

R209.7bn: Investment in renewables

1.34bn: Investment by African start-ups in 2019

JULY / AUGUST 2020

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# ANDRITZ WATER MANAGEMENT FOR RESPONSIBLE CLOSURE OF MINES

ANDRITZ double-suction submersible motor pumps used in sustainable post-closure care and maintenance in German mines

At the end of 2018, the centuries-old tradition of mining hard coal in Germany came irrevocably to an end when the last remaining collieries were closed down.

Following years of debate, a joint decision was taken by politicians, industry and the trade unions in 2007 to close down all mines. This is because German coal can only be mined under extremely difficult conditions and only from extreme depths. In order to compensate for the impact that this effort has on the price, state subsidies are needed if German coal is to be able to compete on the market at all.

However the term “closure” in connection with mines sometimes conveys the wrong impression because the mines are far from being at a standstill just because actual mining work has come to an end. On the contrary, the operators are responsible for ensuring that the mines are cared for and maintained in the long term in a process that is, above all, sustainable. This includes socially compatible personnel adjustments, but also rehabilitation of former mining areas, repairing and rendering safe any mining damage, and responsible water management.

## LONG-TERM MINE WATER CONCEPT

The latter, in particular, is one of the most crucial, eternal missions – work that will be needed long after the year 2018. Systematic water management has so far dealt primarily with ensuring that the effects of industrial mining don’t cause pit water to enter mines that are still active. This is no longer needed after a mine has been closed. When mining work stops, the main concern is to ensure that the mine water doesn’t mix with the groundwater above it. Mine water is rainwater that seeps into the ground and solubilises various salts and minerals from the layers of soil on its way through them. Due to this absorption of minerals, any contact with the layers containing drinking water must be avoided at all costs.

The mining company RAG plans to let the mine water rise to a point where there is still a safety margin between the mine water and the drinking and groundwater. To do this, RAG will have to pump around 110 million cubic metres of mine water. This is a challenge that can only be overcome with expert knowledge, a powerful team of 300 specialists, the latest technology, and high financial commitment. RAG currently expects annual costs of over €100-million.



In the course of the historical shift of mining operations in Germany to the northern part of the country, a largely continuous network of mine workings was created. These connected mines made it possible to combine the pump locations of disused mines to form so-called water provinces after closure of the last pits. Thus the mine water can be pumped centrally from a depth of around 600m at several combined water drainage locations. RAG is currently collecting the mine water from the mines still operating at 13 water drainage locations. When hard coal mining comes to an end, only six of these original mine water drainage locations are to remain.

“ANDRITZ multi-stage, double-suction submersible motor pumps have maximum operating reliability, minimum wear, and a long lifetime of more than 20 years.”

## TWO SOLUTIONS ARE BETTER THAN ONE

Implementation of this concept to resolve the problem of mine water in the long term places very high demands on the manufacturers of suitable pump technology. Pumping large volumes of liquid from great



Locally ANDRITZ double-suction submersible motor pumps convey 60 million litres of water per day.



depths generates very heavy loads. Up to 30 tonnes of axial thrust are produced and have to be eliminated. The answer: two solutions are better than one. A design with a double-suction submersible motor pump can fully compensate for the axial thrust.

At the moment there are very few manufacturers on the market who can supply this special pump technology needed by RAG, and there is only one that also has the necessary references and operating experience: ANDRITZ.

#### THE PUMPS EXPERT FOR MINE WATER

International technology group ANDRITZ produces and supplies double-suction submersible motor pumps through its subsidiary ANDRITZ Ritz GmbH, with headquarters in Schwäbisch Gmünd, Germany. These are multi-stage, double-suction submersible motor pumps that can fully compensate for the axial thrust and have 50% less flow speed. The economic

advantages are maximum operating reliability, minimum wear, and an extremely long lifetime of more than 20 years. Every pump with heavy-duty mining (HDM) technology is customised from standard modules for the specific application in hand. Hundreds of these pumps – including the largest submersible motor pump in the world at over 22m long – are operating successfully all around the world, for example in the most important mines in China or South Africa.

For the RAG project in Germany, pump specialist ANDRITZ will manufacture and deliver a total of three double-suction submersible motor pumps like those for the South African project based on the patented HDM technology, which has proved its worth several times over. With a weight of 13 200kg, the pumps are placed freely in the shaft underneath the shrouding tube. At a speed of 1 470 revolutions per minute, these hydraulic machines achieve an efficiency of 81% and convey 530m<sup>3</sup> of water per hour from the depths of the former mine over a head of 830m. In order to achieve the necessary capacity, each of these submersible motor pumps is equipped with a special water-filled, high-voltage submersible motor. This motor provides efficiencies of 91.5% and a rated capacity of 1 750 kilowatts. These are four-pole motors as they are much more robust than two-pole designs. As a result of the longer lifecycle this provides and the lower wear, these motors guarantee significantly higher operating reliability – indispensable for this particular application.

Additionally, over 1 000m of cable were laid for operation and monitoring of the pumps. While a thick, 5KV cable provides a reliable supply of electricity to the motor, a manometer ensures that each pump always

#### ANDRITZ GROUP

ANDRITZ is an international technology group providing plants, systems, equipment and services for various industries. The company is one of the technology and global market leaders in the hydropower business, the pulp and paper industry, the metal working and steel industries, and in solid/liquid separation in the municipal and industrial segments. Other important fields of business are animal feed and biomass pelleting, as well as automation, where ANDRITZ offers a wide range of innovative products and services in the industrial internet of things sector under the brand name of Metris. The company is also active in power generation (steam boiler plants, biomass power plants, recovery boilers, and gasification plants) and environmental technology (flue gas and exhaust gas cleaning plants) and offers equipment for the production of nonwovens, dissolving pulp, and panelboard, as well as recycling plants.



ANDRITZ double-suction submersible pump.

has the necessary counter-pressure to start up. Furthermore, the temperature of the motor is controlled by means of platinum sensors. The danger from methane gas is monitored by measuring hoses in the shrouding tubes. When the drinking water well goes into operation, one pump conveys the mine water first, and a second pump may be added if necessary. The third pump is available as standby. With this overall concept, the technology is excellently suited to begin reliable and sustainable operation in the long term.

ANDRITZ stands for passion, partnership, perspectives and versatility – core values to which the company is committed. The listed group is headquartered in Graz, Austria. With almost 170 years of experience, around 28 400 employees, and more than 280 locations in over 40 countries worldwide, ANDRITZ is a reliable and competent partner and helps its customers to achieve their corporate and sustainability goals. ■





**PUMPS**

# HOW CAN PUMPS FIGHT GROUNDWATER POLLUTION?

**SUSTAINABLE  
PUMPING TECHNOLOGY**

In Johannesburg acid water in former mines is an ongoing problem. Rainwater seeps into the tunnels and reacts chemically with residual minerals like pyrite, producing corrosive sulphuric acids. This can result in a pH value of 2, which is enough to cause lasting damage to humans and the

environment. To counteract this worst-case scenario, two powerful ANDRITZ submersible motor pumps were installed in the middle of Johannesburg city centre. Each pump is capable of bringing 1,500 cubic meters of water to the surface per hour; 60 million litres of water per day.

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**ANDRITZ**

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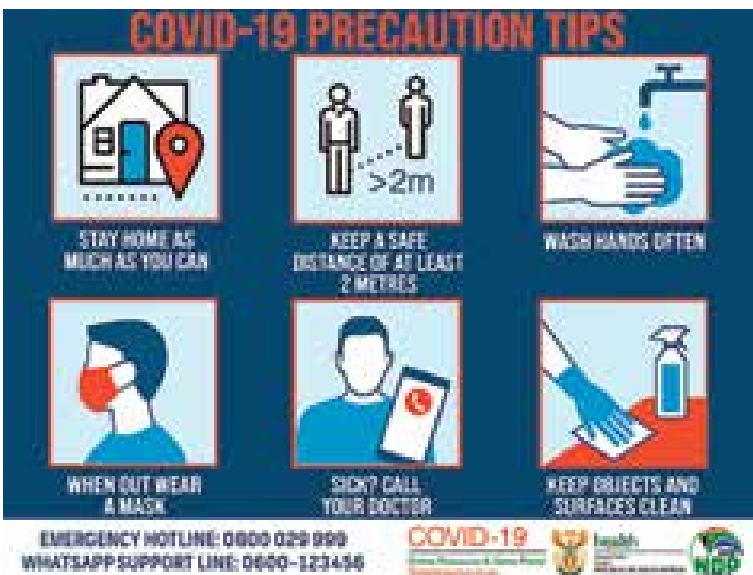
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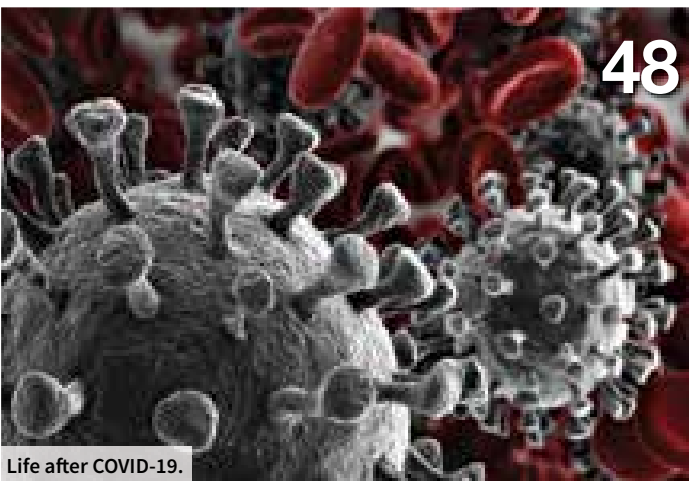


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Life after COVID-19.



