveraging its Water Partnership Office and collaborating with various partners, prioritise the urgent remediation of dysfunctional and failing wastewater treatment plants nationally.

In August 2022, the DWS, the Development Bank of Southern Africa and the South African Local Government Association (Salga) established the Water Partnership Office as a special-purpose vehicle to facilitate partnerships and manage joint accounts for specific funding for projects implemented through public-private collaboration in the water and sanitation sector.

The Strategic Advisory on Wastewater Management in South Africa notice also suggested that the DWS should engage water service providers (WSPs) and wastewater management officials on wastewater plant investment, infrastructure financing, technical competence and infrastructure security, besides others.

This should be done in collaboration with Salga, the Department of Cooperative Governance and Traditional Affairs, the Government Technical Advisory Centre, the Municipal Infrastructure Support Agent, the Water Partnership Office and the Water Regulatory Commission.

In line with this, SAGE endorsed proposed amendments to Section 62 of the Water Services Act to make it clearer which functions fall under a WSP and which functions fall under a water services authority (WSA), as well as proposals to introduce an operator's licence system for WSPs, which will focus on competence and performance levels based on gazetted minimum norms and standards for water and sanitation services and outcomes, including the provision of safe, adequate and reliable services to customers.

"Where relevant, the DWS should take over the water and sanitation function of dysfunctional WSPs, in terms of Section 139(7) of the Constitution, Section 63 of the Water Services Act (Act 108, of 1998), and Section 19 of the National Water Act (Act 36, of 1998)," SAGE commented.

The advisory group further endorsed the amendment to Section 63 of the Water Services Act to enable and empower the DWS to take over technical, revenue collection and other functions of a WSP that is consistently failing to provide the required water services even after receiving DWS directives to address weaknesses and noncompliance with gazetted norms and standards.

Further, SAGE endorsed DWS proposals to introduce standardised credit control and debt recovery measures across all water boards and water trading entities, as incorrect billing and failure to collect revenue contributes to rising debt levels to water boards and lead to systemic failures and dysfunction in wastewater facilities.

Another endorsement is improved norms

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TELECOMMUNICATIONS

New Luanda-Joburg fibre route established

PAN-AFRICAN technology group Liquid Intelligent Technologies' subsidiary Liquid Dataport and fixed network operator Angola Telecom have established a new terrestrial fibre route from Luanda, in Angola, through the Democratic Republic of Congo, Zimbabwe and Zambia, to Johannesburg, in South Africa.


The route, a significant addition to Liquid's existing 110 000 km network, also provides seamless high-speed connectivity, at affordable costs, within other countries in the Common Market for Eastern and Southern Africa, or Comesa, region.

"We have made significant investments in our telecommunications sector over the last 25 years, which includes terrestrial, submarine and even satellite connectivity. We understand the crucial role played by public-private partnerships, and that is why we have new laws in place that support and offer attractive incentives for international players like Liquid Dataport that help drive our national focus towards the information technology-driven modernisation of Angola," says Telecommunications, Information Technologies and Social Communication Minister **Mário Oliveira**.

While the route caters for the high demand from wholesale customers, Liquid Dataport partnered with Angola Telecom to provide enterprises and small and medium-sized enterprises with access to high-speed connectivity and even direct connectivity to data centres in Johannesburg.

"There is a conscious drive towards making the Internet more popular, as currently the Internet penetration in Angola is only five-million people," explains Angola Telecom CEO **Adilson Dos Santos**, noting that Angola Telecom and Liquid Dataport have been working towards a common goal over the past two years.

"Through our National Rural Telecommunication Plan, we want to ensure that connectivity is available to citizens in the remotest parts of the country.

"We are excited to see the fruits of this partnership lead to the increased contribution of the information and communications technology sector to national gross domestic product." 

NATASHA ODENDAAL
SENIOR DEPUTY EDITOR

DIGITALISATION

Trade Fillip

Digital platforms can significantly promote trade in Africa – YouTube executive

NATASHA ODENDAAL | CREAMER MEDIA SENIOR DEPUTY EDITOR

Digital platforms can play a significant role in promoting trade and commerce in Africa, says YouTube Europe, Middle East and Africa emerging markets MD **Alex Okosi**.

Digital trade can transform Africa's economy and improve trade relations with the rest of the world; however, there is a need to develop comprehensive digital strategies and expand access to the Internet and digital infrastructure.

Africa is forecast to surpass 500-million ecommerce users by 2025, and while ecommerce penetration is forecast to reach 40%, digital trade currently accounts for only

1.5% of Africa's total trade, compared with the global average of 15%, he said, citing data from the United Nations Conference on Trade and Development.

Further, speaking at the Africa Debate, held in London in May, he pointed to a significant digital divide within Africa, with only 43.1% of the population having access to the Internet, compared with the global average of 66.2%.

"This creates challenges as well as opportunities for businesses looking to engage in digital trade and for individuals seeking to benefit from the opportunities presented by the digital economy," Okosi continued, noting that, to address the challenges, take advantage

of the opportunities and promote digital trade in Africa, a comprehensive strategy is needed.


The strategy should include efforts to expand access to the Internet and digital infrastructure and initiatives to promote digital literacy and skills development, as well as promote inclusive and sustainable growth, while using the opportunities presented by the digital economy to drive economic development and improve the lives of people across the continent. Further, collaboration and innovation will be required to create an enabling regulatory environment that supports digital trade, including measures to protect consumer rights and data privacy.

"Collaboration among governments, businesses and financial institutions is crucial in creating an enabling environment for digital trade. This includes developing regulatory frameworks, financing solutions and digital infrastructure," Okosi added.

"This will help to build trust in digital transactions and ensure that businesses can operate effectively in the digital economy," he said, speaking alongside a panel of experts on the importance of building a comprehensive digital trade strategy for Africa.

The Africa Debate led to discussions around the future of African trade and how the private sector can best support and prepare for a more integrated and competitive African trade environment.

With a focus on the African Continental Free Trade Area's (AfCFTA's) ecommerce protocol, the various panellists discussed the challenges and opportunities of building a comprehensive digital trade strategy, including the need for infrastructure development, regulatory frameworks and digital skills training.

Other panellists included Global Policy House CEO and founder and AfCFTA digital trade expert **Michelle Chivunga**; 4G Capital CEO **Wayne Hennessy-Barrett**; Twiga Foods CEO **Peter Njonjo**; Bank of Africa United Kingdom head of trade finance and commodity trade finance **Toulay Oueslati**; and Liquid Dataport CEO **David Eurin**. 



DIGITAL TRADE

Collaboration among governments, businesses and financial institutions is crucial in creating an enabling environment for digital trade

• From page 23 and standards for the setting of tariffs by local authorities, with the proviso that proposed tariff increases be equitable to facilitate access to water by the poor and indigent.

In line with this, SAGE endorsed the Water Regulatory Commission's strategy to provide strategic regulatory expertise, best practice, insight, advice and guidance on water-sector pricing tools and methodologies and the legislative mandate to strengthen the credibility, transparency, accountability, competence and operational efficiency of the regulatory function in the water sector.

"The DWS should commit to enhancing governance and accountability in relation

to water management. Noncompliant WSP officials should be subject to consequence management, including disciplinary action, fines and, where applicable, criminal charges."

The DWS, working with the Department of Cooperative Governance and Traditional Affairs, should support public accountability on the part of WSPs through promoting public awareness and more stringent enforcement, in relation to responsible stewardship of water and wastewater management.

Meanwhile, the funding of research on innovative wastewater management practices and technologies should also be prioritised by the departments of Higher Education and Training and Science and Innovation, in collaboration

with statutory science funding bodies, including the Water Research Commission and the National Research Foundation,.

South Africa's National Development Plan advocates for the use of technologies that minimise the use of water resources, encourage recycling and reuse, as well as encourage the development, demonstration, and validation of appropriate alternative water efficient and off-grid sanitation solutions.

SAGE suggested that the DWS collaborates with, among others, the South African Sanitation Technology Enterprise Programme's water efficient toilet initiative to encourage the widespread adoption of low-flush and other water-saving toilets in South Africa. 

ARTIFICIAL INTELLIGENCE

Growing Optimism

Global survey shows 52% of companies are upbeat about AI, up from 35% in 2018

SCHALK BURGER | CREAMER MEDIA SENIOR DEPUTY EDITOR

A survey of 13 000 employees, managers and leaders in large companies in 13 countries about their perceptions of the benefits of, and concerns over, artificial intelligence (AI) has highlighted significant gaps between the expectations of the impact of AI on work and organisations and the level of adaptation to ensure its beneficial use.

The survey, undertaken by global consulting firm Boston Consulting Group's (BCG's) technology unit BCGX, has shown that there are strong correlations between the use of AI tools and positive perceptions and lower levels of concerns across all employee groupings.

However, there remained marked differences in the perception levels between frontline employees and leaders, with 62% of leaders optimistic about the impacts of the use of AI and only 42% of frontline employees optimistic about the impact of AI, said BCGX senior partner and AI global leader **Nicolas de Bellefonds**.

This had significant implications for organisations, as leaders tended to have a more optimistic view of AI than frontline workers. Organisations, therefore, must think carefully if they wanted to drive and scale AI use across their organisations, said BCGX partner and AI ethics chief director **Steve Mills**.

More companies reported using AI this year – at just below 50% of companies surveyed – than the 22% of companies that used AI during the 2018 BCGX survey, he added.

In terms of the overall survey results, there was a 17 percentage point increase in optimism to 52%, compared with the 35% of respondents who expressed optimism in 2018, and a ten percentage point decrease in the levels of concern expressed by respondents to 30%, down from 40% in the 2018 survey.

However, only 14% of employee respondents to the 2023 survey said they had received any training to prepare them to use AI and for changes in their workflows, and 86% of respondents believed they would need upskilling to address how AI would change their jobs, highlighted BCGX partner and talent and skills global leader **Vinciane Beauchene**.

“Further, 36% of respondents said they believe AI is likely to eliminate their jobs. This is a significant number and, when taken with the larger number of respondents who think their jobs will change as a result of AI,

explains why almost every respondent (86%), regardless of optimism level, said they will need upskilling to address how AI will change their jobs,” she said.

“The survey results show that employees realise that the AI revolution is taking place and that it will have a significant and qualitative impact, and that companies are not yet ready to undertake what is needed to adapt to the revolution,” she emphasised.

Further, the survey showed that 80% of leaders use AI tools regularly, compared with 20% of frontline employees, and that 44% of leaders said they had already gone through upskilling, compared with only 14% of frontline employees.

Facilitating the use of AI in organisations required that organisations ensured there were spaces for responsible experimentation, as the comfort levels with technology played a key role, said Mills. The more regularly employees used AI and generative AI, the more clearly they recognised its benefits, as well as its limitations and risks, he pointed out.

Companies must also invest in regular upskilling because training is essential and must be done continuously.

“Given how swiftly technology evolves, organisations cannot treat upskilling as a one-off effort. They must invest in training to help employees adapt to the ways AI will change their jobs,” he emphasised.

However, the training and upskilling required would be a stretch for most companies, and organisations must become better at anticipating the evolution of jobs and the skills that their employees had, as well as produce upskilling content more rapidly, said Beauchene.

This organisational change must extend beyond only human resources functions and must be tackled by managers and leaders to ensure upskilling was progressively embedded within employees' workflows, she added.

Responsible AI

Another recommendation from the BCGX survey is that companies must prioritise building a responsible AI programme. The responsible use of AI is paramount and employees want to be assured that their organisations are approaching AI and generative AI ethically.

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ZINC

Vedanta to anchor Northern Cape special economic zone

THE CABINET-approved Namakwa Special Economic Zone (SEZ) in the Northern Cape, which is currently undergoing public comment, will be anchored by Indian zinc mining and processing company Vedanta Zinc International.

“We're extremely excited to partner with the South African government and to be part of the Presidential investment drive,” Vedanta Zinc International executive director and CFO **Pushpender Singla** stated in a release to *Engineering News & Mining Weekly*.

“The SEZ will further enable our business-with-purpose model to unlock new community projects that will lead to better education, health, skills development programmes, infrastructural development, SMME opportunities and development, and job creation in the Khâi-Ma municipal area, Namakwa District, Northern Cape and South Africa at large,” Singla added.

President **Cyril Ramaphosa** in February 2019 inaugurated the Gamsberg openpit and concentrator and the 1 000-employee-plus company is now committed to its next phase of growth with the approval and announcement of R7-billion into a Gamsberg second phase expansion project in March 2022, ground-breaking for which was led by Northern Cape Premier Dr **Zamani Saul** in August last year.

The SEZ is expected to attract various investment commitments, of which R16-billion will be from Vedanta in its Gamsberg zinc mine and proposed Gamsberg zinc smelter, subject to the infrastructure development and incentives framework by the South African government.

The establishment of the Namakwa SEZ in Vedanta's mine complex is expected to stimulate the emergence of the region's secondary industries, downstream beneficiation, and economic development, within the Khâi-Ma municipal area, Namakwa district and the Northern Cape province as a whole.

Vedanta Zinc International's South African Mountain Complex takes in Black Mountain Mining's underground Deeps and Swartberg, plus the surface Gamsberg operation, and its Namibian assets include Skorpion Zinc opencast mine and refining operations. ■

MARTIN CREAMER
PUBLISHING EDITOR

DIAMONDS

Jack of All Trades

Junior miner CEO is typically ‘chief cook and bottle washer’, diamond junior confirms

MARTIN CREAMER | CREAMER MEDIA PUBLISHING EDITOR

Outgoing Minerals Council South Africa CEO **Roger Baxter** told the Junior Indaba’s opening day that the CEO of a junior mining company is typically a chief cook and bottle washer – and Botswana Diamonds MD **James Campbell** was quick to confirm that.

“I’ve been chief cook and bottle washer for the past 20 years, almost, and I’m now running my fourth junior,” said Campbell.

“I’m typically the only diamond geezer here and what is quite sad is that, according to my records, Botswana Diamonds is the only active listed diamond junior in the subcontinent, in the region, and we hope that, over the passage of time, this will improve,” added Campbell in acknowledging Indaba chairperson **Bernard Swanepoel** and Indaba organiser **Paula Munsie**, the CEO of Resources4Africa, for continuing to spotlight junior mining in South Africa.

On juniors typically wanting to discover something and then be bought out by a mining major, Campbell gave the discover-and-sell strategy the thumbs down. “I think that’s the wrong mindset,” said Campbell during his presentation covered by *Engineering News & Mining Weekly*.

“You’ve got to discover something with the mindset of mining it and delivering capital gains by being a diamond producer. We focus on geology, and without good geology you can’t do anything,” he added.

In South Africa, Botswana Diamonds is focused on production at Marsfontein and Thorny River, in Limpopo province, and in Botswana it is dual-listed with the London Stock Exchange.

In Zimbabwe, it has three joint ventures,

but sadly diamond companies cannot operate there unless linked with one of four companies there and joint ventures are not encouraged.

“But it’s highly prospective from a geological perspective, so we’d like to be there one day, and I’d certainly like to build a diamond mine in Zimbabwe before I hang up my geological boots,” Campbell commented.

Botswana Diamonds plc is funded by investors out of the UK and Ireland who typically have a high-risk mindset.

It has no offices and during Covid, it got by with £384 000 for the year, which included auditing compliance, legal fees and field work.

“We’re very, very miserly with our money, because it is our money,” said Campbell, who reports that very little diamond exploration is taking place.

The older mines are getting deeper and more costly, which means that diamond prices will rise amid demand for diamonds continuing to rise.