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LEADING IN THE TIME OF COVID-19  
Invincible Valves looks to create new opportunities while keeping everyone safe, says MD Pam du Plessis.



# THE BARE NECESSITIES OF LIFE

Nelendhre Moodley

As the rest of the world begins relaxing lockdown regulations and opening up businesses, including pubs and restaurants, South Africa has reintroduced some hard restrictions, including the ban on alcohol. This as the COVID-19 pandemic wreaks havoc across the country. With the number of infections skyrocketing and the COVID-19-related death rate surging past 5 000, predications are that the pandemic will claim between 40 000 and 48 000 South African lives by the end of this year. Government's announcement that it is making space for some 1.5 million graves is certainly a chilling thought.

Given the devastating impact of the pandemic, a recession is forecast to follow.

The International Monetary Fund's chief economist Gita Gopinath says the "great lockdown has triggered the worst recession since the Great Depression".

She projects a deeper recession in 2020 and a slower recovery in 2021. Global output is forecast to decline by 4.9% in 2020, followed by a partial recovery, with growth at 5.4% in 2021. There is projection of a cumulative loss to the global economy over two years (2020-21) of over \$12-trillion from the pandemic.

Gopinath says over 95% of countries are projected to have negative per capita income growth in 2020.

The cumulative hit to GDP growth over 2020-21 for emerging market and developing economies is expected to exceed that in advanced economies.

The forecasted recession set to follow will further add to our woes and see the already unbearable unemployment rate skyrocket. Just before the onset of the pandemic, unemployment was nipping at the heels at 29%.

And so it seems that life at the bare necessities stage is here to remain awhile.

## MINING INDUSTRY REVS UP ITS SUPPORT

South Africa's mining industry has been proactive, quickly taking up arms in the fight against the COVID-19 pandemic, providing much-needed support, safety equipment and funding to help miners and the mining communities in which they operate.

The Minerals Council South Africa has announced that together with the South African mining industry, it seeks to increase its COVID-19 testing capacity, "both for companies themselves and in support of

the country's overall testing imperative". The industry currently screens around 272 000 employees every time they report for work, and has undertaken 15 994 tests (as at 25 June 2020), the council says.

Meanwhile aside from its wide-ranging financial support, Anglo American's chief executive Mark Cutifani recently said the Anglo American Foundation had set up a global programme to match employees' personal donations initially up to \$1-million. Further to that, Anglo American's board of directors and group management committee members had agreed to donate 30% of their fees or salaries for three months to their personal choice of COVID-19-related charities.

In line with heeding the call, platinum producer Royal Bafokeng Platinum recently opened the 200-bed Royal Bafokeng Platinum Field Hospital in Rustenburg, costing some R10m, to support government's already overburdened resources in the fight against COVID-19.

## COUNTING THE COST

In this edition of *SA Mining*, businesses flag the devastating impact of the pandemic. Equipment manufacturer Brelko says the pandemic-related health and safety costs have added a further 10% to 12% to company costs, and that currency fluctuation has been devastating to businesses given that at the

onset of the pandemic in South Africa, the firm was in the process of inking equipment deals with European manufacturers (pg 16).

Valve manufacturer and cover story Invincible Valves expects more projects to be put on the

back burner and forecasts a bleak outlook for the year ahead (pg 8). And like its peers, explorer Manas Resources continues to monitor the situation closely at its operations in Côte d'Ivoire and remains ready to respond (pg 40).

Meanwhile coal miner Menar says that even before COVID-19, South Africa was punching below its resources weight and that the socio-economic crises caused by the pandemic must compel us to self-correct (pg 38).

Looking ahead, open-pit mining company Afrimat encourages government to invest heavily in infrastructure development, saying it is a key enabler in the recovery from the devastating effects of COVID-19 (pg 24). Ocorian's business development director, Alan Witherden, provides some insight into the sectors that are expected to thrive in Africa post COVID-19 (pg 48). ■

**Over \$12-trillion**

"A projected cumulative loss to the global economy over two years (2020-21) from the pandemic." – Gopinath

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## NAMIBIA

ASX-listed Paladin Energy recently completed a work package aimed at delivering a reliable mine restart programme to bring its Langer Heinrich uranium mine back into production under the right uranium pricing environment.

The selected restart option provides a low-risk, reliable restart plan balancing the ability to rapidly respond to strengthening uranium prices and maximising asset value, the company said. Langer Heinrich can be brought back into production for \$81-million of pre-production cash expenditure. The plan has confirmed a 17-year mine life with peak production of 5.9mlb U3O8 per annum for seven years.



## TANZANIA

Tanzanian Gold (Tangold) recently received an updated mineral resource estimate for the Buckreef gold project in Tanzania, which confirms a doubling of resources in the measured and indicated categories and highlights the upside potential in exploration targets. "Indicated mineral resources have increased by approximately 20% with a corresponding nearly 30% increase in contained ounces. Inferred mineral resources have also more than doubled. This is due to the deeper drilling and to reflect the open-ended nature of the mineralisation," the company said. Tangold is the majority shareholder and operator of Buckreef Gold Company, its shareholder, and its joint venture partner is STAMINCO, the Tanzanian government-owned mining company.

Checking tank densities.



## CÔTE D'IVOIRE

AIM-listed Altus Strategies recently signed a term sheet with TSX-V-listed Stellar Africa Gold for the sale of and royalties on Altus's Prikro and Zuénoula gold projects located in Côte d'Ivoire.

Steven Poulton, CEO of Altus, said: "Our focus remains firmly on delivering a high-quality, diversified and precious metal-focused portfolio of assets to our shareholders. This proposed transaction further underscores our dynamic and highly effective royalty generating business model and we look forward to updating shareholders on this opportunity in due course."

## MALAWI

Mining exploration company Altona has entered into a memorandum of understanding (MoU) with mining consultancy company Akatswiri Mineral Resources to acquire a majority stake in a rare earth mining project in the Chambe Basin, Mulanje, in Malawi.

Akatswiri is a 100% owner of Akatswiri Rare Earths (ARE), which applied for an exploration licence for the Chambe Rare Earth Project. As per the MoU, Altona will initially acquire a 51% holding in ARE, rising to 75% on meeting certain project milestones. Christian Taylor-Wilkinson, interim CEO of Altona, said, "We are looking to commence our due diligence in June which we hope will quickly lead to a binding agreement. We are also speaking with a number of parties to work with us through the acquisition and fund the subsequent mining project."

## CÔTE D'IVOIRE

Following Sama Resources' exploration drilling programme undertaken over the past five months, at three specific sites over a strike length of 25km, Samapleu, Bounta and Yepleu, drilling results at the Bounta zone confirmed the presence of mineralisation at depth that warrants additional investigations.

Earlier surface drilling at the Samapleu project returned excellent results and expanded the surface mineralisation at the Extension 1 mineralised body by 200m. At the Yepleu prospect, a total of three holes were completed between April and 15 June.



Sulphide mineralisation at 533m showing a semi-massive sulphide mineralisation texture at the Bounta zone.

## BURKINA FASO

Multi-asset gold producer Endeavour Mining has completed the acquisition of TSX-listed SEMAFO, effective 1 July.

SEMAFO is a Canadian-based mining company with gold production and exploration activities in West Africa. Endeavour is focused on offering both near-term and long-term growth opportunities with its project pipeline and its exploration strategy, while generating immediate cash flow from its operations.



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“The Applied Principles software has revolutionised our ability to manage compliance across our business; their versatility and approach has been nothing short of game changing. Their turnaround responsiveness in relation to the development of the software to enable real-time, daily checks for COVID was impressive; they have become our partner in every sense of the word.”

Sollie Swanepoel, BIS group manager - Samancor

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## HUMMINGBIRD RESOURCES JOINS THE WORLD GOLD COUNCIL

AIM-listed Hummingbird Resources recently joined the World Gold Council, the market development organisation for the gold industry, and as a result would adopt the World Gold Council's Responsible Gold Mining Principles, the company said. Founded in late 2005, Hummingbird Resources is an African gold producer, developer and explorer. Dan Betts, CEO of Hummingbird, said: "Sustainability is at the heart of everything we do at Hummingbird and adopting the Responsible Gold Mining Principles underpins our commitment as a sustainable operator."