“Of course, we have black swan events, like the global financial crisis, Covid and the war in Ukraine, but these tend to be transitory and we carry on with the longer-term trend,” he outlined.

Displaying a slide showing pictures of production at Marsfontein and Thorny River, Campbell applauded South Africa’s Department of Mineral Resources and Energy.

“There’s very little comparable legislation for a mining permit in other jurisdictions which allow juniors, such as ourselves and others, to get by with the minimal amount of bureaucracy and into production.

“In fact, we were in production on this property within three months of actually

• From page 25

Further, leaders wanted to be in a position to help frame emerging AI regulations, Mills said.

The survey showed that only 29% of frontline employees believed their companies had implemented adequate measures to ensure responsible use of AI, while 68% of leaders felt the same, noted Beauchene.

This result was a call to action for companies to see where the gap between these perceptions originated and then to mitigate it at a company-wide level, she said.

“Further, 79% of all respondents believe

that AI-specific regulations are necessary. This figure is independent of the level of optimism expressed, indicating that responsible AI is a prerequisite for most respondents,” Beauchene said.

Meanwhile, when driving the use of AI as part of the strategic imperatives of organisations, companies should focus on driving the cultural change by encouraging the responsible experimentation and use of AI among employees, including frontline employees, said Mills.

Therefore, each company must set out the



JAMES CAMPBELL

You’ve got to discover something with the mindset of mining it

setting up,” he said, showing an image of his hand holding diamonds.

Share Price Is Everything

Campbell emphasised that the share price of junior resource companies “is everything”, with market capitalisation meaning very little – “size is nothing”.

The company arranged a deal with a royalty miner where it does the technical and compliance work and the royalty miner provides all the capital and the operating cost.

This has minimal financial impact on shareholders, with the cash being generated for Botswana Diamonds.

“It’s not saying that we’re going to do every project like that, but when you’re mining dumps and alluvial deposits, where the resource risk is high, it makes sense to do it this way,” Campbell explained. ■

To watch a video of diamond junior James Campbell’s indaba presentation covered by *Engineering News & Mining Weekly*’s Martin Creamer, scan the barcode or visit www.miningweekly.com.



rules for how its employees can use AI responsibly and must then ensure that there are senior executives who are responsible for the company’s AI programme and are accountable for it.

This team must be appropriately funded and resourced to take action and to develop the AI “guard rails” within which the company will use AI. However, an agile review process could be highly beneficial so that the teams experimenting with AI could reach out and get guidance in the event that they ran into ethical or responsible AI use challenges. ■

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PROPERTY DEVELOPMENT

Filling the Gap

New development to add 1 320 middle-class dwellings to Stellenbosch's housing stock

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR

The 48 ha Newinbosch mixed-use development will add 1320 middle-class dwellings to housing stock in Stellenbosch, in the Western Cape, over the next four to six years.

Newinbosch is being developed as a greenfield project on the former Cloetesdal wine farm, across the road from the Welgevonden estate.

Property developer Similan is responsible for the project, 3 km from the town centre, along with development partner Raubex Building, which is also the main contractor.

Similan development manager **Pieter du Toit** says Newinbosch will fill a much-needed housing gap in Stellenbosch, with a high percentage of the university town's middle-class work force currently commuting to

Stellenbosch, owing to a lack of more affordable residential opportunities.

The 660 apartments and 660 houses and simplexes will be constructed at the rate of roughly 200 units a year, depending on market demand.

The current target is for the first people to move in at the end of the year.

The development will not only feature housing, but also an array of amenities, including a 7 500 m² shopping centre, a local eatery, a dog park, an urban farm, a church, an amphitheatre, a swimming pool, a skatepark, a gym, a multipurpose sports court, boules courts, cricket nets, a dam, a creche, a primary school, a high school, fibre, and cycling and running routes.

Raubex Building CEO **Barend Badenhorst** says the multibillion-



PIETER DU TOIT

Newinbosch will fill a much-needed housing gap in Stellenbosch

rand project forms part of a diversification programme for his company, as it continues to expand its footprint to the south of the country.

The construction company has, for example, completed 2 400 student rooms at the University of the Western Cape, and is busy building 171 apartments in Kuils River – the latter also in partnership with Similan, with iGrow responsible for sales.

About 40 units in Newinbosch's first phase have already been sold (off plan).

The starting price for an apartment will be just under R800 000

(to be released in the third quarter), simplexes will sell from below R900 000 and house prices range from R1.8-million to just over R4-million.

The units on offer include apartments; simplexes; townhouses; courtyard units situated in private cul-de-sacs with parks, built to accommodate families with children and with the option of an additional granny flat, as well as freestanding houses.

The simplex is an interesting new housing unit at Newinbosch. Similan opted to add these units, says Du Toit, in an effort to ensure the development remains affordable for its target market.

A simplex unit, priced from R870 000, can be purchased with the minimal finishes, with the owner then able to add to these finishes as their income grows.

However, to ensure these two-bedroom, one-bathroom units do not become too expensive too quickly, the growth in the selling price will be fixed at yearly consumer or building inflation, for a period of eight years.

These units will be reserved for first-time homeowners for a limited period after going to market.

Newinbosch also has a clear target to be as environment-friendly as possible. ■

ENERGY

Third parties to start selling electricity using Cape Town grid

CAPE TOWN mayor **Geordin Hill-Lewis** has announced that 15 commercial electricity suppliers will start wheeling electricity through Cape Town's grid in July.

The city's Mayoral Committee has greenlit the project that will allow third parties to sell electricity using Cape Town's grid infrastructure, as part of a long-term project to reduce the impact of Eskom loadshedding.

The pilot project should culminate in the full-scale implementation of wheeling in the Western Cape capital by the end of the year.

"Wheeling allows people to buy electricity from each other using existing grid infrastructure," says Hill-Lewis.

"The future is now as Cape Town gears up for the first electron to be wheeled between our pilot project participants this July.

"This is the business end of our pilot,

following the development of the billing engine and the completion of wheeling agreements," he notes.

Cape Town last year invited applications to participate in the wheeling pilot, with 15 participants – representing 25 generators and 40 customers – now confirmed and about to start wheeling.

"The city is getting on top of the complexity of wheeling, which requires new skills, regulatory and policy changes, billing development and bilateral agreements," says Energy MMC **Beverley van Reenen**.

"Our programme will allow electricity to be wheeled over both the municipal and Eskom distribution networks in Cape Town.

"Sales will be governed by bilateral power purchase agreements within a market environment, as opposed to a regulated environment, as the price of the energy is

set between the parties and not by the city, Eskom or the National Energy Regulator of South Africa."

Cape Town also already has the enabling legislative framework in place for wheeling, with the city's electricity supply by-law allowing for the retail wheeling of electricity through the network.

Wheeling will take place at 11 kV and higher voltages.

The 15 wheeling pilot participants that submitted valid applications to generate and sell power are Amazon Data Service South Africa; Brinmar Private Energy Trading South Africa; Distributed Power Africa; Energy Exchange of Southern Africa; Energy Partners Utilities; EnerJ Carbon Management; Enpower Trading; Floating Solar; Make a Difference Ventures; NEURA Trading; Phofu Solar Plant; POWERX Proprietary; Redefine Properties; Solar Africa Energy; and Swish Property Seven. ■

IRMA VENTER
SENIOR DEPUTY EDITOR

Ivanhoe pursuing sustainability, socioeconomic initiatives as it strives to transform industry

Mining is an essential business, and it is the collective responsibility of all stakeholders to change the industry to be modern and responsible, so that it can continue to sustain lifestyles and livelihoods, while also engendering positive change in its areas of operation, Ivanhoe Mines president **Marna Cloete** tells *Mining Weekly*.

“I often say, everything you see in a room is either mined or farmed, yet the latter does not have as bad a reputation as the former, which I think can be attributed to what people associated mining with in the past.

“However, modern mining companies, by contrast, should be responsible entities that make a considerable, positive impact on the areas where they operate; create real change in people’s lives; and [contribute to providing] access to services like education [in their host communities],” she emphasises.

In this vein, Cloete avers that Ivanhoe is striving to be an “industry leader” in pursuing these goals, highlighting that the company is setting the trends for creating partnerships with local stakeholders and communities, and devising innovative solutions to solve collective problems in areas where it operates.

She points out that Ivanhoe has identified several of the United Nations Sustainable Development Goals (SDGs) as key to the company and has undertaken initiatives that are aligned to achieving those goals.

These are SDG 1 No Poverty; SDG 3 Good Health and Wellbeing; SDG 4 Quality Education, SDG 5 Gender Equality; SDG 6 Water and Sanitation; SDG 12 Responsible Consumption and Production; SDG 13 Climate Action; and SDG 15 Life on Land.

From a supply point of view, and aligned with SDG 13 and SDG 12, Ivanhoe produces the resources that will assist in transitioning the world to a low-carbon, renewable future.

The company is focused on developing and expanding its four principal mining and exploration projects in Southern Africa.

This entails the expansion of the Kamoakamo copper mining complex in the Democratic Republic of Congo (DRC); progressing the Platreef discovery in South Africa to production by third quarter 2024; the extensive redevelopment and upgrading of the historic Kipushi mine in the DRC, also scheduled for first production by third quarter 2024; and exploration at the Western Foreland Exploration Project, next door to Kamoakamo.

With regard to SDG 5, Cloete states that one of the company’s goals is to attract more women to the industry and change the perception of it as solely a hard-labour environment, aiming to make

it a more inclusive and captivating industry, for both employees and entrepreneurs.

SOCIAL CONTRACT

Cloete emphasises that: “If you’re operating in Africa, you need to have a big social agenda.”

Cloete notes that Ivanhoe has very successfully implemented a model for this at Kamoakamo, where it is actively partnering with its communities on a number of fronts.

This was undertaken from the onset, when Ivanhoe was still in the exploration phase, whereby the company started small livelihood businesses in its communities.

Initially, this provided access to basic food security for community members, and now, as the company scales this up, it entails assisting in providing the opportunity for business opportunities, with Ivanhoe Mines purchasing fresh produce for its 12 000 plus workers at the mine, Cloete says.

She explains that Ivanhoe began by training community members in commercial farming and then assisted some members to start their own businesses, and built these to the necessary capacity required to supply the mine with produce.

This has already proven so successful for some businesses, that they are also selling to different markets.

This is aligned to SDG 1, she notes, and further, to SDG 3, as it provides community members with access to a variety of food and protein sources.

For SDG 4, Ivanhoe has several initiatives in its footprint areas that revolve around education, Cloete says, with the company having built several schools.

Expanding the reach of our educational initiatives, we recently constructed and launched two early childhood development centers near our Kamoakamo Copper Complex.

Moreover, Ivanhoe Mines is currently building the ‘Kamoakamo Centre of Excellence’, a tertiary learning facility offering degrees and diplomas in collaboration with internationally accredited institutions that will provide access to quality education for youth in its mining area.

In South Africa, Cloete highlights, the company’s black economic empowerment transaction, at Platreef mine, is also a “trendsetter”, having been completed before the Mining Charter was revised to necessitate higher ownership targets.

This entailed establishing a community trust whereby communities adjacent to the mine owned about 20% of the mine, and the company also gave shares to entrepreneurs that owned small businesses around the mine and were registered on its database.

“If our interests are aligned, this will ensure that



Ivanhoe Mines president Marna Cloete

the mine operates successfully. Further, this will also allow the wealth to be spread to our footprint area,” Cloete enthuses.

ENVIRONMENTAL STEWARDSHIP

Concerning SDG 13, Cloete says Ivanhoe operates using hydropower in the DRC.

She explains that, when the company was first securing infrastructure in the country, it realised that while water was abundant, energy supply was problematic.

It, therefore, embarked on a mission to identify all hydro projects in the DRC that needed refurbishment to add additional megawatts to the grid.

It is now undertaking this refurbishment through public-private partnerships. This ongoing work has already added 78 MW to the grid, Cloete informs.

Ivanhoe is in the midst of adding another 178 MW via its partnership on the Inga II hydro-power facility.

Through this, Ivanhoe ensures power supply to its mine, and further, adjacent communities benefit from additional power from the grid. Moreover, the company receives a reduction in its power rates, she highlights.

South Africa, meanwhile, also has well-documented energy supply challenges; however, a “breakthrough” has arrived in the form of legislation allowing for self-generation of electricity.

As such, Ivanhoe is in the process of pursuing solar energy options for its Platreef mine, Cloete informs.

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MICROMOBILITY

Electric Delivery

Green Riders to add more e-bikes, e-motorbikes to delivery fleet

IRMA VENTER | CREAMER MEDIA SENIOR DEPUTY EDITOR

E-mobility solutions group Green Riders will expand its fleet of electric delivery bicycles from the current 200 units to 500 by the end of July, says founder and CIO **Craig Atkinson**.

This means that the Cape Town-based electric mobility company will also need to train an additional 300 South African youths to become professional delivery riders within the Green Riders ecosystem.

This comes as the 15-month-old company has clinched fleet partnership deals with a number of aggregators, such as Mr D (Takealot), Bolt Food, UberEATS, Pick n Pay, and online fashion platform Bash.

Within the Green Riders ecosystem, riders are trained on how to operate an e-bike, as well as a number of other modules, such as rules of the road, customer etiquette and the use of a smartphone, with the latter three-month course offered by nonprofit organisation Harambee Youth Accelerator.

Atkinson says riders within the group have the opportunity to own their delivery e-bikes, through a two-year rent-to-own scheme.

The cost of an e-bike is about R40 000.

About 10% of the Green Riders fleet is female.

Riders keep their e-bikes at home. The two-battery e-bike can be charged at home, at a Green Riders charging facility, or at designated partner charging stations and delivery pick-up points.

“The vision I have with Green Riders is not only to focus on zero-emission deliveries, but to also provide jobs to the South African youth,” says Atkinson.

“Of the roughly 50 000 delivery workers in South Africa, only 5% are South Africans, this while there is an incredibly high unemployment rate among the country’s youth.”

Green Riders’ e-bikes are assembled in Cape Town, largely from imported parts.

Atkinson says the company will soon move to larger premises, and is in talks with the Industrial Development Corporation and the Atlantis Special Economic Zone for space once the company reaches larger volumes.

“We want to establish a local battery ecosystem, plus cell assembly. This also means fast-charging technology, rather than swap-out technology.”



RENT-TO-OWN


Riders have the opportunity to own their e-bikes through a rent-to-own scheme

The current range is about 60 km per battery, which translates to 120 km on the dual-battery system currently employed.

Charging a single battery (1 kW) takes between three and four hours, at a cost of approximately R2 per charge.

“By the end of the year, we want to have fast-charging in place,” says Atkinson.

In five years’ time, Atkinson and his investors hope to have scaled up the company to have 50 000 e-bikes and e-motorbikes on South African roads, all assembled locally (semi-knockdown assembly).

The e-motorbikes will come from Kenya, with the homologation of the first unit set for this year already. 

CONSTRUCTION

Construction starts on Atlantis SEZ for green technologies

CONSTRUCTION on Zone 1 of the Atlantis Special Economic Zone (SEZ) for green technologies in the Western Cape has started.

The first tenant in the 22 ha Zone 1 will be industrial and specialist gas supplier Iconic Gases, with work on the company’s factory set to start in November, says Atlantis SEZ CEO **Matt Cullinan**.

Construction of Zone 1 is financed by the Department of Trade, Industry and Competition (DTIC).