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## EXXONMOBIL AND INNIO IN COLLABORATION AGREEMENT

ExxonMobil, the third largest crude oil and natural gas producer in the world, and INNIO, a solutions provider of gas engines, have signed a long-term extension to their global lubricant collaboration agreement for INNIO's Jenbacher Type 2, 3, 4, 6 and 9 natural gas engines. As part of an energy solution for Africa, the partnership will contribute significantly by making clearer fuel and gas available on the market. The partnership will assist in meeting the growing demand for alternative power sources.

## RENERGEN AND TOTAL SIGN LNG MARKETING AGREEMENT

Emerging domestic natural gas and helium producer Renergen and Total South Africa have signed an agreement for the joint marketing and distribution of liquefied natural gas (LNG) through Total's service stations. Renergen is in the construction phase of South Africa's first commercial LNG plant, and is anticipating a turn-on date of the plant around the third quarter of 2021. The customer base for the LNG will predominantly be logistics companies operating trucks along the main routes across the country, with a significant portion of the initial production already allocated to customers.



## RBPLAT OPENS 200-BED FIELD HOSPITAL IN RUSTENBURG

In support of government's already overburdened resources in the fight against COVID-19, mid-tier platinum group metals (PGMs) producer Royal Bafokeng Platinum (RBPlat) recently opened a 200-bed Royal Bafokeng Platinum Field Hospital in Rustenburg, at a cost of about R10-million. Working with the North West Provincial Department of Health and the Bojanala District Health Department, RBPlat converted its unused Maseve Mine, South Shaft Change House in North West into a hospital to provide initial COVID-19 medical treatment to its employees and communities. The 2 940m<sup>2</sup> treatment facility includes five wards, each with separate beds. Speaking at the opening, Steve Phiri, CEO of RBPlat, said: "The global COVID-19 pandemic and the steadily increasing rise in positive cases in South Africa is a cause for concern and has encouraged us to identify projects that can offer support to our employees, our communities and the government."

## INVESTING IN AFRICAN MINING INDABA 2021 SCHEDULED FOR 1-4 FEBRUARY 2021

International organiser of exhibitions and conferences, the Hyve Group, has announced that the dates for the Investing in African Mining Indaba 2021 have been scheduled for 1-4 February 2021. "We believe that hosting the event on its usual dates will help our stakeholders with strategic business planning, enable us to deliver another strong edition by maximising attendance, and provide a platform for the industry to meet, reconnect and set the agenda for 2021," the company said.



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# LEADING IN THE TIME OF COVID-19

## Invincible Valves remains agile and flexible

By Nelendhree Moodley

**A**lthough South Africa reacted speedily and decisively to curb the spread of the coronavirus (COVID-19), the impact continues to be devastating.

According to Africa's Pulse, the World Bank's twice-yearly economic update for the region, COVID-19 is expected to cost sub-Saharan Africa "between \$37-billion and \$79bn in output losses for 2020 due to a combination of effects", including trade and value chain disruption, which impacts commodity exporters and countries with strong value chain participation; reduced foreign financing flows from remittances; and foreign direct investment, among others.

Like its global peers, South African businesses are also counting the costs – lives, jobs and a looming global recession.

"Aside from the COVID-19 virus and risks around it, the actual extended lockdown has had a huge impact on business. Without being able to trade, the ability to generate income and contain cash reserves is nullified. There is a risk that more projects will be put on the back burner due to the financial crisis,

and further to that the looming peak of the virus has set the scene for a bleak outlook for the year ahead," says Pam du Plessis, MD of valve manufacturer Invincible Valves.

"There seems to be no light at the end tunnel just yet," she adds.

Invincible Valves is a medium-sized enterprise located in Knights, Germiston. Established in 1982, the company offers a full range of low-pressure valves, a reconditioning service and an in-house rubber lining service for valves, pipes, fittings and vessels. The company is used by many of the country's major valve manufacturers.

While the East Rand-based manufacturer has been fortunate enough to be able to sustain its staff's monthly income and settle with its creditors, its debtors' inability to meet their obligations, including big businesses that have implemented force majeure, has placed strain on its cash flow.

"Although we are back up and running with 70% staff occupancy and the balance in home offices, we are still finding it hard to source spares etc. as many companies have not reopened and the ones that have are



RSV gate valve.

often not operating at full capacity just yet," Du Plessis told *SA Mining* at the time of Level 3 lockdown.

### AGILE AND INNOVATIVE

In the face of the pandemic, the valve manufacturer has remained agile, flexible and innovative.

With close to 40 years of business experience, the East Rand-based manufacturer believes its proficiency in handling challenges such as prolonged industrial action has stood it in good stead during the time of COVID-19.

"Due to past experience, we have learnt to easily adapt our business. So for us setting up home offices etc. was fairly easy considering that we have done it a couple of times over the past decades when we have experienced industrial action. Our business is equipped to work on the move with every user having a laptop as their primary computer, cloud-based email, telephones ➤

“In the face of the pandemic, Invincible Valves has remained agile, flexible and innovative.”  
– Du Plessis



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and pre-existing VPN setup. We have learnt that technology is an amazing tool, allowing us to be even more connected than when we occupied the same space at the office. We have made use of Zoom and Teams for meetings and have been even more productive as there are fewer interruptions and distractions.”

#### LOOKING AHEAD

Although Invincible Valves “is doing as most South Africans are doing, which is attempting to survive the pandemic”, the manufacturer has embarked on identifying and creating new opportunities while keeping everyone safe.

It is investigating opportunities to increase its footprint across Africa as well as entering into new industries not usually associated with its valve types.

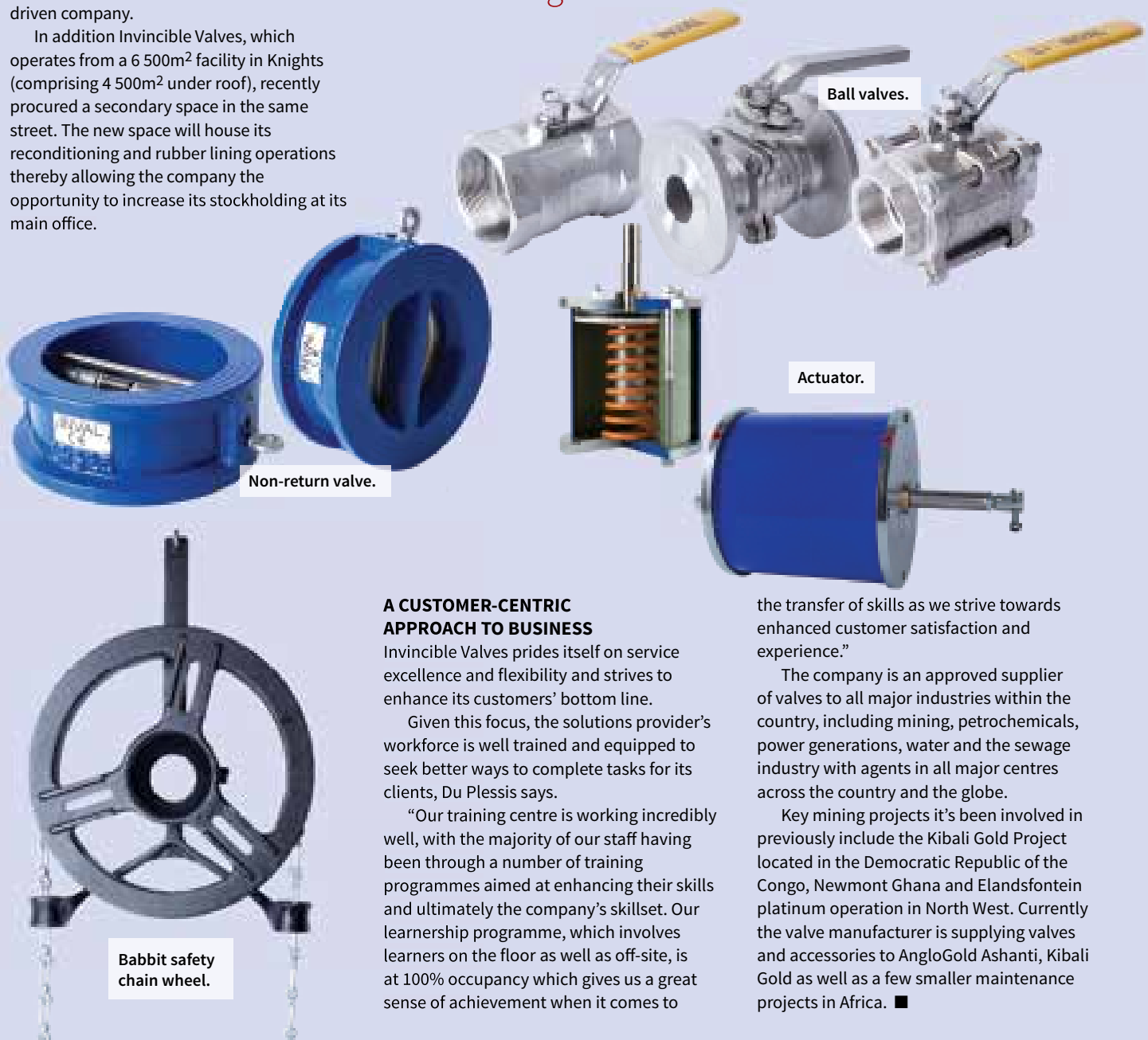
“We would like to enhance our basket of options and look to offer a wider range for these newer industries,” says the solutions-driven company.