Zones 2 and 3 will be about 30 ha each in size.

The SEZ is located in the well-established industrial area of Atlantis, towards the west of Cape Town.

Infrastructure and services at the SEZ will include land and factories (to be leased to tenants); 24-hour security; a gatehouse with solar power; ablution facilities using harvested rainwater; perimeter fencing; CCTV cameras; solar-powered street lamps; and indigenous landscaped gardens.

Cullinan says the Atlantis SEZ cannot offer any tax benefits as national government only assigned these benefits to the initial SEZs that were announced.

He adds that the focus of the Atlantis SEZ will be on becoming “the place where Africa’s green technologies can grow”.

The majority shareholder in the SEZ is the Western Cape provincial government.

Western Cape Finance and Economic Opportunities provincial Minister **Mireille Wenger** says the SEZ will play an important part in the province’s new Growth for Jobs plan, and that it will do so as a “green tech export manufacturing hub”.


The Growth for Jobs plan aims to grow the Western Cape economy by between

4% and 6% by 2035, and to stimulate growth to achieve a R1-trillion provincial gross domestic product target over the next 12 years.

The strategy names limited energy supply as the number one constraint to economic growth and job creation in the province.

Wenger says the Western Cape has a strong focus on green energy as it rolls out plans to become independent of Eskom “as quickly as possible”.

“We have allocated R1.1-billion over the next three years to reduce the effects of loadshedding, to boost our economy and to set up a strong pipeline of green energy projects, to scale up support to municipalities to help them get more power on to the grid, and to identify critical transmission infrastructure upgrades.

“Our Growth for Jobs strategy aims to reduce our reliance on Eskom by between 1 800 MW and 5 700 MW by 2035.” 

IRMA VENTER
SENIOR DEPUTY EDITOR



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Cut-N-Weld imports a broad range of high-quality welding and cutting products. These products are distributed throughout sub-Saharan Africa from our warehouses and an intensive distributor network.

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Alcohol Breathalysers (Pty) Ltd

Alcohol Breathalysers supplies the iBlow10 no-contact breathalyser, a high speed no-contact alcohol breathalyser screener for testing drivers at road blocks and workers entering industrial sites and mines.

The iBlow10 provides up to 12 tests per minute without the use of mouth pieces and offers active and passive testing for when drivers or workers have difficulty exhaling. The iBlow10 can also be used with paper straws for no-contact breath testing.

The breathalyser also comes with replaceable and washable blow caps.

The unit is manufactured with a built-in magnet, which can be attached to most metal surfaces including poles, beams and security gates for no-touch self-breath testing.

iBlow10's bright LED lighting can be used in various ways at night and displays in white/red blinking, red light or red and blue light, making it ideal for traffic law-enforcement officers to direct traffic at road blocks to perform safer sobriety testing.

Alcohol Breathalysers has over 18 years of experience in providing breathalysers and device calibration services to mining, private individuals, law-enforcement and regulated industries.

The company offers the widest range of alcohol testers available in Africa, including professional, industry, law enforcement, business and personal models.

Alcohol Breathalysers save money, time and lives!



#SoberDriving is #SafeDriving





iBlow10 Technical Specification

Sensor type	SuraCell Sensor (Fuel Cell Sensor)
Battery	6 x AA Size alkaline batteries (included) OR 6 x re-chargeable batteries (Non-Manganese)
Weight	385 grams including batteries (excluding carry case / carton)
Dimensions	275mm X 50mm X 50mm (excluding carry case / carton)
LED Alert	Zero: Green / Low: Red / Hi: Blinking Red 0.00/LO/HI or numerical result
Test Result Display	(Display "HI in numerical result mode means higher than 0.48 Mg/L BrAC) Zero: 1 Beep sound
Buzzer Alarm	Low: Repeating short beep sound High: Long Beep
Warming up time	2 to 10 seconds depending on temperature
Analysis time	Within 2 seconds at 0.00 Mg/L BrAC
Tests per minute	12 Times / 1 Minute
Operation temperature	-5°C ~ 55°C
Storage temperature	- 10 °C ~ 60 °C
Mouthpiece	Blow cap (Replaceable & washable passive cone type)
Auto power off	Adjustable 30 to 900 seconds.
Display time	Adjustable 1 to 9 seconds
Calibration interval	Default - Every 65,000 tests or 12 months whichever comes first
Additional functions/features	Built - in Magnet Reminder for calibration & grace period Calibration protection Manual LED lighting: White, Red blinking, Red, Red & blue Stores up to 5000 tests in memory which can be downloaded



To learn more, please visit
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ELECTRICALLY SPEAKING

King Tut

This year is the 101st since the discovery of **Tutankhamun**. For those of you who don't know, Tutankhamun was an Egyptian pharaoh who ruled over Egypt for a very short period of about ten years. He was buried in Egypt and, essentially, his body was forgotten.

It happens that, at the end of the last century, British archaeologist **Howard Carter** was obsessed with finding his body. Carter was initially unsuccessful, but persisted and, finally, after a seven-year search, discovered Tutankhamun's tomb. This was fairly remarkable since there had been the discovery of 67 locations which contained Egyptian mummies, but which were all looted and were empty. Tutankhamun's burial chamber's entrance was covered by mounds of debris, causing it to be overlooked. The tomb, which consisted of four chambers, was not very large, but contained a lot of treasure in the form of gold, diamonds and various other precious metals and stones.

What was notable was that six people died relatively shortly after the excavations, thus raising the question of an ancient curse. Even more notable was that the discovery took place 3 000 years after Tutankhamun had been entombed. To anybody's line of thinking, this was remarkable. What was even more remarkable was the quality of the goods found in the chamber.

Let's pause for a minute and consider what we are saying in summary. The Egyptians were far ahead of their time in their methods of embalming and had discovered ways of metalworking to produce intricate jewellery and vessels. In contrast, modern medicine only really started coming into its own with the invention of the microscope in the 1500s and the stethoscope as recently as the 1800s;

even at the time, they were not very effective.

One could say that we are not progressing as rapidly or as well as the ancient Egyptians, but our society may be far more advanced than we think. These days it's not easy to know what the latest discoveries and inventions are or who made them, as so much of the leading knowledge is kept secret – for economic or security reasons. It's almost impossible to believe we have reached the limit of our advancement. If this is the case, who is making sure these limits are kept, and if so, why?

We know, for example, that commercial supersonic flight was successfully developed and widely used by a certain sector of the population, and yet ultimately came to an end due to financial and engineering obstacles. Another area where we seem to be going, if not backwards, at least sideways, is transport. We all know that electric cars have been developed, but the fact is they're still just cars. It would be far more effective to transport groups of people by an efficient train system. Maybe such a system exists, but how would we know if all these industrial secrets are being kept?

I'm not saying that everyone should be making the details of their discoveries and inventions available in the public domain, but perhaps if there was a way for people to work together and share information, we could advance more quickly. These days most information seems to be privately owned by large companies that cling to their patents and intellectual property.



Terry Mackenzie-Hoy

We saw a glimmer of what is possible when people combine research during the recent pandemic, where doctors freely shared information to try to come up with a solution as quickly as possible that would be of benefit to all – or so it seemed. It didn't take long for the pharmaceuticals companies to go their own ways and race to develop a vaccination, as it was obvious that whoever was first to market would make a killing, literally. As is often the case, the love of money overrides caution, and the safety of the process is still in question.

Returning to Tutankhamun – the discovery of his body helps to remind us that the ancient Egyptians still have something to offer us. Tutankhamun's remains and possessions still hold many secrets and will keep archaeologists busy for many more years uncovering his background and the times in which he lived. Future generations may one day uncover one of our time capsules. Do you think they will be as enthralled?

● Mackenzie-Hoy is a consulting acoustics and electrical engineer – machoy@iafrica.com

imported goods must be treated in the same way as national goods – they generally don't favour imported goods.

With recession being a major topic of discussion currently and with many wondering whether the world will go into a recession, there has been an interesting development in the US, namely the introduction on June 7 of a Bill which aims to “identify emissions intensity of domestically produced goods” as part of efforts to combat carbon emissions.

The Climate Leadership Council issued a statement on the so-called PROVE IT Act: “The bipartisan introduction of the PROVE IT Act is an important step towards better understanding, and ultimately leveraging, America's carbon advantage. This Bill represents the

TRADE@WORK

PROVE IT

There is an age-old rhyming Russian proverb, “*doveray, no proveryay*”, which became hugely popular in English in the 1980s as “*trust but verify*”. This was after **Suzanne Massie**, a scholar of Russian history, had taught it to the then US President, **Ronald Reagan**, who used it on several occasions in nuclear discussions with the Soviet Union.

When it comes to international trade, particularly how free it is and the advantages that can be derived from open markets, there is the small issue of trust. Take, for instance, ‘free’ market access, which is dependent on the country of origin, and for which a certificate of origin (COO) is required as proof. Access

is never quite free; it is preferential at best.

COOs are considered nontariff barriers, since the rate of duty, levy or tax is irrelevant, as the mere origin of the good could restrict its access to a ‘free’ market.

Although countries profess commitment to the ‘national treatment principle’ – whereby

AFRICA BEAT

Enduring hope

Following the sluggish 1990s, the early years of this millennium witnessed spectacular growth in sub-Saharan Africa, giving rise to the Africa Rising narrative – the notion that it was inevitable that the region and the continent at large were poised to continue on this trajectory. Sadly, much retrogression took place from 2010 to 2019.

Exhibit Number One of the retreat is the downshifting of the continent’s gross domestic product (GDP) to a yearly average of 3.3% during that ten-year period from the previous decade’s 5.1%, according to a new study by the McKinsey Global Institute, released a fortnight ago. The deceleration was due to factors from waning demand for commodities to deteriorating economic fundamentals in Africa’s major economies.

Had the GDP growth of 5.1% notched up from 2000 to 2010 continued to 2019, the tally would have been \$3-trillion instead of \$2.6-trillion, with much of the difference explained by pedestrian growth in the Big Three economies of Nigeria, South Africa and Egypt. A big chunk – about 30% – of this difference is attributable to slowing growth in Nigeria, which tumbled from a yearly rate of 11% from 2000 to 2010 to a measly 3% from 2010 to 2019 as trade, which is responsible for a third of the country’s services-related GDP, fell in lockstep with consumer spending on goods.

Egypt made the second-largest contribution to Africa’s economic deceleration during the second decade of the current millennium, with its slowing oil and gas production shaving 11% off growth, while South Africa consistently grew at a low pace.

Africa’s average yearly GDP expansion of only 3.3% between 2010 and 2019 compares with India’s and China’s growth rates of 6.4% and 7.2% respectively.

Other tell-tale signs of Africa’s regression between 2010 and 2019 are a decline in foreign direct investment in 31 of its 54 countries – with the steepest contractions in Nigeria and South Africa – and the ballooning of the external debt burden by 24 percentage points decade-on-decade to 57%. Moreover, debt-servicing costs doubled, while current account balances halved, making it harder for African governments to invest in growth. In 2022, the continent’s debt-to-GDP ratio stood at 67%, a further deterioration triggered by increased government expenditure during the Covid-19 pandemic, weak management of public finances and high inflation.

All these factors conspired to depress productivity growth from 2.2% between 2000 and 2010 to 0.8% between 2010 and 2019.

These bleak statistics, however, obscure the successes of some of the continent’s countries that can serve as models to establish productivity as the foundation of the continent’s economic growth instead of the volatile commodities that have historically played this role.

Indeed, the McKinsey Global Institute contends, African countries could add a collective \$1.4-trillion to their economies – almost double the value added by services today – by matching the productivity growth of Asian countries, while rekindling industrialisation and increasing intercontinental trade would be crucial complements.

Yet another potential boon is the expected



Martin Zhuwakinyu

move of 500-million Africans from the countryside to cities by 2040, which would increase the need for better infrastructure and more productive jobs for these migrants. Similar investment in smaller secondary cities could take the pressure off the larger cities, thus spreading the rising productivity and incomes more broadly.

The McKinsey Global Institute is also optimistic that more than half of Africa’s 345 companies with a yearly revenue of more than \$1-billion could increase their collective yearly earnings of \$1-trillion by more than \$550-billion by 2030 by accessing new markets and increasing productivity, thus yielding dividends such as increased income tax for governments.

Africa’s lacklustre economic performance between 2010 and 2019 may have been a major setback to the Africa Rising narrative, but it was by no means a death knell.

● Dr Zhuwakinyu, who holds a PhD in communication (media studies) from the University of South Africa, is Creamer Media senior deputy editor – martinz@engineeringnews.co.za

most comprehensive effort by the US government to clearly estimate the carbon efficiency of dozens of industries across the world’s major economies. The Council welcomes it.”

PROVE IT, the acronym of the Bill, which was introduced by two US Senators, is derived from Providing Reliable, Objective, Verifiable Emissions Intensity and Transparency. According to the Senate’s media release: “This bipartisan legislation would direct the Department of Energy to conduct a comprehensive study comparing the emissions intensity of certain goods produced in the US to the emissions of those same goods produced in other countries. Comprehensive data on product emissions intensity is an important step to addressing climate through trade policy and

levelling the playing field for domestic producers and manufacturers who are forced to compete against rivals with little to no standards.

“The US lives up to the highest environmental standards in the world, and the PROVE IT Act is an opportunity to bolster our advantage by backing it up with verifiable data. Americans know and appreciate the stewardship that goes into the energy we produce and the goods we manufacture. Quantifying global data will prove our emissions-intensive goods are cleaner here at home while highlighting the countries who monetise their lax or non-existent standards.

“The bipartisan PROVE IT Act will provide reliable data that’s needed to quantify the climate benefits of the US’s investments

in cleaner, more efficient manufacturing practices and to hold nations like [China] accountable for their emissions-heavy production of goods like steel. It will level the playing field and ensure our workers and producers are not unjustly penalised for their high environmental standards.”

So, what does this mean for South African exporters? And we all know that what the US does the European Union follows.



Riaan de Lange

● This economic and trade-focused column is prepared by Riaan de Lange – riaan@tariffandtrade.co.za. The views expressed in this column are the author’s personal views

MIDVAAL LOCAL MUNICIPALITY has launched an R11-million road construction project to allow Sicelo residents easier access to economic opportunities. The project will upgrade the east side of Station road and Diens avenue from gravel to tar road, along with constructing a sidewalk with parklets and the installation of a traffic circle. The upgraded road infrastructure will significantly contribute to the ease of movement of goods, fostering more efficient transportation and trade between Sicelo Township and the town's central business district. The sod-turning was attended by Midvaal executive mayor Peter Teixeira (left) and MMC Engineering Services Reginald Hubbard (right)



A RECENT COLLABORATIVE EFFORT between the University of Pretoria's Faculty of Veterinary Science and the Cheetah Conservation Fund (CCF) of Somaliland in East Africa has most likely saved the life of Janet, a cheetah in a sanctuary just outside Hargeisa, the capital of Somaliland. CCF Somaliland head veterinarian Dr Anahi Hidalgo (left), executive director and CCF founder Dr Laurie Marker (middle), and CCF veterinary technician Morgane Alvino (right) are pictured drawing blood and shaving Janet prior to surgery



IMPALA RUSTENBURG ANNOUNCED its ongoing commitment to Tapologo by supporting the Tapologo home-based care training programme for another year. Impala Rustenburg will cover the costs of 30 bursaries for 30 new students (pictured), including essential items such as home-based care medical kits, uniforms, travel and other expenses. This commitment follows last year's successful partnership, which saw Impala invest in the Tapologo Training Institute upgrade as well as fund bursaries for students to participate in the NQF Level 3 qualification in home-based care. As a result of the 2022 bursary initiative, 28 students completed the course and will be writing the Quality Council for Trades and Occupations examinations later this year

PUSH PAUSE II

My driving instructor told me to pull over somewhere safe. After 10 minutes he asked me why I hadn't pulled over. I said we are still in Johannesburg.

ON THE MOVE



Helen Cai

Vanadium producer Largo last month announced the appointment of **Helen Cai** as an independent director. Cai is a finance and investment professional with two decades of experience in capital markets. She is currently an independent director of Barrick Gold Corporation and most recently worked at China International Capital Corporation.



Conrad Schutte

Wine industry body Vinpro has announced **Conrad Schutte** as the new CEO, effective as of June 1. Schutte has been employed at Vinpro, which represents close to 2 600 South African wine producers, cellars and stakeholders in the wine industry, for the past 13 years. He had been managing Vinpro's consultation service department since 2019.



THE COMBINED EFFORTS of processing solutions provider Multotec and nonprofit Education is Our Future will have a profound and lasting impact on the educational journey of the learners at Kgalatlowe High School, located outside Rustenburg, in the North West province. In collaboration with the nonprofit, Multotec donated books for the library, cabinets, and a monetary contribution towards establishing a much-needed science laboratory

AFRICA IN FOCUS

Promise of democracy eludes many in Nigeria . . . but things are moving again

As I sat down to write a column on Nigeria on June 12, I had a flashback to ‘The June 12’ – the name Nigerians gave to the country’s failed first post-Cold War attempt to restore democratic rule. The then head of State, General **Ibrahim Babangida**, had promised to step down from power after elections in June 1993, which were won by **Moshood Kashimawo Olawale (MKO) Abiola** in what was widely regarded as free and fair elections.

Babangida annulled the election results, sparking widespread unrest, and set up a ruling council under respected diplomat **Ernest Shonekan**. Inertia and policy drift lasted until November, when Babangida’s close ally, General **Sani Abacha**, emerged as coup leader. As part of his Presidential campaign, MKO had bought the magazine of which I was West Africa editor at the time, the *Africa Economic Digest*, and which MKO’s subsequent arrest and imprisonment consigned to publishing history. June 12 became a focal point of opposition to military rule.

Abacha’s corrupt (millions of dollars were later traced to UK and Swiss banks) and brutal (he infamously executed author and environmentalist campaigner **Saro Wiwa**) misrule came to an end with his death in 1998 – allowing for fresh democratic elections under a new Constitution. With all the portent of Greek tragedy, Abiola died on the day of his release from prison – etching a conspiracy theory in the minds of many older Nigerians that he was murdered to prevent him taking up the Presidency. As if to acknowledge this hurt, and the date’s importance, one of now former President **Muhammadu Buhari**’s first acts in office was to declare June 12 as Democracy Day.

The inauguration of **Bola Tinubu**, replacing former Major-General Buhari, on time and in accordance with Nigeria’s Constitution on May 29, ends the era of military leaders of the generation that dominated the 1970s, 1980s and early 1990s. Abacha showed Nigeria its nadir, and the psychological distance with its military past has lengthened after yet another political change following an election in accordance with the Constitution – despite the fact that poverty, Covid and logistics reduced voter turnout to roughly 27% of the 93-million registered voters in Nigeria’s population of 200-million.

Tinubu’s inauguration marks the end of the inertia and policy drift that characterised two terms of Buhari’s rule. Inertia, policy drift and a low oil price are the key ingredients of political risk leading to popular unrest and chaos – which in the past have given the military

an excuse to step in. Tinubu appears to have hit the ground running: he used his inauguration speech to announce that he would end the \$7-billion-a-year oil price subsidy. The \$7-billion saved will be spent on infrastructure. Despite being Africa’s second-largest oil producer, Nigeria imports all its domestic use. Fuel subsidies are seen as one of the few benefits the Nigerian State gives to Nigerians.

The announcement caused an immediate shortage of fuel as people’s immediate fear is scarcity. However, it came days after Dangote Refinery – the long-awaited refinery built by billionaire **Aliko Dangote** – was commissioned in the presence of five regional heads of State from oil-producing countries. At the opening, Dangote claimed that Dangote Refinery will have the capacity to process a third of Nigeria’s output of 1.5-million barrels per day, to meet all its local refined fuel needs, as well as exporting to the region. With Dangote’s refined fuels only expected to hit the local market sometime in July, there are concerns that short-term stockpiling will impact on political risk and inflation.

Tinubu’s second move was to suspend Central Bank of Nigeria (CBN) governor **Godwin Emefiele**. This may presage a reform of the exchange rate system to resolve a chronic shortage of foreign exchange – an apparently intractable problem. Foreign portfolio investors, airlines and manufacturers can’t get sufficient foreign exchange to pay dividends, let alone import goods and services. In the run-up to the February elections, ratings agencies downgraded Nigeria, citing congestion caused by exchange controls as one of the reasons. Although the International Monetary Fund strongly encourages liberalisation of the exchange rate, full liberalisation may prove to be too much too fast – likely to involve a dramatic drop in the currency from its current 465 naira to the US dollar to 700 naira – but some form of move to a unified rate is likely.

Almost as soon as Tinubu announced Emefiele’s suspension, local media reported that the Department of State Services had



Tara O'Connor

arrested Emefiele for his role in a \$1-billion transaction allegedly linked to Dangote. CBN sources told local media that Emefiele used a \$750-million loan from the African Export Import Bank to transfer \$750-million to Dangote at a rate well below current bank and parallel market rates. There is no love lost between Tinubu and Emefiele; Emefiele caused Tinubu’s campaign a headache on more than one occasion, first choosing to and then failing to properly introduce new bank notes into Nigeria’s largely cash economy during elections and, secondly, announcing his own potential candidacy without resigning from his fixed-term post.

Dangote was reportedly among the few to back Emefiele’s Presidential candidacy. Tinubu in his election manifesto committed to the independence of the CBN and so a prolonged suspension of the governor – possibly for the remainder of his term – would suit his agenda. As for naming and shaming Dangote so soon into his Presidency, at least one observer sees this as the new President bringing the country’s only self-made billionaire to heel – particularly as Dangote is now likely to establish a petroleum products monopoly in Nigeria.

As one analyst noted, Nigeria is in “a hell of a mess, economically and on the security front”. He would not say if Tinubu was the man to resolve the mess, saying only: “At least it is not **Atiku Abubakar** (Tinubu’s rival for the Presidency).” Either way, in a few politically astute moves, Tinubu has given the impression things will change; that he will save \$7-billion a year on oil import contracts, and – with Dangote Refinery – the balance of payments will improve through domestic production and businesses’ foreign exchange problems will soon be resolved. After two terms of watching political paint dry, things are moving, and fast.

● O’Connor is MD of pan-African consulting firm Africa Risk Consulting. She is a University of Cape Town graduate and has spent 25 years assessing Africa’s political and business environment – Tara@africariskconsulting.com

McPhillamys gold project



Name of the Project

McPhillamys gold project.

Location

Kings Plains, about 8 km from Blayney, in New South Wales, Australia.

Project Owner/s

Regis Resources, through its subsidiary LFB Resources.

Project Description

The proposed project will build an open-cut gold mine and associated 90 km water-supply pipeline through the Blayney, Bathurst and Lithgow local government areas to provide supplementary water for the mine from the Springvale coal facility near Lithgow.

The mine will extract up to 60.8-million tonnes of ore and produce up to two-million ounces of gold over 11 years.

Potential Job Creation

The project will create about 480 jobs during the initial 12- to 18-month construction period for the mine site, and another 260 jobs once the mine is operating. Construction of the proposed water pipeline will provide another 120 jobs.

Net Present Value/Internal Rate of Return

Not stated.

Capital Expenditure

Not stated.

Planned Start/End Date

Not stated.

Latest Developments

The project was approved by the New South Wales Independent Planning Commission in March 2023, subject to a range of consent conditions.

Regis will now incorporate the approval conditions into the definitive feasibility study and complete the funding strategy for the project. Further developments are expected to be announced in late 2023.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

Regis Resources, tel +61 8 9442 2200 or email enquiries@regisresources.com.

Rangebank battery energy storage system



Name of the Project

Rangebank battery energy storage system (BESS).

Location

Rangebank Business Park in Cranbourne, Victoria, Australia.

Project Owner/s

The project is a joint venture between Macquarie Asset Management's Green Investment Group (GIG) and Shell Energy Operations.

Project Description

The project entails the development of a utility-scale BESS.

The proposed 200 MW/400 MWh BESS will have the capacity to power the equivalent of 80 000 homes across Victoria for an hour during peak periods.

Through an offtake agreement, Shell Energy will have access to 100% of the battery's offtake over a 20-year period.

Potential Job Creation

Not stated.

Capital Expenditure

Not stated.

Planned Start/End Date

The project reached financial close in March 2023 and is expected to be complete in late 2024.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

GIG, tel +61 3 9635 8000.

Whim Creek copper/lead project



Name of the Project

Whim Creek copper/lead project.

Location

Pilbara, Western Australia.

Project Owner/s

Anax Metals (80%) and Develop Global (20%).

Project Description

A definitive feasibility study (DFS) has demonstrated Whim Creek as a technically and economically sound polymetallic project and strategic processing hub development in the Pilbara.

The project has ore reserves of 4.55-million tonnes at 1.36% copper, 2.30% zinc and 0.68% lead, supporting average concentrate production of about 55 000 t/y (containing copper, zinc, lead) over the eight-year life of the project from open-pit resources at Mons Cupri and Whim Creek, and underground resources that are open at depth at Evelyn and Salt Creek.

The DFS incorporates open-pit and underground mining, and the development of a processing hub at the existing infrastructure site.

Contractor mining will be used for both mines.

Existing site infrastructure will be used to develop an expandable processing hub capable of treating sulphide, transitional and oxide ore types.

The processing infrastructure will include a state-of-the-art, two-stage ore-sorting and gravity separation plant, followed by a modular flotation plant configured for complex polymetallic ores. Existing heap-leach infrastructure will be used for ore storage and bioleaching. Importantly, tailings will be stored in mined-out pits.

Potential Job Creation

None stated.

Net Present Value/Internal Rate of Return

The project has an estimated pretax net present value, at a 7% discount rate, of \$224-million and an internal rate of return of 54%, based on forecast metal prices, exchange rates, capital and operating costs, with a payback of 21 months.

Capital Expenditure

Preproduction capital expenditure is estimated at \$71-million.

Latest Developments

Project approvals and permitting activities continue to be a focus and are at an advanced stage, with final approvals expected in the second half 2023.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

Anax Metals, tel +61 8 6143 1840 or email info@anaxmetals.com.au.

La Demajagua gold/silver/antimony mine



Name of the Project

La Demajagua gold/silver/antimony mine.

Location

Isle of Youth, south-west Cuba.

Project Owner/s

The project is a joint venture between the Cuban government's mining company, GeoMinera, and Antilles Gold.

Project Description

The mine is planned to be developed in two stages, with the open-pit operating for nine years, to be followed by underground mining.

The production target for ore and waste is based on mining 100% of the indicated resource of 5.32-million tonnes grading 2.87 g/t gold and 32.10 g/t silver, and 100% of the inferred resource of 2.1-million tonnes grading 2.01 g/t gold and 17.14 g/t silver. The project will produce about 56 136 oz/y of gold, 606 898 oz/y of silver and 2 758 t/y of antimony over the life-of-mine.

Potential Job Creation

Not stated.

Net Present Value/Internal Rate of Return

The project has a net present value, at an 8% discount rate, of \$195.6-million and an internal rate of return of 27.9%, with a payback of 12 months.

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Capital Expenditure

The project will cost \$86-million to develop.

Planned Start/End Date

The first shipment of concentrate is expected in the first quarter of 2025.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

Antilles Gold, tel +61 2 4861 1740 or email admin@antillesgold.net.

Kita incineration plant rebuild



Name of the Project

Kita incineration plant rebuild.

Location

Kita City, in Tokyo, Japan.

Project Owner/s

Clean Authority of Tokyo.

Project Description

The Kita municipal solid waste incineration plant, with a disposal capacity of 600 t/d, has been in operation since 1998 and has become superannuated.

The project involves the rebuild of the plant.

The new plant will comprise two stoker incinerators, each with a disposal capacity of 300 t/d, and a power generation equipment.

The plant will also incorporate high-efficiency power generation using heat energy produced during the incineration process, and provide excess heat for nearby city facilities.

The V-type stokers to be installed have an optimised stoker structure and incinerator shape, with the surface of the stoker directed at the centre of the flame during drying, combustion and post-combustion.

The main benefits of this design are the efficient use of radiant heat, as the waste is combusted, helping to stably burn and reduce the volume of waste, which varies in terms of characteristics and conditions; and the reduced proportion of unburned combustibles in the post-combustion ash (unburned waste), contributing to a lower environmental load.

Potential Job Creation

Not stated.

Capital Expenditure

The contract, including the dismantling and removal of the existing structure and construction of the new facility, is valued at about ¥55.2-billion.

Planned Start/End Date

Completion and handover of the new facility is scheduled for February 2030.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

Mitsubishi Heavy Industries Environmental & Chemical Engineering (rebuild of incineration plant rebuild).

Contact Details for Project Information

Clean Authority of Tokyo, tel +81 3 6238 0613.

OCP Group solar power project



Name of the Project

OCP Group solar power project.

Location

The solar plants will be built in the mining towns of Benguerir and Khouribga, home to Morocco's biggest phosphate reserves.

Project Owner/s

OCP Group, the world's biggest phosphate-based fertiliser producer, through its wholly owned subsidiary OCP Green Energy.

Project Description

The project is part of OCP's \$13-billion Green Investment Programme, which aims to increase OCP's green fertiliser production and transition its operations to green energy by 2030. The project also aims to enable OCP to replace its electricity consumption with green energy, eliminating about 285 000 t/y of carbon dioxide equivalent. The project entails the construction of four solar plants to power OCP's Morocco operations to reduce the company's carbon footprint and help green its fertiliser production. The plants will have a combined capacity of 202 MWp and will supply clean energy directly to OCP's operations.

Potential Job Creation

Not stated.

Capital Expenditure

The International Finance Corporation will provide OCP with a green loan of €100-million to build the solar plants.

Planned Start/End Date

Not stated.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

OCP Group international media relations, email international.media@ocpgroup.ma.

Kakono hydropower plant



Name of the Project

Kakono hydropower plant.

Location

Kagera region, northern Tanzania.

Project Owner/s

Tanzania Electric Supply Company (Tanesco).

Project Description

The project involves the construction of a 87.8 MW plant, which will reduce greenhouse-gas emissions by 216 065 t/y.

Associated infrastructure will also be built, including the upgrading of the existing Kyaka substation and a new 39 km 220 kV transmission line, as well as capacity-building support for Tanesco.

The hydropower project is expected to comply with the best international environmental and social standards, and increase the service coverage rate by about 7% of the population.

Potential Job Creation

Not stated.

Capital Expenditure

The Tanzania government, the African Development Bank and the French Development Agency signed agreements for two development project loans worth \$300-million in April 2023. The project has also received a grant of €36-million from the European Union.

Planned Start/End Date

Not stated.

Latest Developments

None stated.

Key Contracts, Suppliers and Consultants

None stated.

Contact Details for Project Information

Tanesco, tel +255 748 550 000 or email customer.service@tanesco.co.tz.