In addition Invincible Valves, which operates from a 6 500m<sup>2</sup> facility in Knights (comprising 4 500m<sup>2</sup> under roof), recently procured a secondary space in the same street. The new space will house its reconditioning and rubber lining operations thereby allowing the company the opportunity to increase its stockholding at its main office.



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“Invincible Valves’ proficiency in handling challenges has stood it in good stead during the time of COVID-19.” – Du Plessis



#### A CUSTOMER-CENTRIC APPROACH TO BUSINESS

Invincible Valves prides itself on service excellence and flexibility and strives to enhance its customers’ bottom line.

Given this focus, the solutions provider’s workforce is well trained and equipped to seek better ways to complete tasks for its clients, Du Plessis says.

“Our training centre is working incredibly well, with the majority of our staff having been through a number of training programmes aimed at enhancing their skills and ultimately the company’s skillset. Our learnership programme, which involves learners on the floor as well as off-site, is at 100% occupancy which gives us a great sense of achievement when it comes to

the transfer of skills as we strive towards enhanced customer satisfaction and experience.”

The company is an approved supplier of valves to all major industries within the country, including mining, petrochemicals, power generations, water and the sewage industry with agents in all major centres across the country and the globe.

Key mining projects it’s been involved in previously include the Kibali Gold Project located in the Democratic Republic of the Congo, Newmont Ghana and Elandsfontein platinum operation in North West. Currently the valve manufacturer is supplying valves and accessories to AngloGold Ashanti, Kibali Gold as well as a few smaller maintenance projects in Africa. ■

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# **BELL**

# GENDER EQUITY

## Is the mining sector succeeding with inclusivity?

By Nelendhree Moodley

As the mining sector works towards meeting the legislated gender equity targets, there arises the question of whether this is just a box-ticking exercise for many companies or whether there is meaningful transformation. *SA Mining* caught up with fuel management company Gilbarco's GM Rumisha Motilal to chat about her experiences in the sector.

### FROM YOUR EXPERIENCE ARE MINING COMPANIES AND SUPPLIERS MAKING THE CALL TO MEET GENDER EQUITY TARGETS AS REQUIRED BY LEGISLATION?

My honest answer is no. Although much progress and awareness has been made in recent years, I still believe that mining organisations could be doing more to become gender-balanced. When we look



Gilbarco's GM Rumisha Motilal.

at the global leadership picture, we see progress in terms of women in the C-suite. As an example, women in C-suite positions increased from 15% to 21% in 2019. Although we can celebrate the progress, we are not seeing the same progress for women of colour in the C-suite. It's imperative that mining organisations implement policies that enforce gender equity with a strategic agenda and key considerations are made for women of colour and the inclusion of these women in male-dominated divisions. We all know the key financial indicators that outline organisations with gender-balanced boards outperform competitors on key financial indicators like return on equity, increased sales and return on investment. If mining companies want to beat competitors the answer is simple: hire more female executives.

### WHAT ARE SOME OF THE CHALLENGES ASSOCIATED WITH WORKING IN THE MINING SECTOR?

Women are faced with challenges such as lack of inclusion, lack of mentors, lack of technical training, sexual harassment, racism, sexism, bullying and lack of leadership support. For most women in male-dominated positions they are the "first women to fulfil the roles" and they are usually set up to fail. Women "usually" work 10 times harder to get half the acknowledgment their male colleagues get. Women are reluctant to talk about the war stories because they fear victimisation. For example, at a company I worked for previously, I was requested to speak Afrikaans which was not my inherent job requirement. I was regarded as a "female experiment" on the management team. Even though the average qualification was about Grade 12 on the management team and at the time I had 12 years' management experience and held an MBA with a proven performance track record. The point is these experiences happen to women all the time and senior officials at organisations do not address it. I chose to take my experiences, research the barriers and find coping mechanisms to help other women navigate the industry. It ended up becoming a book which will be launched in August. My recommendation is for mining companies to unite towards gender parity and not allow gender discrimination and unfair practices. I am fortunate that I joined Gilbarco AFS which has been a positive experience for me regarding inclusion and diversity as a woman in the mining sector.





“ Although women in C-suite positions increased from 15% to 21% in 2019, we are not seeing the same progress for women of colour in the C-suite. ”

– Motilal

#### **WHAT IS THE INDUSTRY DOING TO ATTRACT MORE WOMEN TO THE SECTOR?**

There are certainly more networking opportunities which allow women a platform to share their successes and challenges and assist each other to progress in this tough industry. At Gilbarco I am currently on the executive team, which is a 50% gender-balanced team, and the company is a financially sound, inclusive and progressive organisation. This stems from senior leaders who drive transformation with strategic intent as opposed to meeting affirmative action numbers. Inclusion is the Gilbarco culture and not a tick-box exercise. The competitive advantage is seen in the financials, the employee engagements statistics and retention of employee statistics. The executive team is not afraid to take action and resolve unfavourable practices that do not drive inclusion. The industry needs to make gender parity a strategic intent and execute gender parity objectives accordingly.

#### **HOW IS YOUR COMPANY PROMOTING GENDER EQUITY AND WOMEN'S PARTICIPATION?**

Firstly, this initiative is led by our HR director Alma Moses, who is not just a stakeholder in title. She has power and authority too. It's imperative that women of colour are given titles and the power to execute on business objectives. In South Africa it is common practice to give women a title without any execution power – this is known as “window dressing”. Secondly having an MD (Yemi Fatunla) who is strategic and an empowering leader makes our job as women way easier. Racism and sexism agenda points are top



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priority, which makes a great difference. Thirdly, I work with an executive team that values female contribution and heeds each person's contribution with counter arguments delivered with respect and the highest level of professionalism. Our priority is inclusion before diversity, which speaks volumes.

#### **DO YOU THINK THE MINING INDUSTRY'S MOVE TOWARDS INCREASED MODERNISATION AND MECHANISATION IS ENCOURAGING MORE WOMEN INTO THE SECTOR?**

I believe it is encouraging because women can now see the potential in the industry and are looking at ways that they can contribute to making the mining sector more competitive, safer and inclusive from a

Fourth Industrial Revolution perspective, and more gender-balanced for the generations to follow. The industry leaders need to create a safe inclusive environment to support and grow these innovative ways of working.

#### **WHAT LESSONS CAN SOUTH AFRICA TAKE FROM GLOBAL MINING COMPANIES' STANCE ON ATTRACTING WOMEN TO MINING?**

My view is that globally we are not where we should be in the mining space. Allow me to explain some useful best practices to drive gender parity as a culture change. There should be multiple safe communication channels where women can speak up and engage about the career barriers they face. Other companies use employee engagement stats as an annual practice. The key is to

“Organisations with gender-balanced boards outperform competitors of key financial indicators like return on equity, increased sales and return on investment.”  
– Motlal



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drive improvement activities with regular feedback from employees. “Speak up” platforms are usually investigated by the perpetrators, which makes women reluctant to talk about the challenges they face. In order to prevent this, my advice is to institute focus groups to address unfair practices. Women need role models and exposure to technical mining practices. With support and opportunities more women will embark on progressing in the industry. I have 10 rules of engagement for women to follow which I outline in my Women@work talks. One example is Taking Centre Stage in your mining career. This means women should be more strategic and intentional about their careers, and give it thought by making real changes so that they are able to take

centre stage in their careers. Being modest is really about not feeling comfortable with career compliments and achievements. An example is when someone gives you praise, you dismiss it. If one is not comfortable with projecting power, one won’t talk about one’s achievements regularly. Doing a good job and being modest does not get you recognised – you need to own your achievements if you want to be recognised. Self-promotion does not mean bragging; it is a healthy sense of confidence. Consider ways in which you feel comfortable in self-promotion. Women need to get comfortable with power. We need to show up feeling good, looking good and feeling powerful. Having a strong sense of power helps you own your space at the leadership table.

#### PLEASE SHARE A BIT ABOUT GILBARCO AND ITS STANCE ON GENDER EQUITY.

I am the general manager – mining for Gilbarco Veeder-Root. I joined in July 2019. Gilbarco has been a manufacturer of fuelling equipment and technology since 1865, and our holding company is based in the United States. Gilbarco has a mining footprint in more than 50% of South African mines. What attracted me to the company was the technology and innovation. Gilbarco uses data technology to aid mines’ decision making by using an omni-channel approach to mining real-time operations management. I found the solutions and production offerings fascinating and this was aligned to next-generation thinking which always interested me. When I was interviewed I was blown away by the inclusive and engaging leadership dialogues I had with vice president Andre Dhawan, HR director Alma Moses and VP HR Andrew Nash. It is the most progressive and transformative organisation with gender parity – not just a slogan on the wall; it is a culture everyone consumes. The products fascinated me because I wanted to understand how this company takes control of mining operations through real-time data-driven insights which helped mines make critical business decisions based on a near-real-time view of operations. I wanted to be part of an innovation hub that is powered by intelligence and grit. Gilbarco lives inclusion and diversity and in my opinion I wish more mining organisations would implement best practices accordingly.