COMING UP

- Aqora is investigating the possibility of opening a vertically integrated gigafactory in South Africa's Eastern Cape, that can produce anodes, cathodes and lithium-ion batteries for the automotive industry, as well as batteries for stationary storage applications

- X-energy Reactor Company and Kinectrics plan to design, build and operate one of the first commercial-scale helium test facilities in North America. It will test the performance of critical structures of X-energy's Xe-100 modular reactor in helium-based, high-temperature and -pressure environments

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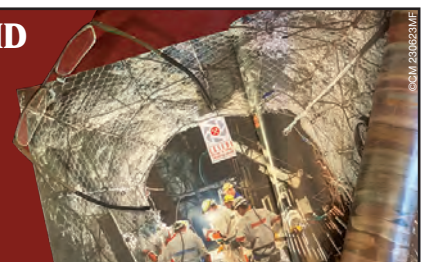
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Sustainable timber building materials key to greener buildings

SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER



NATURAL BEAUTY

Timber's natural beauty can add warmth and character to any building

By adhering to the accreditation of nonprofit organisation the Forest Stewardship Council (FSC), local forestry companies are promoting sustainable forestry management and, subsequently, sustainable timber building materials, which integrated forestry company York Timbers wood structural engineering chairperson **Schalk Grobbelaar** says is a “key component of green building”.

Grobbelaar is also a lecturer at the University of Pretoria in the Department of Engineering and Technology Management, which is a part of the university's Graduate School of Technology Management.

He notes that Forestry South Africa (FSA)

says that about 80% of the country's plantations are FSC-certified.

The FSA represents 11 corporate forestry companies, about 100 commercial timber farmers and about 20 000 small-scale growers in the country which collectively own or control

no less than 93% of the country's total plantation area of 1.2-million hectares.

It supports the industry in common and precompetitive areas such as research and protection against pests and disease, environmental issues, education and training, as well as legislation.

FSC accreditation is the most widely used forest certification scheme globally and ensures that forests are managed in a sustainable way, considering environmental, social and economic factors.

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The GSTM offers internationally recognised postgraduate programmes for practising engineers and scientists at honours, masters and doctoral level. The degree programmes address specific industry needs. A strong focus on research in the project management, engineering management, energy systems analysis as well as in the technology and innovation groups, ensures local and international relevance.

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CALMING EFFECT

The natural appearance of timber interiors has a calming effect



NATURAL INSULATOR

Timber is a natural insulator of heat, which can reduce the amount of energy required to heat or cool buildings

- From page 40

This active management of the local forestry sector means that much of the timber used in South Africa can be considered sustainable – a key factor when considering timber for green building applications.

Sustainable timber has many environmental benefits: 1 kg of wood can hold between 1.65 kg and 1.80 kg of carbon dioxide (CO₂), and can, in many cases, be recycled or used as renewable energy after the end of its life span.

Unlike concrete and steel, which comprise non-renewable materials, timber can be replanted and harvested in a sustainable way. Timber is a low-carbon building material, as it can store CO₂, which helps to reduce greenhouse-gas emissions.

“It is also a natural insulator of heat, which can reduce the amount of energy required to heat or cool buildings,” Grobbelaar notes, adding that its natural beauty can “add warmth and character to any building”.

Some studies, such as that conducted in

2006 by the Japan Wood Research Society’s **Yuko Tsunetsugu, Yoshifumi Miyazaki** and **Hiroshi Sato**, have also indicated that the natural appearance of timber interiors has a “calming impact on occupants and assists with stress reduction” or improves occupants’ focus and concentration when asked to perform a task in a room featuring exposed wood surfaces.

Further, Grobbelaar says the green building industry can encourage the use of timber from FSC-certified forests and promote the concept of chain of custody certificates to ensure the sustainability of timber sourcing.


This is further encouraged and promoted through the Green Star rating system, which considers the use of sustainable timber in its scoring.

However, Grobbelaar stresses that there is still room for improvement, as there is a need to create more awareness of the impact of embodied carbon on the Green Star rating. Embodied carbon is the CO₂ emitted

during the construction and operation of a building.

“By using sustainable timber, we can reduce the embodied carbon of a building, which will improve its Green Star rating,” he comments, adding that there are several ways of promoting the use of sustainable timber in South Africa.

For example: creating awareness of the benefits of sustainable timber can be increased through education and marketing campaigns. Another way is to make it easier for builders and architects to specify sustainable timber, which Grobbelaar says can be done by working with suppliers to ensure that sustainable timber is readily available.

“By taking these steps, we can help to make South Africa a leader in sustainable forestry management. We can also help to reduce the environmental impact of our buildings and create a more sustainable future for all,” he states. 

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Renewables drive sustainable development

SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER

Comprehensive energy audits and advanced lithium-ion batteries have enabled renewable-energy company Blockpower to ensure a stable and high-quality power supply for The Emerald development, in Gauteng's Hyde Park, while significantly reducing carbon emissions and promoting environment-conscious development.

The company specialises in designing and installing hybrid renewable-energy plants.

"Blockpower will always perform an energy audit first, prior to the start of any design. After assessment, we design and install a solution which aims to replace conventional methods of backup power with high quality, long lasting, zero carbon emissions solutions," says Blockpower MD **Kyle Bohnsack**, who adds that investing in such a system can provide energy security and a hedge against utility and diesel rates.

He adds that all the installations are done according to best practice regarding environmentally sound installations and that every project "carefully tracks carbon dioxide (CO₂) emissions to ensure clients reach their goals along with environment, social and corporate governance (ESG) requirements".

According to Bohnsack, the configuration effectively eradicated the necessity for traditional generators, resulting in a marked reduction in greenhouse-gas emissions.

Faced with the need to mitigate a reliance on conventional diesel generators and minimise the carbon footprint of the development, a forward-thinking energy solution was required, and enabled, through the deployment of a lithium-ion energy storage system, which was accompanied by smart geyser control, Bohnsack explains.

"We also found that using the geyser control modules enabled us to stagger the load in such a way that peak loads are better managed, which can avoid sudden inrush currents avoiding nuisance tripping. This is becoming an increasing problematic occurrence for residential property developers," Bohnsack comments.

"While loadshedding is often scheduled and relatively predictable, systems need to cater for unscheduled power outages too – this adds increased complexity to design. The ability to manage up to 50% of the load of a development through geyser control enables us to mitigate the majority of the risks associated with unplanned outages," he explains.

Installing energy storage solutions, along with energy management technologies, drastically minimises operational cost which includes maintenance, diesel and downtime.

This helps to ensure lower long-term costs, and allows for seamless changeover between different energy sources.

"The transition to the backup system ensures an uninterrupted power supply while seamlessly aligning with sustainability objectives, as the incorporation of geyser control modules facilitates load balancing, optimised energy consumption and minimised wastage," he adds.

The configuration features a 150 kVA hybrid inverter with 400 kW hours of lithium storage for comprehensive backup coverage of between four and six hours for the entire development, as well as the integration of 150 smart geyser controllers.

Sustainable Gains

Blockpower has been spearheading sustainable building practices for the past seven years, and specialises in the sectional title property sectors.

By harnessing clean energy sources and obviating the dependence on fossil fuel-driven generators, Blockpower's renewable-energy solutions offer substantial reductions



KYLE BOHNSACK

All installations are done according to best practice regarding environmentally sound installations

in carbon emissions.

Alongside intelligent design, "state-of-the-art monitoring systems" further enhance efficiency, allowing for the maximisation of renewable-energy generation, which means that the initial installation costs "may appear higher", says Bohnsack.

However, he underscores the long-term cost effectiveness, low operational expenditure and sustainability advantages of the systems.

"By embracing these green building initiatives, clients can unlock significant energy savings while actively contributing to a greener and more sustainable future."

Through ensuring seamless performance monitoring and control of their renewable-energy systems, Blockpower harnesses the power of the industrial technology in tandem with an operator supervisory control and data acquisition system.

This sophisticated combination allows for the real-time monitoring of energy generation, consumption, and system performance, in addition to empowering the prompt identification of optimisation opportunities, furthering sustainability enhancements.

With solutions tailored to align with green building initiatives, the company optimises energy consumption and fosters a greener future.

By using its expertise and innovative technologies, clients can actively participate in the green building movement, benefiting from long-term cost savings while making a "profound, positive impact on the environment", Bohnsack concludes. ■

COUPON ON PAGE 17 E647317

“The ability to manage up to 50% of the load of a development through geyser control enables us to mitigate the majority of the risks associated with unplanned outages”

— KYLE BOHNSACK



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Ecological practices ensure 'greener' future

SIMONE LIEDTKE | CREAMER MEDIA SOCIAL MEDIA EDITOR & SENIOR WRITER

With a commitment to zero-defect manufacturing and an adherence to the European Union Ecodesign Directive – which establishes ecological-design (eco-design) requirements for energy-related products – technology provider Omron aims to contribute to a cleaner environment while maximising long-term value.

In the pursuit of sustainable development and corporate responsibility, companies are increasingly embracing environment-friendly practices, one of which is Omron's zero-defect concept.

The concept ensures that all electrical assemblies and components are subjected to comprehensive individual inspections after manufacturing which, "guarantees high-quality products and supports the Ecodesign Directive", Omron robotisation solutions coordinator **Everett Janse van Vuuren** and vision field application engineer **Christiaan Kruger** say.

They note that, by following dictates, such as the zero-defect concept and the Ecodesign Directive, products are proactively designed to "have a positive impact in terms of energy

efficiency and resource conservation".

During the trial period, which is product dependent and takes place before commercialisation, Omron examines the impact of its products and adopts new product-specific regulations or implements measures to meet eco-design requirements. The company remains vigilant in monitoring the development of these measures and takes necessary actions, such as changes to the design and manufacturing of said product, as and when required.

Janse van Vuuren and Kruger say sustainability is no longer a niche topic but has become an integral part of companies' business strategies.

"Sustainability practices are essential to meet the changing demands of consumers, the marketplace and governments. Additionally, these practices are now considered a competitive advantage. By reducing energy consumption and waste, companies can use resources more efficiently."

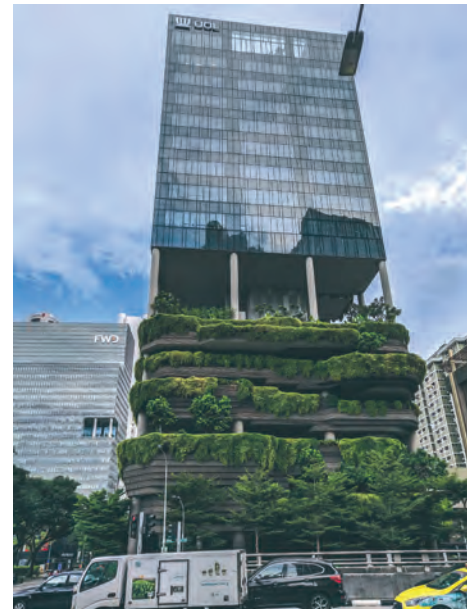
They add that sustainability practices play a crucial role in attracting and retaining customers, as well as creating new market opportunities, while improving manufacturing agility, and enabling companies to adapt to fluctuating demand and the increasing need for personalisation.

However, operational excellence requires reliable, safe and high-quality manufacturing.

"Manufacturers must predict problems in their production lines better than ever to avoid production stoppages or quality issues. In this context, artificial intelligence (AI) is a key technology, with advanced predictive maintenance solutions for machines, as well as production lines," Janse van Vuuren and Kruger add.

They note that powerful AI controllers operating at the edge of the machine, together with smart sensors integrated into the production lines, can react in real time to potential issues on the machine.

"As such, AI along the manufacturing chain, with predictive maintenance and process control, helps to make manufacturing



GREEN BUILDING DEDICATION

Omron's commitment to zero-defect manufacturing, eco-design directives and sustainable solutions demonstrates its dedication to advancing green building

processes more sustainable, extend machine life span and optimise resources."

Zero-Defect Goal

Omron's goal is to use its zero-defect approach and its AI-enabled solutions to help green building suppliers and developers, particularly in the field of e-mobility in smart cities.

"E-mobility is progressing, so more advanced battery technologies are being developed to increase the reliability, safety and operation of autonomous vehicles," Janse van Vuuren and Kruger comment.

They cite, for example, the transition away from the widely used cylindrical cells in conventional batteries in which the active layers are wrapped around the inner electrode, to pouch cells, where the stacked layers are enclosed by a flexible outer foil, usually made of aluminium.

These pouch batteries meet some of the most important current requirements for the automotive industry such as being easier to install in vehicles because of their flat and more flexible shape.

"This, in turn, places special demands on production. Manufacturers are, therefore, turning to production processes supported by AI to optimise machine efficiency and ensure zero-defect production," Janse van Vuuren and Kruger note.

Omron's AI, sensing, control, security and robotics solutions support the reliable, sustainable and high-quality production of pouch batteries.

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AI-ENABLED

AI-enabled solutions help green building suppliers and developers, particularly in the field of e-mobility in smart cities



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Remote control solution Schröder ITERRA offers site managers a robust, cost-effective and futureproof platform to run their infrastructure with the utmost flexibility for adapting lighting to any scenario or activity while maximising energy savings and providing the best possible experience for employees, visitors and managers.

The solution requires no unnecessary cabling, no programmable logic controller, and is not a complicated commissioning process. Schröder ITERRA is the 100% wireless control system for indoor and outdoor industrial facilities and large areas, the company says, adding that it is based on a Bluetooth mesh network, and it offers a plug-and-play solution able to control all luminaires and floodlights using standard DALI, DALI-2 or 0-10V/1-10V protocols.

The mobile application-based (app-based) system is very easy to operate with a tablet or smartphone and comes with an intuitive visual interface that users can quickly personalise to the layout and settings of their lighting installation.

Through differentiated user rights, managers can decide on access to system features and lighting scenarios according to the profile of the individual.

“With Schröder ITERRA, it is easy to provide the right light at any time to energise workers while ensuring safety, accuracy and visual comfort,” the company says.

Although the Schröder ITERRA control solution is extremely user-friendly, it is based on “state-of-the-art, efficient technologies” to offer maximum flexibility and savings for a



LIGHTING CONTROL

The Schröder ITERRA lighting control solution is suitable for all industrial and large area applications.

quick return on investment.

As an ecosystem based on leading industry standards, it ensures compatibility with future developments and extensions. Firmware updates are automatically supported by the application.

“Schröder ITERRA is a must-have for managers who want to maximise the benefits with the utmost peace of mind.”

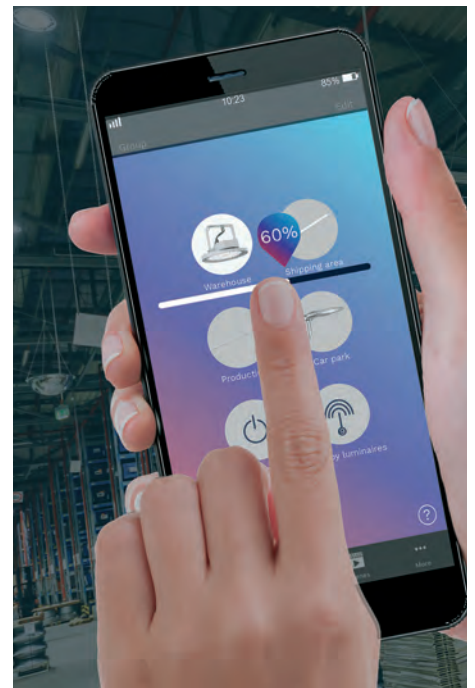
Some of the Schröder ITERRA’s main features include dimming the light to the right level, adapting light colour temperature,

sustainability goals.”