#### ANY OTHER INFORMATION YOU WISH TO IMPART?

I have uncovered my experiences in my book which will be launched this Women’s Day, 9 August 2020. It is called *Women@work: My Journey Into “Macho” World*. It encompasses my experience working in the mining sector. ■



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# The Federation for a Sustainable Environment

Promoting the ecological sustainability of development and the wise use of natural resources in Southern Africa



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The Federation for a Sustainable Environment (FSE) Promotes the ecological sustainability of development and the wise use of natural resources in Southern Africa It protects and promotes environmental health and functional ecosystems for future generations The FSE promotes sustainable and just social development as an inseparable consequence of natural resource use development projects

## The FSE

- Ensures that developments involving the consumptive or destructive use of natural resources specifically benefit local residents and parties directly affected by the development;
- Informs all decision making in development, including in planning and monitoring activities, that affect local people and natural and environmental resources;
- Takes action, including legal action, to hold decision makers accountable in situations where development may have negative social, economic or environmental impacts that affect people and the environment;
- Ensures that the total cost of the use of natural resources including all externalised and long-term costs of maintaining ecosystem services to local people, are provided for and borne by the project;
- Facilitates the remedying of existing environmental degradation; and
- Mobilises collaborative national and local action among like-minded entities and raises funds and legal and technical expertise to support such actions.

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# NEED FOR SPEED

Brelko expands in-house capacity

By Nelendhre Moodley

**T**he COVID-19 pandemic continues to wreak havoc across the globe, tracking just over half a million deaths to date. A fragile world economy characterised by a soaring number of companies falling prey to the pandemic and an unprecedented unemployment tally best describe the current situation. In a bid to better understand the impact of the pandemic and lockdown on equipment manufacturers, which by this time has shifted gears to Level 3, *SA Mining* caught up with conveyor belt cleaning equipment manufacturer Brelko's MD Kenny Padayachee.

The five-week Level 5 lockdown took a hefty toll on business, with many firms not expected to survive the shutdown, says the Johannesburg-based equipment supplier. While Brelko was awarded an essential services certificate, which ensured that the business remained operational at a basic level, Padayachee says the closure of export hubs (ports and airports) effectively put a stop to a major portion of its business.

Added to this was the implementation

of force majeure on contractors by mining majors essentially "suspending on-site contracts", and requiring contractors to immediately remove their equipment and presence from clients' operations.

"Although we were able to prove that we are part of essential services, the suppliers and sub-suppliers in our value chain were on shutdown. To ensure that Brelko remained operational, we had to encourage our suppliers to apply for essential services permits to operate under Level 5 lockdown. Associated suppliers included equipment powder coaters, profilers and urethane producers."

Brelko is an equipment supplier to South Africa's key industries, including to petrochemicals giant Sasol, power utility Eskom and coal and heavy minerals mining company Exxaro's Grootegeluk mine in Limpopo. "We service all our conveyor cleaning equipment at these sites – a vital service offering to ensure that processes operate smoothly, without equipment failure to cause disruptions."

Aside from an April turnover that was significantly "down", Padayachee explains that the COVID-19 pandemic has brought with it an added burden of costs.

Following the pandemic-related regulations associated with health and safety in the workplace, companies have had to outline and follow through on measured risk assessment plans, which aim at mitigating on-site risks.

"By law companies are required to adopt high levels of health and safety measures, including providing hand sanitisers and monitoring employee temperatures to ensure that they are COVID-19-free, as well as supplying three face masks to each workshop employee and new masks every day to employees servicing equipment

**"Pandemic-related health and safety costs add a further 10% to 12% to company costs."**

– Padayachee



Keyskirt and combination feedboot supplied to Exxaro's Grootegeluk mine.





on-site. While the face masks are relatively cheap, following the onset of the pandemic, they have tripled in price,” says Padayachee.

Apart from pandemic-related health and safety costs adding a further 10% to 12% to company costs, currency fluctuations have been wreaking havoc on businesses that were in the process of inking equipment deals with European manufacturers at the onset of the pandemic, he says.

Brelko was in the process of purchasing equipment from Italy aimed at improving productivity just as COVID-19 was unfolding, and was subsequently caught on the back foot following the erratic rand-dollar exchange rate, which effectively jumped from \$16 to the rand to \$19 to the rand within days.

“The new robotic gluing system will save on time and cost, and deliver accurately glued components.”  
– Padayachee

“As the order required an immediate 60% down-payment, the exchange rate had a massive negative impact on the price of the equipment we were ordering.”

#### MARKETING STRATEGY

Even as the lockdown eases, the way business is conducted has forever changed, with major conferences such as Mining Indabas set to alter format.

A key event on the calendar for equipment manufacturers to the mining and construction industry – the Electra Mining exhibition – has been cancelled.

This has left companies including Brelko, which showcase their latest innovative technologies at the event, to figure out new marketing strategies, Padayachee says.

“Fortunately Brelko has been proactive and uploaded key product information, such as detailed installation and maintenance, onto flash drives.”

Since adopting this decision a decade ago the equipment manufacturer has translated its catalogue information into various languages, including English, French, Spanish, Portuguese, Arabic and Russian.

Brelko products are sold across the globe – in Europe, the United States and Asian countries, including Arabic-speaking countries.

#### INVESTING IN INNOVATION AND TECHNOLOGY

In line with keeping “ahead of the curve”, the niche market equipment manufacturer is investing in the acquisition of key equipment aimed at improving efficiency, accuracy and productivity, such as a fully automated spray boot, ordered from Italy before the lockdown. This was ordered from Trendline Automotive Suppliers, valued at R2.9-million.

“We take automation and innovation seriously because our objective is to produce consistent and accurately manufactured products. Given that some of our metal parts are powder-coated, sandblasted and spray-painted, we were looking for quick-

drying solutions. The acquisition of a double spray booth measuring 14m, with one section earmarked for paint preparation, mixture and spray, while the other section is allocated for quick dry, means that Brelko products will have a car-like paint finish.

“Our aim is to be the very best at what we do, so precision and accuracy are paramount,” says Padayachee.

In anticipation of the spray booth scheduled for arrival in October, the company has been preparing the floor, the bay area and power supply installation.

In addition, Brelko has invested in the acquisition of a specially designed robotic gluing system from Directech, valued at R4.7m.

“Given the time-consuming and laborious process associated with gluing belt scraper components, the robotic gluing system will, aside from saving on time and cost, deliver accurately glued components.”

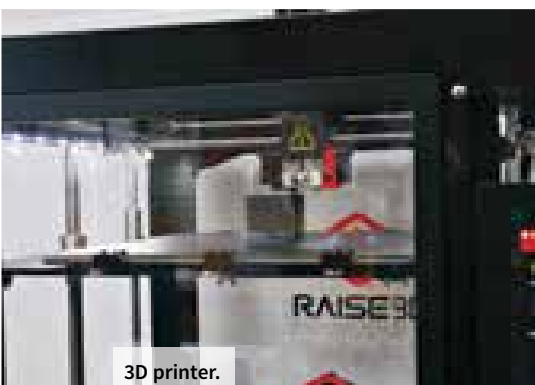
In terms of the value that the machine will add to Brelko, Padayachee says it will eliminate the hidden costs associated with inconsistencies related to manual production and thus result in fewer product returns.

To ensure that employees are well equipped to handle the hi-tech cutting-edge robotic gluing system, Brelko will upskill four employees to meet the new equipment requirements.

While ordinarily automation is associated with a reduced labour force, Padayachee says that as the company is looking to expand its local manufacturing offering, it will not be retrenching personnel.

“At the moment Brelko is outsourcing some of its production to local suppliers and the new investments will allow us to increase in-house capacity.”

Further to this, the company recently acquired a \$240 000 fully automatic polyurethane dispenser able to produce 12 tonnes a month. Acquired in February, the dispenser will help the company triple the number of moulds currently produced. ■



3D printer.



Assembly of E952 composite scraper.



High-impact system supplied to Exxaro's Grootegeluk mine.

## BELL CARE PACKAGE UNLOCKS CUSTOMER BENEFITS

Equipment manufacturer Bell Equipment recently introduced the Bell Care Package, an answer to customers' asset servicing needs. It also assists with managing costs and helps clients to better respond to today's uncertain and challenging environment, the company said in a statement.

General manager of Bell Equipment Group Technical Services Meltus Badenhorst said the Bell Care Package was "a result of leveraging the company's global network and applying economies of scale to create a range of flexible service packages, all attractively priced, and focused on the needs of our customers in Southern Africa".

The Bell Care Package, which is available across the entire Bell product range, replaces the existing Bell Secure Service Package, and provides a more cost-effective and relevant product to manage machine service costs. Apart from flexible options and reduced pricing, the Bell Care Package is online and live, hosted on the Bell Aftermarket Infohub, which is regularly updated. "By incorporating a live calculator, our team can use the system to effortlessly run multiple scenarios for customers. The software is remarkably user-friendly; two sliding scales allow the customer to choose how many months of cover and the number of hours. The system then automatically generates a quote at the touch of a button," says Badenhorst.

The Bell Care Package is available with all new machine purchases and rentals and is further offered on machines that have already accumulated hours and will remain in place for the selected hours and/or period, whichever occurs first. Bell Care can also be topped up should the contract near its completion.



## AFROX ACHIEVES LEVEL 1 B-BBEE STATUS

African Oxygen (Afrox) has achieved Level 1 status under South Africa's broad-based black economic empowerment regulations. This is a historic achievement for Afrox and will open doors to many more contracts awarded on the basis of a company's contribution to uplifting fledgling black businesses, says MD Schalk Venter.

"Afrox is committed to changing the face of business in South Africa, supporting small black businesses and supporting our government's objectives to provide opportunity for the previously oppressed majority in our country. Our dedication to this transformation of South Africa's business landscape is reflected in our unwavering pursuit of B-BBEE Level 1 status. In recent years we have focused on developing Afrox as a business fit for purpose, and in this respect we have enjoyed the support of our parent company Linde plc."

Afrox has been in business for 93 years and its products and services touch the lives of most South Africans. It supports all sectors of the economy and contributes to the well-being of the country in these uncertain times, says the company.

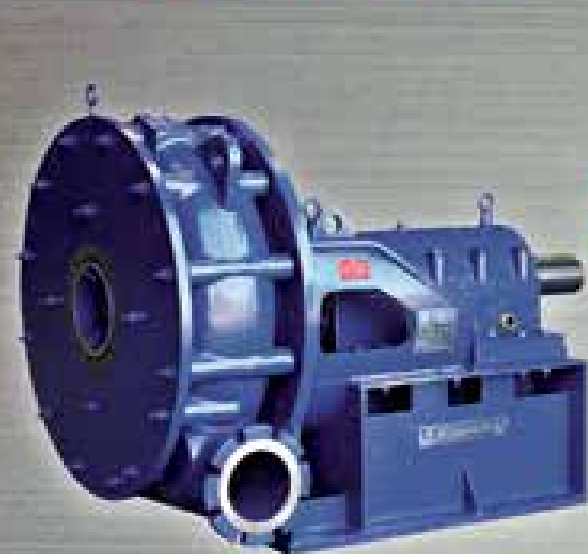


MD Schalk Venter.

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# KELLER SOLUTIONS FOR DIAMOND MINES

**R**ussian mining company Seversalmaz holds the licence to operate one of the world's biggest diamond mines – the Lomonosov Diamond Mine in the Arkhangelsk Oblast. The mine's raw diamond reserves are estimated at 220 million carats. Lomonosov became famous on 21 September 2017 when it found a 28.65-carat pink diamond.

The area where it was discovered is part of the Karelian Craton, a large bedrock mass from the Archean Eon. Russian companies mine for diamonds in the eastern part of this region, Finnish companies in the west. The thing that makes the Lomonosov mine so special is that it contains many coloured diamonds, including pink, violet, green, yellow and brown. It also holds a large number of high-quality colourless diamonds. This composition is unusual because it is estimated that normally only one out of every 10 000 mined diamonds is coloured.

The Seversalmaz mining company has

to bore wells to prevent the open-pit mine from flooding. The groundwater level and temperature are constantly monitored to ensure reliable dewatering. During winter, temperatures can fall as low as -37°C. This harsh environment presents extreme challenges for the measuring instruments used.

## MONITORING 200M UNDERGROUND

Seversalmaz pumps groundwater out of the open-pit mine through several wells drilled on the perimeter. Between 2013 and 2015, the company installed KELLER DCX-16 data loggers at all 45 dewatering wells.

## DATA COLLECTORS WITH A SMALL DIAMETER

The DCX-16 is an autonomous, battery-powered data collector in stainless steel housing with a very small diameter of only 16mm. The logger can take pressure and temperature readings over long periods of time. The software it comes

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The family-owned business employs 450 staff.

Groundwater – dewatering a diamond mine.



with makes it possible to set measuring intervals. In addition, the recorded data can be presented in the form of a graph or else converted into water-level figures. The client chose this solution because the product can be used in a wet standpipe 200m to 300m underground and also has a very low error band. Thanks to their small diameter, DCX-16 level sensors can also be used at locations where every millimetre of space counts. ■

“Seversalmaz installed KELLER DCX-16 data loggers at all 45 dewatering wells.”

Lomonosov Diamond Mine.







**KELLER**

# Monitoring Mine Dewatering



**DCX-22**  
Level Datalogger

**Pressure Ranges**  
0...5 to 0...100 mH<sub>2</sub>O

**Total Error Band**  
±0,1 %FS @ 0...50 °C

**Recording Capacity**  
57'000 measuring points

**Dimensions**  
ø 22 mm

**Special Characteristics**  
Also available in ECO design



**36XS**  
Level Sensor

**Pressure Ranges**  
0...1 to 0...30 bar

**Total Error Band**  
±0,2 %FS @ 0...50 °C

**Accuracy**  
±0,05 %FS

**Interfaces**  
RS485, 4...20 mA

**Special Characteristics**  
ø 16 mm



**ARG1**  
Modem Datalogger

**Communication Mode**  
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**Sensor Interfaces**  
RS485, SDI-12, analog, digital

**Battery life**  
Up to 10 years

# FOOD FOR THOUGHT

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## Colluli targets 2022 production

By Nelendhre Moodley

Given a rapidly growing global population coupled with limited farming land, the fundamentals for potash, a potassium-rich salt essential element for stimulating plant growth, continues to be strong, with future projections expected to remain robust, Danakali CEO Niels Wage tells *SA Mining*.

Dual-listed Danakali, which is focused on developing its flagship Colluli Potash Project located in the Danakil Depression region of Eritrea, East Africa, is targeting breaking ground in 2021 and production and commissioning in 2022.

The Colluli Potash Project has a life of mine in excess of 200 years, with mineralisation commencing at just 16m, which makes the Colluli resource the shallowest known evaporite deposit globally, and amenable to open-cut mining. It is “suitably situated close to the sea, giving the company the advantage of access to port”.

According to JORC-2012-compliant ore reserve estimates, the project represents one of the largest potash reserves in the country with an estimated reserve of 1.100Bt @ 10.5% K<sub>2</sub>O for 203Mt of contained sulphate of potash (SOP) equivalent.

SOP fertiliser, used in fruit, vegetable and nut farming, significantly increases product yield.

According to Wage, the resource is amenable to open-cut mining which provides higher resource recoveries relative to underground and solution mining methods, and is generally safer, lower in cost and more easily expanded.

“The project carries a significantly lower level of complexity when compared to other projects, given its predictable processing plant feed grade, predictable production



rates and simple, commercially proven mineral processing technology,” he says.

The Colluli Potash Project is capable of producing a diverse range of potash types but is focusing primarily on SOP or potassium sulphate.

Speaking of project development, Wage explains that the engineering, procurement, construction and commissioning contract related to phase 1 of the project has been finalised, phase 2 is under way, and key appointments, including the diversified global engineering group DRA Global, have been completed. Earth Moving Worldwide has been identified as a preferred contractor for the mining services. The company is working on finalising a power contract.

According to the studies, Module I of the project is expected to produce 472 000tpa of premium SOP, with Module II, which is expected to commence production in year six of the project, scheduled to double total SOP production to 944 000tpa.

“As such, compared to typical sulphate of potash which contains approximately 94%

potassium sulphate, the Colluli process is expected to generate product with purity of 98%. As for the size, Colluli development allows for standard, granular and soluble products to be generated for distribution to the market,” says Wage.

### **COLLULI – A DRIVER FOR ERITREA’S ECONOMIC GROWTH**

Once complete, the Colluli Potash Project will be a significant contributor to Eritrea’s economy, which is dominated by agriculture.

“The project is expected to be a substantial provider of jobs, contributor to GDP and catalyst for infrastructure development. The Colluli project will employ roughly 500 people on-site and create more employment at the port. We anticipate that the project will provide significant income for the country – accounting for roughly 50% of exports by 2030.”

Furthermore, given that Eritrea’s economy is driven by agriculture, having access to the potash will offer local farmers the opportunity to optimise their yields.

“The Colluli Potash Project will be a significant contributor to Eritrea’s economy.”  
– Wage

#### PROJECT FUNDING

For the development of the Colluli project, Danakali in December 2019 committed \$250-million from the African Export-Import Bank and the Africa Finance Corporation (AFC), which consists of a \$200m senior debt from both institutions, and signed a subscription agreement with AFC for a further \$50m of equity investment.

Danakali has secured an off-take agreement with EuroChem.



healthy, given the reducing land availability and the need to increase yields of the existing land. Looking ahead the company anticipates a significant increase in demand including latent demand that hasn’t come to the fore as yet.