They add that more flexibility to adapt to changing requirements can be achieved using innovative automation solutions that also ensure quality and reduce waste, consequently promoting sustainability.

This feeds into Omron’s environmental protection concept, Green Omron 21, which aims to contribute to the sustainable development of society while maximising the company’s value-add in the long term.

“Omron recognises that factory automation plays a crucial role in energy management. Thus, we actively promote the use of



EASY-TO-USE APP

A mobile app-based system, Schröder ITERRA is very easy to operate with a tablet or smartphone

grouping luminaires in clusters, creating programmed lighting scenarios, programming lighting animations, defining calendar-based triggers, integrating photocells to harvest daylight, integrating sensors for light-on-demand scenarios and controlling from the mobile app or remotely while also managing access rights.

“Schröder ITERRA is suitable for all industrial and large area applications, such as access roads, car parks, manufacturing plants, laboratories, warehouses, distribution centres, shipping areas, loading bays, waste treatment plants, meeting and conference rooms, and offices,” the company says.

BEKA Schröder develops and manufactures sustainable and energy efficient light-emitting diode lighting products in South Africa, designed and suitable for local conditions.

COUPON ON PAGE 17 E647317

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“We support manufacturers with self-contained battery cell inspection solutions that are fully integrated into the line, as well as solutions for electrode and battery module manufacturing,” they say, adding that Omron’s solutions can help to streamline leak and vacuum testing, as well as provide end-to-end traceability throughout the lifetime of the battery cell.

“Here, automation solutions with AI can fulfil all customer requirements for product quality and predictive maintenance, helping manufacturers achieve their

renewable-energy resources, such as power inverters and battery systems, to reduce carbon-dioxide emissions and create a cleaner environment,” Janse van Vuuren and Kruger state.

Omron’s commitment to zero-defect manufacturing, eco-design directives and sustainable solutions demonstrates its dedication to advancing green building and industries, they add, noting that, through its initiatives, the company “sets an example for companies to integrate sustainability practices into their business strategies, resulting in a greener future for all.”

Atlantis SEZ a manufacturing hub in push for green economy

A green economy is the sustainable setting that everyone today, and future generations, needs to live and work in. It is the responsible and future-looking economy that every sector needs to operate in. Every industry or business needs to embed sustainability in its operations or methods of doing business to be successful in terms of profitability and growth.

Sustainability is principally the wisest business decision as it is one that benefits the company in terms of growth, being a responsible corporate citizen and, more importantly, for the survival of the future inhabitants of earth. It is thus not a decision to be taken for the sake of compliance, marketing and/or political points.

Greenwashing is a term that has grown in usage with so many businesses adopting a superficial approach to what sustainable manufacturing entails. Manufacturing enterprises need to take comprehensive responsibility for the environmental impacts of their activities. A good example that is currently being seriously addressed is the single-use

plastics that are often used in packaging. This kind of activity is increasingly regarded as immoral and irresponsible and a sign of a vulturous organization.

The Atlantis Special Economic Zone (ASEZ) as a manufacturing hub supports the principles of being resource efficient, carbon neutral and, importantly, socially inclusive in how it operates, and in the manufacturing tenants that locate there. The ASEZ is thus a home for any manufacturing enterprise that embraces these values and aspires to be part of the future economy, the green economy. A special economic zone is an economic development tool that aims to stimulate economic activity and job creation for the local people and promote the export of locally produced

products. The ASEZ is developing world-class sustainable infrastructure to accommodate manufacturing enterprises that espouse the value of a sustainable future. The ASEZ is not limited to accommodating renewable energy component manufacturers, but also manufacturers of electric vehicles and associated batteries, waste beneficiation projects, biofuels manufacturing etc.

“We are currently in the civils construction phase of Zone 1 of the ASEZ. We will also be starting on construction of the first green factory to house the manufacturing of acetylene and oxygen.”

the manufacturing of acetylene and oxygen.

Furthermore, we provide customized rental holiday incentives for our tenants, and facilitation services for accessing development financial instruments and various regulatory approvals for the respective projects. We provide facilitation services by leveraging our strategic partnerships with the entities at local, provincial and national government level, as the ASEZ is part of this eco-system.

Africa is a beautiful continent and richly endowed with natural resources that are supposed to be managed efficiently for the betterment and welfare of its children. The ASEZ has taken the leadership position to drive economic growth in a sustainable manner and invites manufacturing entities to invest and operate from Africa's green technology manufacturing hub. It is about time Africa leads the journey to the transition to the green economy. This is the future.



The ASEZ is located in the City of Cape Town, approximately 40 km from the CBD. It has large tracts of vacant, industrially zoned land on offer at competitive rates. Atlantis is an area with historic industrial skills and well serviced with electrical, water and waste infrastructure. As a commercially driven enterprise we work with prospective tenants to explore a best-fit deal. This includes funding for factory buildings and embedded rooftop solar PV. We are currently in the civils construction phase of Zone 1 of the ASEZ. We will also be starting on construction of the first green factory to house



● **Kenneth Mojela - Commercial Executive at the Atlantis Special Economic Zone**



WELDING & CUTTING

Compiled by CAMERON MACKAY

Collaboration key to boosting African capacity

CAMERON MACKAY | CREAMER MEDIA SENIOR ONLINE WRITER

VITAL INDUSTRY CONTRIBUTION

The SAIW has been critical in providing direction to grow commitment and sustain capacity in welding technology, thereby addressing Africa's manufacturing needs

Local industry body the Southern African Institute of Welding (SAIW) wants the Welding Federation Africa (TWF) – formed in 2017 – to be a vehicle to improve the welding capacity of every African country that has TWF members, states SAIW executive director John Tarboton.

“This is not in terms of training only welders but also welding inspectors and welding supervisors. Welding is a key enabling technology that countries need if they are to industrialise and experience economic growth.”

The SAIW is a founding member of TWF, whose goal is to provide a platform for professionals in the welding industry to network, share knowledge and collaborate towards achieving sustainable development through welding.

TWF executive director **Ayo Adeniyi** emphasises the importance of the SAIW's involvement, noting that the SAIW is a leader in welding technology, with decades' worth of experience and contributions to the African welding industry.

The SAIW has been critical in providing direction and momentum for growing commitment and sustaining capacity in welding technology, thereby addressing manufacturing needs in Africa, Adeniyi adds.

“Being part of TWF gives the SAIW ideal exposure in Africa. The SAIW is a found-

ing member of the International Institute of Welding, and we are its approved nominated body for South Africa,” states Tarboton.

The SAIW's contributions include hosting the TWF secretariat on behalf of Africa, playing a critical role in the development of the federation's welding inspection and pressure vessel schemes, and contributing to its research framework, which aims to sustain continual improvement in Africa's industries, Adeniyi explains.

The success of TWF's first yearly assembly and conference – held in March in Cairo, Egypt – was “a huge success” and a testament to the coordination and collaboration by professionals and stakeholders in Africa.

The assembly helped to cultivate ideas and solutions that address Africa's manufacturing industries, he adds.

Adeniyi says the second yearly assembly and conference – to be held next year in Lagos, Nigeria – aims to bring major improvements on the back of the successful assembly in Egypt.

Building Certification Capacity

Adeniyi emphasises the challenges – including a lack of financial capacity and policy infrastructure, as well as policy inconsistencies – in assisting companies in TWF member countries with certification.

He also stresses that the TWF personnel qualification and certificate scheme is a reliable vehicle to build, integrate and sustain a commitment to welding skills and technical capacity development in Africa's manufacturing industries at the most cost-effective rate.

TWF's schemes are primarily designed to address technical requirements specified in applicable industry codes, as well as unique welding practices in Africa's industrial space.

“TWF personnel certificate holders will be equipped with adequate knowledge and technical skills to handle current and emerging challenges in industries across Africa and globally,” he adds.

These schemes will cost-effectively equip Africa's labour force with competitive and complementary technical skills and promote the integration of opportunities across Africa's manufacturing industry.

TWF personnel certifications will empower Africans and provide access to work

• To page 53



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Firm offers unique cutting service

CAMERON MACKAY | CREAMER MEDIA SENIOR ONLINE WRITER

Local water-jet cutting service provider MAXJET will be launching a new online store in early 2024 for an extensive catalogue that specifically targets clients abroad, owing to the weaker rand.

“Once we have launched our store, we expect our MAX Exclusive range to expand considerably, taking full advantage

of the weaker rand for exports,” enthuses MAXJET director **Preeshan Naidoo**.

MAXJET offers a unique service



CNC WATER-JET CUTTING

The brittle cutting process gives a satin finish, with no slag or heat-affected zones

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for industrial cutting, with the company having “mastered the various parameters for processing almost all types of flat-sheet products”. These products include aluminium, titanium, stainless steel, carbon steel, plastics and composites.

Naidoo attributes this ability to more than 20 years of experience. “From a design perspective, we are capable of replicating parts from samples, and sketches into computer-aided drawing, as well as further programming to profile cut,” he explains.

MAXJET uses computer numeric control (CNC) water-jet cutting and profiling technologies to cut various material types, with thickness ranging from 0.05 mm to 100 mm. CNC water-jet machining is a nonthermal cutting method, which uses abrasive garnet sand and water.

The brittle cutting process gives a satin finish surface, with no slag or heat-affected zones, consequently minimising distortions.

Water is filtered and pressurised in an ultrahigh-pressure pump and delivered through a high-pressure tubing to the cutting head.

A small-diameter orifice will concentrate on the CNC jet machine, and the pressure transfers into velocity.

CNC jet machining is also ideal for preparation of parts

before milling.

The supersonic water stream cut process also enables MAXJET to cut different flat-sheet materials and complex shapes, from prototypes to mass production.

The key benefits of MAXJET’s cutting and profiling process is that, when processing materials, the company’s technology involves a “cold cutting process”, which ensures that the inherent material structure is not compromised by any “cheaper” thermal processing, Naidoo states.

Vital Material Supply

To support the company’s cutting and profiling capacity, MAXJET has put considerable effort into partnering with an approved network of suppliers.

These suppliers are vital for supporting MAXJET’s services in terms of supplying raw materials that are used for the company’s processes.

“We’ve partnered with material suppliers EMV Africa Multi Alloys, which specialises in stocking superior grades of nickel stainless steels. These steels have high success rates at water treatment plants, chemicals processing plants and petrochemicals industries.”

MAXJET plans to increase its capacity by adding more equipment to its cutting and profiling setup. ■

COUPON ON PAGE 56 E647702

Company increases cutting capacity

CAMERON MACKAY | CREAMER MEDIA SENIOR ONLINE WRITER

Cutting service provider AquaJet completed a deal with a local supplier to procure its fifth water-jet cutting machine. The machine is a jetstream cutter that boasts an impressive 4 000 mm by 3 000 mm bed.

“We are still in the process of testing its capabilities, and training our staff to operate the machine,” explains AquaJet technical sales, marketing and branding manager **Dwayne Carlse**.

AquaJet currently uses US company Omax water-jet machines.

“Omax machines are of superior quality and are the heart of our operation. Our machines allow us to provide a fully customised experience in terms of pricing and lead times to our customers.”

Carlse also stresses that, while water-jet cutting can be more expensive than traditional cutting methods, the company’s cutting qualities ensure that no additional finishing process is required.

This benefit reduces customer production time, as well as costs for additional labour for machining.

The company possesses both water-jet and laser cutting capabilities, and Carlse points out that AquaJet’s customers are “excited to have a choice between the two methods”.

While most customers prefer water-jet cutting, some choose laser cutting if a larger number of components must be produced quickly.

“The water-jet cutting side is where there is the highest need. We are, however, in discussions about increasing our laser capabilities.”

Carlse highlights that industrial companies are now more conscious of decisions that may adversely affect the environment, which could increase the demand for water-jet cutting

services. Highlighting the sustainability benefits of decreasing material wastage through water-jet cutting, Carlse affirms that AquaJet also offers no material composition changes in its water-jet cutting process, as no heat is added during the process.


Plates also do not warp or distort, and there will also be no visible cutting line, such as in traditional cutting methods, adds Carlse.

AquaJet’s “state-of-the-art machines” also afford the company the ability to reduce narrow kerf, which minimises material wastage and produces no hazardous waste.

Industry Growth

Carlse emphasises that growth opportunities for AquaJet lie within the mining and engineering industries where timing is crucial, and companies prefer a finished product.

The company is trying to increase its visibility in the mining industry, and is hopeful that it will become the premier supplier in manufacturing for larger projects.

Carlse notes that AquaJet attended the CAMINEX 2023 event in Zambia, where the company took home first prize in the foreign exhibitor category. The company also attended the Democratic Republic of Congo Mining Week, held in Lubumbashi earlier this month. 

COUPON ON PAGE 17 E647997

• From page 50 opportunities and provide industries with access to skills to meet both national and African content targets in manufacturing.

“Africa’s manufacturing industry has been characterised by chaos for decades, to the disadvantage of investors, manufacturers and skilled workers. The TWF’s personnel qualification and certification scheme is already restoring hope in several ways, including boosting investor confidence, improving the capacity of members and empowering individuals.”

Restoring Confidence

Through these schemes, investors will also have access to verifiable data regarding which investment concerns can be addressed or managed, says Adeniyi.

Companies from TWF member countries will also be able to access an “inexhaustible pool of knowledge, and technically competent personnel to harness in addressing technical challenges in manufacturing”.

Further, technical capacity will be boosted through technical collaboration, or experience sharing, within the TWF network, he adds.

The schemes will also allow for a reduction in the cost of hiring skilled people by ensuring access to high-level skills, regardless of national boundaries, to complement any country’s labour force.

TWF schemes will contribute to growing national capacity to meet local-content concerns through skills mobility.

Adeniyi also contends that most importantly, TWF will enhance the movement of skilled persons across Africa based on interest, expertise and exposure. This will not only boost the reputation and expertise of countries in certain industry specifications but will also have a ripple effect on other nonindustrial sectors. “The goal is to empower the average African with unrestrained access to opportunities across Africa, which will reduce the high rate of human capital losses associated with Africa,” he concludes. 

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ESAB expands South African presence

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ESAB's commitment to the welding industry and to its customers is to provide accessible expertise, exceptional productivity and data driven innovation, with over 10000 global employees 35 manufacturing facilities globally and represented in 145 countries, collaborating with ESAB provides customers with peace of mind that a solid reputable supplier supports them. ESAB has the most complete line of welding and cutting products available with leading brands which cover filler metals, gas control equipment, arc equipment, cutting and welding automation, manual plasma, PPE, speciality gas, digital solutions, exothermic cutting, gouging and arc accessories.

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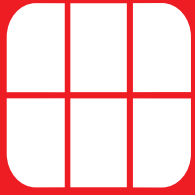
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S African explosives maker anchors in Brazil

HALIMA FROST | CREAMER MEDIA WRITER

MAKING A STATEMENT

AECI Mining is currently undertaking an expansion project in two strategically significant mining states in Brazil

South African mining explosives and chemicals company AECI Mining is currently undertaking an expansion project in two strategically significant mining states in Brazil, with an anticipated completion date in mid-2023.

Simultaneously, the planned export of explosives from AECI Mining Explosives' new Brazilian explosives facility into neighbouring Latin American countries is also underway.