“When in steady state production, the Colluli Potash Project will deliver close to a million tonnes of product per annum and scale up relatively quickly as the economics required to do so are in place.

“On average the potash price currently trades at around \$500 a tonne. Factoring a production cost at the mine gate of around \$150 a tonne and just over \$70 a tonne to transport product to port, Colluli Potash Project margins will be healthy, especially at a selling price of about \$500.”

Market analysts CRU Group have projected a SOP market growth of around 2% to 3% for the next decade.

#### OFF-TAKE AGREEMENTS

The emerging miner has secured a 10-year off-take agreement with EuroChem, a global fertiliser producer. “EuroChem have agreed to sell the Colluli product via their distribution channels and have offered us a great opportunity to partner with them and leverage off their knowledge to build our own expertise. The take-and-pay contract is extremely helpful for de-risking the project and for getting the cash flows that we need.” ■

The project is also expected to deliver handsome shareholder returns. “We will be producing SOP from an extremely shallow open-cut mine only 16m in the mineralisation depth, using a simple processing methodology proven in Canada. This gives us access to a stable low-cost production benefiting from close proximity to port for export. As such, we can keep our costs low and deliver attractive returns to shareholders. Currently the project has an internal rate of return of (percentages in the low 30s), a net present value of \$439-million and free cash flow of \$85m annually (targeting the first 60 years of production). Aside from the attractive economics and employment benefits to the country, the project unlocks opportunity for local farmers to improve their yields and thereby profitability as well as providing significant shareholder returns,” says Wade.

He says the project is set to scale up production when needed. “Further to this, there is opportunity to expand the current product offering as well. We have the option

to produce beyond rock salt, including production of sulphate of potash magnesia (SOPM) with magnesium variants as well as muriate of potash (MOP). However, it is important to note that we’ve chosen deliberately to go for the premium product as it is readily available.”

#### MARKET FUNDAMENTALS

“Globally, the approximate current supply for potash sits at around seven million tonnes, 50% of which resides with China. China is both a producer and consumer of SOP, producing and consuming roughly 3.5 million tonnes. Of the 3.5 million remaining tonnes, the majority is shipped to Europe and the US, where it is used to improve the yields of products such as fruit, vegetables, nuts, coffee, tea and potatoes,” says Wade.

Demand for product is driven by an ever-increasing global population and a change in diets of the more affluent middle class as they increase their consumption of fruit and vegetables.

The fundamentals for SOP are quite

# LIVING ON A PRAYER

COVID-19 adds to construction industry woes

By Nelendhre Moodley

While the beleaguered construction industry has, together with the rest of the world, been hammered by the COVID-19 pandemic, government's decisive stance in handling the situation has been lauded by the industry, writes Nelendhre Moodley.

In response to the pandemic, President Cyril Ramaphosa reacted speedily to stem the spread of the virus and called for a three-week lockdown quickly followed by a two-week extension on the lockdown. Both the public and private sectors rallied behind the decision which saw the country subsequently come to a standstill.

"We have seen more visible leadership over the past few months than in the past few years, both within government and private industry. This together with quick decision-making and decisive action has shown what we are truly capable of. So let's maintain this momentum towards building our country in the same manner by working together," says Afrimat's CEO Andries van Heerden.

However the momentum for industry recovery is expected to be sluggish, with engineering firm ADA Consulting Engineers'

director Paul Maitre saying that COVID-19 would have a massive impact on businesses for at least a year to come. This is due to the loss of income in the short term and additional costs required to combat infections after lockdown is lifted, and a slower economic growth trend for the medium term owing to a reduced volume of available projects.

"We need to act speedily to ensure growth which equals jobs which equals prosperity. South Africa needs to gather responsible representatives (CODESA-style) from all stakeholders and strategise a way forward with the same urgency, energy and single-mindedness as the decisive action taken with the pandemic," Maitre says.

Infrastructure development is seen to be a key enabler in the recovery from the devastating effects of COVID-19 and a means to rejuvenate the economy.

"The provision of superior-quality infrastructure allows an economy to be more efficient. It has the effect of improving productivity, and raising long-term growth and living standards," says Van Heerden.

"It is well known that infrastructure spend has a multiplier effect in terms of economic growth. Infrastructure development will

need to take place, more now than ever before. We need to kick-start all the drivers of the economy, together with some catalyst projects, and activate the projects that are at design/tender stage and award these as soon as possible. As such, we need to speed up processes of approval; focus on the stumbling blocks and make some quick decisions to activate many of the pipeline projects and government initiatives; change the mindset to 'let's make this happen' instead of 'we need to look at this' and relax the onerous procurement rules."

## CONSTRUCTION INDUSTRY CHALLENGES

The embattled construction sector has for years been on the back foot in terms of investment injection for large-scale project development from both government and the private sector and has been characterised by sluggish growth and significant job losses.

"The areas most affected by the construction sector's decline are those related to the public infrastructure spend, including roads, bridges, services supply, housing, education etc. This is because the state is cash-strapped due to a decade of maladministration depleting the coffers and increasing our government's debt-to-GDP ratio to an all-time high of 62%," says Maitre.

While the rest of the construction industry has experienced ongoing decline, especially in KwaZulu-Natal, Free State and Gauteng, the Western and Eastern Cape have, according to Van Heerden, experienced reasonably stable growth.

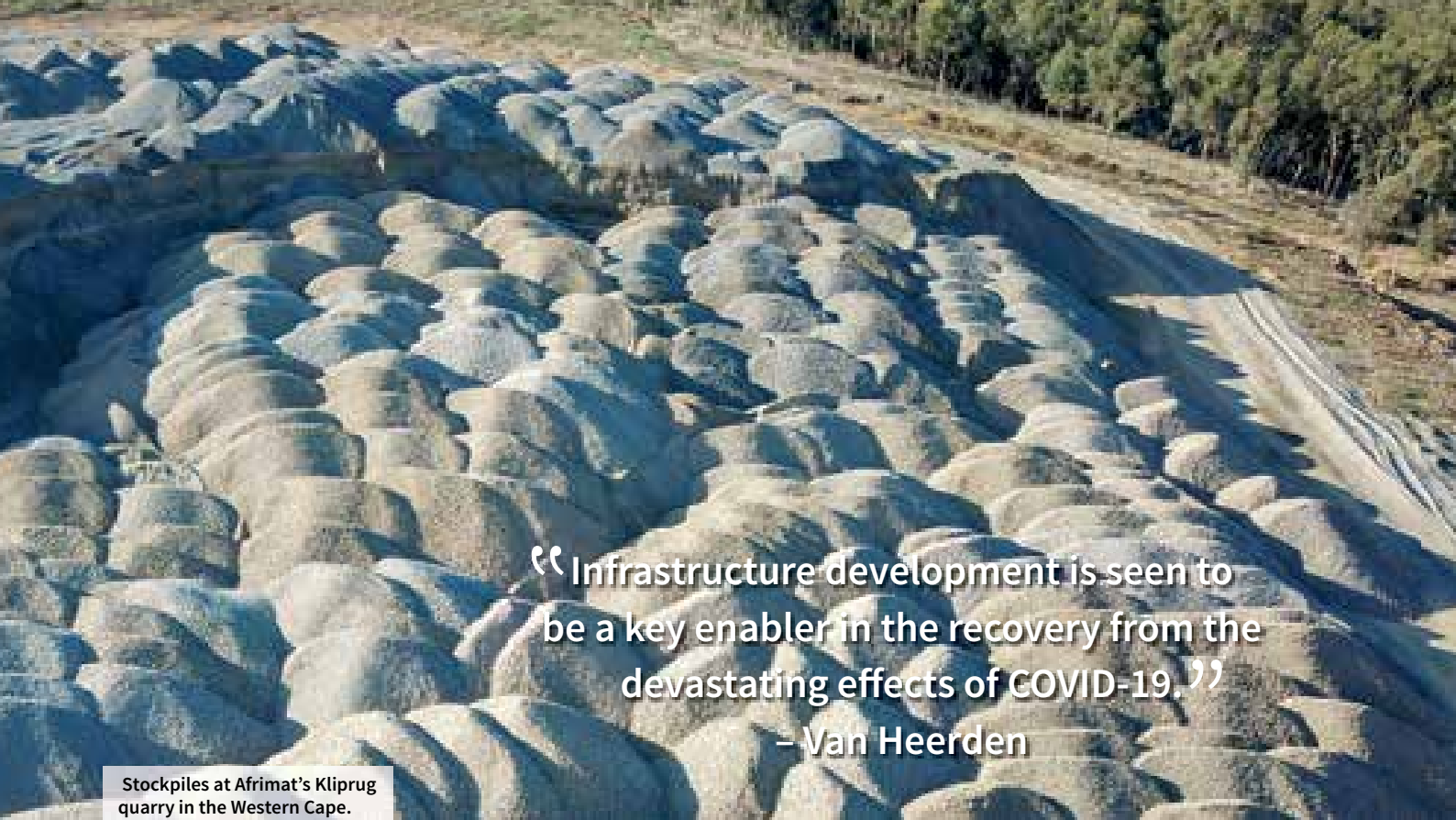
"Historically government has led the way with projects. These have provided the catalyst required for private developers to action their projects. This has ceased."