"In-country sales and technical support capabilities, storage facilities and offices to support the fertiliser coatings and metallurgical chemicals portfolios are in place to ensure timeous customer supply and support," says AECI Latin America MD **Carlos Goncalves**.

These initiatives will cater to the needs of the fertiliser coatings and metallurgical chemicals businesses.

Distributorship agreements in the Peruvian

market have also resulted in "significant" sales growth for AECI's Intellishot electronic detonator system and metallurgical chemicals.

"We manufacture explosives in the state of Sao Paulo and distribute directly to clients, as well as through a number of select explosives distributors across different states of Brazil," he adds.

Historically, AECI Mining Explosives would have supplied its clients with explosives and technology acquired through its distributors of choice in Latin America.

In pursuit of the new model, AECI Mining Explosives has acquired a bulk explosives

manufacturing and distribution facility in Brazil.

Additionally, the construction of a new bulk explosives manufacturing and distribution facility, in Chile, is under way and is expected to be manufacturing at full capacity by the end of 2023.

Goncalves notes that demand for AECI Mining Chemicals' metallurgical chemical xanthates and flocculants in the South American region has grown "substantially" over the past few years, owing to the global energy transition, which is leading to higher demand for critical minerals.

The increased development of mines in these regions has enabled the company to expand its product and services offerings.

Key Region

"The current Latin American region accounts for a total global mining production similar to that of the African continent, which in itself, represents an attractively sized market," says Goncalves.

"We have seen increased activities in terms of requests for proposals for the supply of products and services in the Latin American region over the past 18 months," he says, adding that "... mining companies are seeking to mitigate rising input costs by reducing expenses".

Goncalves points out that this increase has placed pressure back on the supply chain and suppliers to the mining industry and, in turn, AECI has had to enhance and adapt its offerings to remain competitive.

Leveraging the group's extensive experience in developing and supplying global mining markets, AECI Mining continually enhances its technologies.

"Cultural dynamics and the way of doing business in the Latin American continent are different to other parts of the world; however, AECI Mining strives to attract talented people in the region who are aligned to our business values and ethics," Goncalves concludes. ■

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Regional Expansion

HALIMA FROST | CREAMER MEDIA WRITER

International minerals processing specialist Multotec will be opening its new 4 000 m² manufacturing facility in Belo Horizonte, Brazil, in July.

This facility is geared to manufacture the company's mineral processing equipment for the region.

This expansion highlights Multotec's commitment to meeting

the growing demand for its products in Brazil's thriving mining sector.

The location of the facility has been strategically chosen, positioned in the state of Minas



BRAND NEW

Multotec's new manufacturing facility in Brazil will open in July

Gerais, which is a hub for Brazilian mining activity.

"The facility was completed, and our machinery was installed and commissioned in April of this year," says Multotec South America GM **Graeme Campbell**.

The facility will manufacture polyurethane and rubber screen panels, wet and dry samplers, as well as certain of the group's cyclone models for the Brazilian market.

"The Brazilian facility and its staff have the local fabrication capabilities to manufacture our full consumable product range, with room to expand as and when needed. It also has a large area for stockholding," he adds.

In addition to its production team, technical expertise and commercial processing, Multotec has a full scope of engineering and commercial support personnel in Brazil.

Campbell stresses that the South American mining sector contributes significantly to Multotec Group's earnings and has the potential to become the company's largest region in terms of its order book.

"The investments we are making in the region are testimony to the opportunities we see there," he adds.

Multotec has an established production facility in Santiago, Chile, that has been in operation since 1997. It services the company's clients across Spanish-speaking Central and South America.

Campbell says the capacity of the facility has been increased recently with the addition of more workshop space, machinery and staff.

Campbell explains that as part of the group's environmental, social and governance (ESG)

drive, the new machinery that has been installed at the new facilities is more environment friendly than the machines it previously used.

"The new machines are greener, owing to a lower power consumption rate for the same product targets, which, in turn, lowers our carbon footprint, as well as that of our clients," he enthuses.

This, Campbell says, is because the new installations are part of Multotec's short-term ESG drivers.

In the long term, the company aims to remove all production equipment it deems outdated and replace it with modern equipment.

Further ESG initiatives Multotec is pursuing include recycling a portion of waste material from its factories for reuse in the company's three-dimensional printers, thereby lowering its use of plastic. Additionally, the group has started an initiative with certain local technical schools in selected regions from which it will source graduates, providing community upliftment through improving their skills sets, and allowing for personal growth and development.

"Embracing the different cultures and norms within each country, as well as having a full understanding of the local laws, is of utmost importance to Multotec." Some countries are more complex in this area than others, and a key driver to overcome these difficulties is to employ local staff who have the appropriate experience and to partner with the most suitable companies to reduce the likelihood of mistakes, Campbell adds.

"Our goal is always to provide world-class, quality products with the most cost-effective logistics solutions, in the shortest time possible," he concludes. ■

COUPON ON PAGE 17 E647866

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New copper project promises good yield

HALIMA FROST | CREAMER MEDIA WRITER

Chile-based junior miner Marimaca Copper is looking to garner a substantial foothold in the copper mining sector in Chile, having determined promising prospective operational yields at the Marimaca copper project, with actual copper production to start as early as the first quarter of 2026.

“This has been proven through the announcement last October that the project’s projected resources had doubled over the last six or seven years,” says Marimaca Copper president and CEO **Hayden Locke**.

The project, which has been developed from a greenfield exploration base, is reported to be a low-risk project, with substantial exploration potential.

The mine has reported measured and indicated resources of about 140-million tonnes grading 0.48% copper for 665 500 t of contained copper, with inferred resources of 83-million tonnes grading 0.39% copper for 323 000 t of contained copper.

Mining will be conducted using an openpit method, relying on a truck-and-shovel method of extraction and haulage, after which ore will be taken to a processing plant for primary beneficiation.

From there, the ore will be moved to a heap leach processing plant, whereby it will be processed to a Grade-A copper cathode using solvent extraction and electrowinning processes.

The company is in the planning and preparation phase of attaining its legal and environmental compliances; the intention is to submit all applications towards the end of 2023.

“All baseline data collection, land use studies and archaeological and paleontological studies that go into underpinning the full environmental- and social-impact assessment, have been finalised”

– HAYDEN LOCKE



TESTING STATION

Marimaca Copper has conducted tests across its exploration area with very promising results

Locke explains that all baseline data collection – land-use, archaeological and paleontological studies used to underpin the full environmental- and social-impact assessment – has been finalised, which has helped the company understand the key risks of the project.

Water Treatment

The Marimaca copper mine will develop its water reticulation system using recycled water.

Sea water will be supplied to the copper project following its use in cooling systems at an electricity plant in Mejillones, located 25 km from the project and operated by one of Chile’s largest energy suppliers.

This would make the project one of the first mines in the region to not rely on freshwater resources for its operations.

“Our goal is to build an example of a sustainable mine, minimising environmental and social impacts while providing a commodity which is fundamental to the future of our society,” says Locke.

The company’s water strategy, which removes the use of any natural sources of fresh water, is a fundamental example of this goal in action.

He adds that, globally, mining activity accounts for significant use of fresh water, and that such drawing of resources, particularly in arid regions, is a significant social challenge.

In the Beginning

The initial discovery at Marimaca, in the Antofagasta region, was made by Marimaca exploration VP **Sergio Rivera**.

Locke lauds Rivera, saying that the drilling of the first ten drill holes were all “incredibly successful”.

“The initial discoveries and results have allowed him to then expand the budget with initial investors, and better gauge the magnitude of the discovery,” he says.

Consequently, Rivera made an additional discovery at depth, as well as three satellite discoveries, around the Marimaca copper licence area. Locke says these discoveries have helped the company to gain better traction with investors, who understand that junior mining is a long-term investment.

“Our investors’ experience and patience have allowed us to continue to move forward despite any volatility in the market,” he concludes. ■

To watch a video in which Marimaca Copper president and CEO Hayden Locke discusses the development of the Marimaca copper project from greenfield to production, scan the barcode with your phone’s QR reader, or go to ‘Video Reports’ on www.miningweekly.com.



COUPON ON PAGE 17 E647862

Significant opportunity

HALIMA FROST | CREAMER MEDIA WRITER

Recently founded NewCo – a multibillion-dollar collaboration between US-based chemical manufacturing corporation Livent Corporation and Australia-based global lithium chemicals company Allkem – is the “largest lithium-based joint venture (JV) under way”, according to Latin America-focused strategic advisory firm Southern Pulse founder and managing partner Samuel Logan.

Situated in Argentina's Jujuy province, in the so-called Lithium Triangle region, the JV is set to create the world's third-largest lithium producer, he adds.

Logan tells *Mining Weekly* that the two global lithium chemicals companies will combine their highly complementary range of assets, growth projects and operating skills across extraction and processing under a vertically integrated business model, to create NewCo, which aims to be a significant global lithium chemicals producer.

He explains that, as one of the world's top sources of lithium, South America's lithium triangle – between Chile, Bolivia and Argentina – represents about 55% of known global lithium reserves.

According to a report of the US Geological Survey in January this year, Bolivia holds reserves of about 21-million tons, Argentina about 19-million tons and Chile about 9.8-million tons.

Logan says the triangle “presents a tremendous amount of global production opportunities”, but a variety of political, environmental and social challenges endemic to the region could prevent exploration and production from reaching their full potential.

The Chilean government's new Lithium Plan shares the intention with miners to employ the direct lithium extraction method – a floatation method – which is as yet unproven in the country, for new lithium projects, Logan points out.

Historically, there has also been bureaucratic red tape regarding

Chile's lithium industry because the government had declared lithium a strategic natural resource.

Meeting Demand

Current efforts to liberalise the process of controlling concessions and provide improved operational oversight represent government's best attempts to ensure that Chile is well positioned to meet global demand.

Chile regards the lithium industry as a significant opportunity for future public revenue in much the same way that Chilean State-owned copper mining company Codelco did – significantly contributing to public coffers, Logan adds.

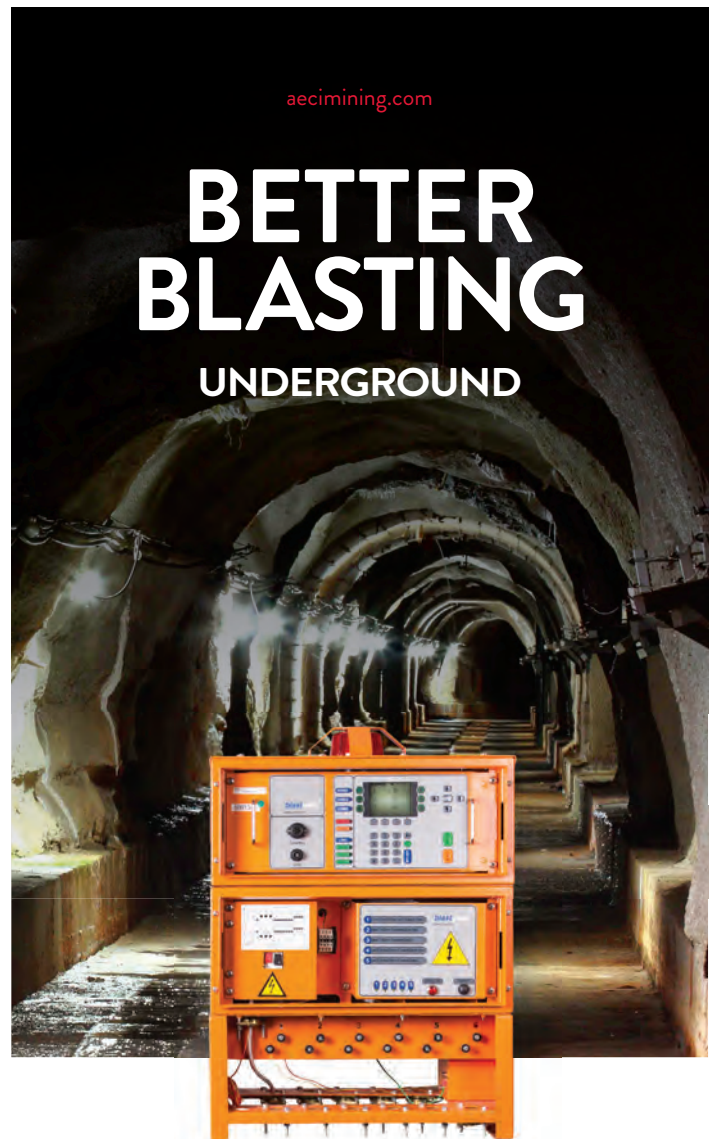
This contribution, in turn, generates the revenue required to make long-term public investments in infrastructure and social-impact programmes.

“With proven reserves registered at some of the highest in the world, international players continue to line up to submit projects and meet with Ministers, governors and other regulators in the region,” he says.

The next few years will play a critical role in South America's stake in the global mining industry as it grows beyond a resource for precious metals into one of the most important global supplies for critical minerals.

“Although there are visible challenges, the lithium triangle is a fruitful industry that all stakeholders should keep a close eye on,” he concludes. ■

COUPON ON PAGE 17 E647916

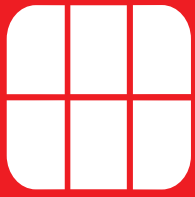


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MANGANESE

Compiled by SABRINA JARDIM

Transnet expands manganese corridor for longer trains

SABRINA JARDIM | CREAMER MEDIA WRITER

ECONOMIC BENEFITS

The expected total cost of the project is R50-million, while the extension is expected to bring in an estimated R4.4-billion a year of foreign earnings into the country

To boost the South African economy, State-owned rail company Transnet Freight Rail (TFR) has extended its Mamathwane crossing loop – a key manganese rail corridor, originating in the Northern Cape – by 700 m to cater for longer trains of up to 125 wagons.

TFR currently runs 104 wagon trains to Gqeberha and 125 wagon trains to Saldanha, in the Western Cape, with seven trains transporting manganese and iron-ore from emerging miners, and 15 designated to carry manganese.

In doing so, TFR will increase capacities on the line by an additional 1.5-million tonnes a year taking capacity to an overall 17-million tonnes a year.

Scheduled for completion at the end of next month, the total cost of the project is projected to be about R50-million, with TFR COO

Bonginkosi Mabaso telling *Mining Weekly* that the project is within scope, schedule and budget. The project is managed in-house by TFR project teams.

TFR explains that there are bottlenecks on the manganese corridor from Hotazel, in the Northern Cape, to Saldanha Bay at the junction where the line branches off between Hotazel and Sishen, to the marine port in Gqeberha.

TFR says this section of rail network is currently “maxed out” in terms of the number of slots it can accommodate.


Mabaso notes that the loop extension will ensure maximum slot usage on the line between Sishen and Hotazel, thereby allowing for the movement of four additional trains on this constrained section.

Extending the Mamathwane crossing loop will add a significant number of slots between Sishen and Hotazel, improving export efficiency on TFR’s Cape and ore corridors.

TFR states that the extension is expected to bring an estimated R4.4-billion in foreign earnings to South Africa. The current capacity of 15-million tonnes of ore a year on the rail section from manganese mines as far north as Hotazel to either Gqeberha or Saldanha Bay is expected to increase to 17-million tonnes a year by

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Domestic manganese miners urged to up exports

SABRINA JARDIM | CREAMER MEDIA WRITER

The South African mining industry needs to ensure that it remains competitive in its supply of manganese to the global market amid a global energy transition and an increasing emphasis being placed on procuring new metals and mineral combinations for the just energy transition and electric vehicle (EV) batteries, says specialist mining services provider Ukwazi business development director Spencer Eckstein.

Eckstein noted that manganese could be used to manufacture batteries for EVs, *Mining Weekly* reported in June 2022.

He says, however, that the industry is witnessing a “scramble to find an optimal combination” of green metals and minerals for batteries.

With the myriad of batteries being developed lately, different combinations of minerals can be used in batteries, depending on their specific application and the manufacturing process involved.

“Despite having ‘world-class’ manganese ore deposits, South Africa still needs to be aware of international competition which means being cost sensitive and innovative,” cautions Eckstein.

In this regard, he states that, to ensure competitiveness, the local sector needs to increase its manganese export capacity, which is being addressed by State-owned rail company Transnet Freight Rail (TFR), through the expansion of its manganese rail corridor.

TFR is extending the current Mamathwane

crossing loop, in the Northern Cape; Eckstein says this expansion will assist in getting more product out of South Africa and into international markets.

Additionally, having manganese transported by rail also reduces health and safety risks regarding manganese dust becoming airborne when stockpiled or when being transported.

“Having a dedicated manganese terminal in Gqeberha is going to be a huge advantage for the industry,” he points out.

From a socioeconomic perspective, Eckstein says increasing the volume of manganese exports can provide employment opportunities on mines and in the transport/logistics corridors, while government will benefit from receiving higher royalties and other revenue from mining and export taxes.

However, he highlights that the outlook for the industry is being impacted on by price volatility and the rand:dollar exchange rate, with the manganese price being influenced by external factors such as demand from China and geopolitical tensions owing to Russia’s invasion of Ukraine.

Eckstein says research and development plays a crucial role in enabling better ways of finding, mining and processing manganese ore, as well as assessing and managing environmental, social and governance (ESG) issues.

As such, he notes that mining companies are focusing on ensuring operational efficiency and effectiveness while ensuring that their cost profiles, health and safety, and ESG compliance are of the “highest standard”.

With manganese being Ukwazi’s core commodity, the company has embarked on various projects in the sector pertaining to topics such as technical studies for optimisation and improved mine planning as well as ESG, permitting and closure planning.

“The outlook for the local manganese sector is strong and, if we can get the logistics and transport right, then export volumes will increase, which is favourable for the industry and the economy,” concludes Eckstein. ■

COUPON ON PAGE 17 E647654



STAYING AHEAD

Despite having ‘world-class’ manganese ore deposits, South Africa still needs to be aware of international competition

enabling the trains, with CR17 ore wagons, to operate on it.

“The additional 1.5-million tonnes a year will have a significant impact on the manganese industry and the South African economy, as it will remove manganese volumes from road and place it onto rail,” Mabaso tells *Mining Weekly*.

This will significantly lower logistics costs, consequently positioning the industry “favourably” in the global commodity markets.

The expansion project also has a longer-term aim of increasing manganese volumes from

16-million tonnes a year to 22-million tonnes a year by 2027/28.

Mabaso adds that emerging miners have also been accommodated by miner Kalagadi Manganese, which made its “state-of-the-art” loading facility available as a common-user facility.

As a result of this materials handling component, no new rail sidings are required on the line to handle manganese volumes currently assigned, he says.

The Kalagadi Manganese common-user facility has been equipped with additional

loading equipment to complement the existing rapid loadout station.

Meanwhile, TFR is engaging with industry players to explore areas of collaboration in improving efficiencies; it is also embarking on other capacity creation projects in partnership with key industry players.

“Various projects are in the planning phase to increase manganese exports to 22-million tonnes a year, with six-million tonnes a year planned for Saldanha, and 16-million tonnes a year for Gqeberha,” Mabaso concludes. ■

COUPON ON PAGE 17 E647881

Manganese opportunities amass

SABRINA JARDIM | CREAMER MEDIA WRITER

As developed economies seek to diversify their sources of critical minerals away from China and Russia, South Africa has the “clear potential” to strengthen its position as a key supplier of critical minerals, such as platinum-group metals, vanadium, manganese, copper and nickel, according to a White Paper published by management consulting firm Boston Consulting Group (BCG).

The report – titled ‘An untapped goldmine: opportunities for South African mining’ – also points to early exploration results indicating potential endowments of future-relevant resources, such as cobalt and magnesium.

BCG MD and partner **Tycho Möncks** explains that South Africa is in “a leading position” regarding manganese production, with over 30% of global supply coming from the country, equating to about 650-million tons of resources out of an estimated global 1.5-billion tons.

He contends that the country can further build on this important position, given it provides geopolitical and low-risk advantages as opposed to, for example, China, which produces about 15% of global manganese.

“Given that only around 25% of supply is coming from ‘safe’ jurisdictions, such as Australia, South Africa has the opportunity to enhance its market share and cement its market leadership position.”

Manganese is a component of the cathodes in nickel-manganese-cobalt batteries – the dominant lithium-ion energy storage

technology used in electric vehicles (EVs).

Möncks says that, while battery original-equipment manufacturers (OEMs) are focusing their sourcing efforts on lithium, nickel and cobalt for use in batteries, demand for manganese is likely to increase.

The increase can be attributed to the mineral being crucial for OEMs to secure a reliable feedstock that also complies with the environmental, social and governance factors associated with a company.

“For batteries, certain quality parameters and specialised processing are required. South Africa could position itself as the prime supplier of those,” he adds.

Despite opportunities presented by the manganese mining sector, BCG’s report indicates that the local industry still faces significant challenges. Two such challenges are unreliable, costly and carbon-intensive electricity, as well as deteriorating transport infrastructure.

Moreover, the report notes that the domestic sector is not cost competitive, owing to structural and economic issues, while policy uncertainty and a poor perception of South



TYCHO MÖNCKS

While battery and original-equipment manufacturers are focusing their sourcing efforts on lithium, nickel and cobalt for use in batteries, demand for manganese is likely to increase

Africa by outsiders have also negatively affected the sector. Hence, large-scale investments and strategic partnerships are necessary to “unlock the value at stake in the mining sector” and, amid a global energy transition, South African mines are urged to adopt more reliable electricity sources such as renewable self-generation.

Meanwhile, to increase the country’s competitiveness in international markets, new technologies and advanced analytics can improve productivity and recovery, conserve mining operations’ competitiveness, and ensure that mines are commercially sustainable.

“Embracing the digital transformation will allow the mining sector to remain a sustainable employer in South Africa and advance towards higher-skilled job profiles and safer working environments,” the report indicates.

“Innovation will play a major role in sustaining the competitiveness of South African manganese mining operations,” Möncks concludes. ■

COUPON ON PAGE 17 647831

Growth in key manganese district eyed

Lubricants company Fuchs Lubricants South Africa reports that it sees the iron-ore and manganese sector in South Africa, and especially in the Northern Cape, as presenting much scope for expansion of its existing operations, according to Fuchs Kuruman branch manager **Martiens Bester**.

Fuchs has existing contracts with most of the major mining houses represented in the area around Kuruman. Hosting some of the largest iron-ore and manganese deposits globally, Kuruman is where Fuchs Lubricants South Africa has established a 600 m² warehouse.

He notes that the long-serving Kuruman team has 100 years of collective experience, including three service technicians who also carry out maintenance on-site at key client mining sites.

A key differentiator for Fuchs’ branch in Kuruman is that it offers a pump-on service, especially for large hydraulic mining shovels, which must always be fully operational to ensure the best productivity.

The main products supplied from the Kuruman branch are high performance, semi-synthetic mining greases.

Fuchs’ Renolit Lubrene LMG 960 EP 2 is a grease with semi-synthetic base oil, extreme pressure additives and solid lubricants.

This grease, according to Fuchs, exhibits “excellent” anti-wear and load-carrying capacity, and is recommended for the lubrication of slow-speed anti-friction bearings, pin and bushes and universal joints and axles.

Both iron-ore and manganese are vital for steel manufacturing, and South Africa is one of the world’s largest producers and exporters of the mineral, especially to China.

These commodities are important for South Africa’s economy as the manganese and iron-ore mining sector generates significant employment opportunities and revenue.

“Our major focus is to proactively address any issues our clients may experience. Customer service is what keeps our doors open,” assures Bester.

In addition, the company also supplies ancillary sectors, such as earthmoving contractors, and is looking to branch out into other market segments and applications in the Northern Cape. ■

COUPON ON PAGE 00 E647655

Manganese oxide delivery approved for demonstration plant

Manganese project developer *Giyani Metals*, in March, received approval from the Botswana Department of Mines to export 100 t of manganese oxide material from its fully-owned K.Hill manganese project in Botswana, to the K.Hill demonstration plant being constructed in Johannesburg, in South Africa.

The intention to export the material is to provide a representative feedstock for the processing and production of high-purity manganese sulphate monohydrate for qualification by potential offtakers.

Giyani notes that it is able to demonstrate how its low carbon process can adapt to the variability of K.Hill material and produce consistent battery-grade high-purity manganese sulphate monohydrate.

Giyani has developed a hydrometallurgical process to produce high-purity manganese sulphate monohydrate – a lithium-ion battery cathode precursor material critical for electric vehicles –

directly from ore from its manganese oxide deposits in Botswana.

These assets are wholly-owned by Giyani's Botswana subsidiary Menzi Battery Metals, and include K.Hill and the Otse and Lobatse manganese prospects, each of which has seen historical mining activities.

"We continue to achieve milestones in our development of the demonstration plant and securing the requisite feedstock samples is an important step," says Giyani president and CEO **Danny Keating**.

During the operation of the demonstration plant, Giyani's specialist hydrometallurgical consultants will select samples

of K.Hill material based on geochemical characteristics to replicate the variability expected to be encountered during commercial production from the mine.

The 100 t sample, from the battery-grade manganese project, was selected among over 200 t of material collected from three outcrops around the K.Hill resource, with the subsample undergoing crushing and packing into one-tonne bags, before being delivered to the demonstration plant.

"This also demonstrates the strong in-country support for the project and we are grateful to the Botswana Department of Mines for allowing us to export such a large sample of K.Hill material," he says.

Meanwhile, Giyani also reports that the fabrication of the crystallisation unit for the demonstration plant has been completed and the unit is expected to be transported to the demonstration plant site soon.

The developer also notes that filter presses have already been delivered to the demonstration plant.

The crystallisation unit, and all additional components, have been constructed on skids so that the demonstration plant can be relocated to Botswana at a later date.

Further fabrication and delivery of key equipment is expected to be completed over the coming months. ■■

COUPON ON PAGE 17 E647814

Operations start on brownfield Moroccan deposit

Integrated battery materials company *Elcora Advanced Materials* has started operations on its 16 km² manganese mining concession in Morocco, for which it acquired exclusive rights in March.

The manganese deposit was mined until a few years ago when the strict rules of the Covid-19 pandemic prevented further development.

The artisanal production run rate at the deposit was then about 2 500 t a month; however, Elcora states that its in-country team believes there is potential to increase this by adding appropriate equipment.

The General Society of Surveillance-certified African Laboratory for Mining and Environment team evaluated onsite that already extracted manganese piles contain about 5 500 t of manganese ore.

The masses tested between 27% and 33% manganese before sorting or processing

and it is estimated that about 4 000 t of 37% manganese ore after sorting can be obtained from the same piles.

Elcora points out in a statement, that manganese ore grading at 37% currently sells at about \$330/t on the international market.

Going forward, this enables Elcora to sort, process and sell manganese ore to meet customer demand.

Thereafter, mining will continue as a surface deposit, saving the company time and money, according to Elcora.

"We are very excited about this confirmation of extracted manganese ore on our site. This

is a significant milestone for Elcora.

"We are confident that we can produce high-quality battery metals and minerals that meet the growing demand from the electric vehicle and energy storage sectors," said Elcora CEO and president **Troy Grant**.

Elcora aims to establish itself as a significant roleplayer in battery technologies with known metal deposits and untapped mineral sites with great potential.

The company's mandate is focused on the global battery materials value chain and Elcora plans on extracting and processing battery-grade minerals and metals from its current projects, owing to manganese being a key component for battery-grade minerals and metals.

The company highlights recent studies that show that manganese-based compounds can be used in lithium-ion batteries to improve their efficiency and stability.

These batteries, commonly used in consumer electronics and electric vehicles, have a limited storage capacity and can be expensive to produce.

However, by adding manganese to the battery's cathode, researchers have been able to increase its storage capacity and extend its lifespan. ■■

COUPON ON PAGE 17 E647819

Marwan Davids

John Thompson

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Full Name: Marwan Davids

Position and Company Name: Human resources executive at John Thompson

Main Activity of the Company: Boiler engineering, manufacturing and maintenance, as well as air quality services

Date and Place of Birth: November 9, Cape Town

Schools and Tertiary Education: Rylands High School, the University of the Western Cape, Stellenbosch University, the Gordon Institute of Business Science and Henley Business School

First Job: Part-time industrial psychology lecturer

Size of First Pay Packet: R1 500 a month

Career Path to Date: I started off as a lecturer at the University of the Western Cape, before being appointed human resources practitioner and later human resources team leader at MWEB, senior human resources manager: employee relations at MultiChoice South Africa, acting human resources director at M-Net, acting human resources GM at MultiChoice South Africa, head of group employee relations at MultiChoice Group, head of human resources at Hello Group and human resources executive at John Thompson

Number of People under Your Leadership: 14

Management Style: The two leadership styles which best describe me are

situational and servant leadership

Personal Best Achievement: Completing my master's degree in industrial psychology

Person Who Has Had the Biggest Influence on Your Life: My father

Person Who Has Had the Biggest Influence on Your Career: The human resources GM of MultiChoice Group

Person You Would Most Like to Meet: Warren Buffett

Businessperson Who Has Impressed You Most: Steve Jobs

Philosophy of Life: Be true to who you are

Biggest Ever Opportunity: To study at Henley Business School

Biggest Ever Disappointment: Repeating a year in primary school

Hope For the Future: That South Africa reaches its true potential

Favourite Reading: Science fiction

Favourite TV Programme: *Game of thrones* and *The Big Bang Theory*

Favourite Food/Drink: Burrito and apple juice

Favourite Music: R&B

Favourite Sport: Cricket

Hobbies: Gardening and going to the gym



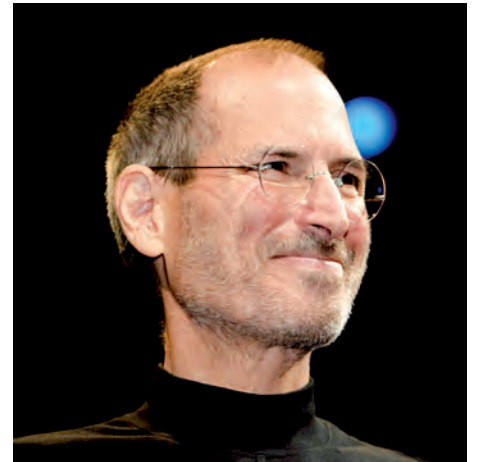
Car: Hyundai

Pets: Rabbits, fish and a parrot

Miscellaneous Dislikes: Loadshedding, potholes, peak-hour traffic, water-shedding and sewage in the streets as a result of crumbling infrastructure

Married: To Janan Janine Dietrich

Clubs: Scouts



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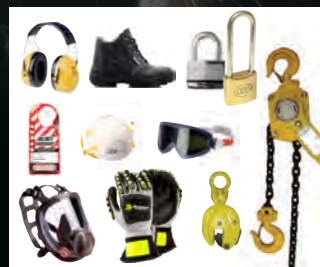
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