“Markets expected to thrive following the pandemic include mining, mining-related processing and export-based manufacturing.” – Maitre

Product being loaded at Afrimat.







“Infrastructure development is seen to be a key enabler in the recovery from the devastating effects of COVID-19.”

– Van Heerden

Stockpiles at Afrimat’s Kliprug quarry in the Western Cape.

Owing to reduced demand, private development has been limited which has resulted in suppressed economic activity and in large civil contractors experiencing difficulties.

Apart from sluggish industry growth, the construction sector continues to face a slew of challenges including “loss of skills and competence within the state-owned enterprises; a weak economy; concerns around land expropriation; difficulty with local authorities around approvals of building plans, rezoning and supply of services; a change in the approach in awarding contracts and construction mafias trying to extort personal gain where possible”. Added to this is industry’s long-held gripe – that contractors are not being paid within terms and that this lack of cash flow is destroying the industry.

Van Heerden says there are currently still too many tenderpreneurs and “agents” that are enriching themselves while exploiting

well-intended procurement programmes, especially in state-owned enterprises.

“Moreover, in some instances government is working against industry. Take for example the borrow pits being opened along national roads where commercial (struggling) quarries are operating and ready to supply. Another challenge facing the construction industry is its inability to balance the drive for BEE and SMMEs with the requirements for sustainable job creation and the need for a stable and professional industry,” he says.

However, aside from existing challenges faced by the construction industry, more recent events such as the pandemic are expected to place the industry in a further stranglehold.

Maitre explains that there will be further reduction in demand due to the SA Reserve Bank’s projected 6% shrinking of South Africa’s GDP which is as a result of COVID-19 and the downgrading of South Africa by Moody’s.

“More expensive financing due to Moody’s downgrade will make the feasibility of proposed developments less likely,” he says.

#### IDENTIFYING AREAS OF OPPORTUNITY

According to Maitre, given that the rand is at historic lows against the dollar, imports will be prohibitive and exports will be lucrative.

“South African construction companies must assess which South African industries and markets will thrive as a result of the pandemic and target those industries. Typical industries are mining, mining-related processing and export-based manufacturing such as car and truck manufacturers etc. This also means South African construction companies will be more competitive in the rest of Africa against international companies.”

Locally, growth markets include the logistical chain and developers are still active in education, the first-time buyer’s residential market and student housing. ■



## UKWAZI LAUNCHES SUSTAINABLE MINING PRACTICE

Mining services specialist Ukwazi recently launched a new division aimed at providing innovative, sustainable solutions for environmental and closure liability management, including post-closure plans.

"The mining industry is at an inflection point," says Jaco Lotheringen, MD of Ukwazi. "New approaches in environmental and social governance are required in order to successfully manage complex country, market and operational risks. Innovation, coupled with enhanced regulatory and reporting requirements, makes finding tailored, cutting-edge solutions in this field imperative."

Ukwazi's Sustainable Mining Practice (USMP) is led by a team of natural scientists and engineers, with unique sector capabilities across a range of fields, from value engineering through to sustainable mining, the company says.

Dr Christine Vivier, who heads up USMP, says it will adopt a fully integrated

approach to environmental risk management. "Our overall objective is to transform existing closure design philosophy by shifting the focus to comprehensive, life-cycle liability management; lowering costs, reducing risk and strengthening balance sheets."

Ukwazi's new service offering comprises specialist environmental studies, the execution of closure and post-closure plans, expert advice in line with local and international requirements and accurate closure estimation. Concurrent rehabilitative mining strategies will also be a key focus area, including reprocessing, water treatment and waste management.

"Of course, projects wouldn't be worth undertaking without strategic project management and ongoing evaluation," says Vivier. "We will also be offering clients comprehensive, digital monitoring through our industry leading Environmental

Management Information Systems (EMIS). What's more, our project delivery is based on engineering, procurement and construction management principles or bespoke contractual services."

Ukwazi's end goal is to ultimately transform active mines into safe, stable and sustainable landforms, fully equipped to support future economic activities.



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Afrimat Limited has established a strong foothold in contracting services through its Contracting International division operating from the Western Cape and Gauteng. Services include mobile crushing, screening, drilling and blasting, commercial quarries and readymix which offers mobility beyond fixed areas of operation.

Afrimat offers services for bulk blasting in quarry and opencast mining and specialised restricted blasting in built-up areas and also blast designs for specialised blasting needs.

The division operates in South Africa and internationally providing the full service package for all drilling and blasting, mobile hard rock crushing and screening services, load and haul and readymix solutions.

Contracting International applies our expertise and years of experience in these fields to prepare bids for major clients in the construction, quarry and mining industry.

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# PHAKAMISA CRUSHING IT

With years of mining industry experience under its belt, Phakamisa Hard Rock Mining offers a multitude of specialised services ranging from hard rock mining, screening and crushing to mine loading, hauling and logistics.

“Since 2007, Phakamisa Hard Rock Mining – previously trading as Phakamisa Logistics – has evolved and become a leading contractor to the mining industry. With our focus on the mining industry, we have honed our service offering to more than just machines for materials handling. Phakamisa Hard Rock Mining provides a pit-to-port solution by supplying experienced management, equipment, machinery and highly skilled operators committed to adhering to mining

safety elements and procedures,” the company says.

Phakamisa Hard Rock Mining started its hard rock mining ventures in 2014, after securing the chance to tender at a mine for a leading international precious metals mining company. Being the world’s largest primary producer of platinum and a significant leader in international precious metal mining, the South African mine offered the perfect breeding ground for pushing Phakamisa’s limits. It was here that the company established a reputation of excellence, and after this rewarding project, Phakamisa began expanding in the gold sector and securing new contracts.

At the core of Phakamisa’s hard rock mining division is opencast mining, especially for the gold, chrome and platinum

sector. Aside from doing the reclamation of hard rock and dumps, Phakamisa also mines the dumps and transports mining by-products.

Its crushing services are mainly associated with the coal sector where raw coal is hauled out of the pit and stockpiled to be crushed later. Phakamisa has two large crushing machines: the Terex Finlay I-120 is the newest addition to the impact crusher family, joining the I-100, and is the biggest in the fleet.

The second-generation I-120 impact crusher has been engineered to enhance productivity in quarrying, mining, recycling and construction demolition applications. With improved material flow, the machine consistently produces a standard product shape.

Phakamisa offers screening solutions to sort different products after the crushing process. Screening can be done directly on-site using the Terex Finlay 893 Scalper where by-products are sorted into different grades and sizes according to customer specifications.

With a particular focus on the hard rock mining industry, Phakamisa has scope to expand beyond their Carletonville, Fochville, Klerksdorp and Orkney epicentres in order to tackle projects across South Africa. The company is also setting its sights on new ambitions on the back of queries received for mining prospects outside of the country in Ghana and Botswana.

The hard rock mining industry is ever-growing and requires a hands-on approach in terms of service offering.

“In such a competitive market, it is Phakamisa’s priority to ensure the demands of this fast-faced sector are met. By following through on commitments and supplying quality machinery, Phakamisa’s performance continues to exceed customer expectations,” the company says. ■

“Phakamisa Hard Rock Mining provides a **pit-to-port** solution by supplying **experienced management, equipment, machinery** and **highly skilled operators**.”



Phakamisa undertakes reclamation of hard rock, mines dumps and transports mining by-products.



In both isiZulu and isiXhosa, our name “Phakamisa” means “to lift up”. That is what we do - we move tons of rock, earth, coal, mineral ore and most other mining and industrial by-products. In the process, we uplift people too.



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# GAINING TRACTION

## Renewable energy drive plods ahead

By Nelendhre Moodley

Following the global call for sustainable energy solutions, South Africa has been making headway in its renewable energy drive. *SA Mining* recently caught up with Prashaen Reddy, principal at Kearney and board member of the South African National Energy Association (SANEA), to chat about how the country is faring in its renewable energy agenda.

### HOW BIG IS THE RENEWABLE ENERGY SECTOR IN SOUTH AFRICA, REGARDING EMPLOYMENT, REVENUE, ETC.?

Renewables is a growing sector. Government has been clear that renewables will increase as part of the energy mix. Currently renewables contribute about 8% of South Africa's energy demand – and is expected to grow to 26% in the next 10 years. A total of 6 422MW of electricity has been procured from 112 renewable energy independent power producers (REIPP). The largest hurdle for independent power producers has been the ability for companies to connect to the grid, with only 3 976MW capacity being connected to the grid from 65 independent power producers. The 2019 report from IPP reflects that renewables have attracted investment of R209.7-billion, of which R41.8bn (20%) was foreign investment. The investment created 48 334 jobs over the years with enterprise contributions of R340.7-million to date, reducing 44.7 million tonnes of CO<sub>2</sub> and saving 52.9 million kilolitres of water.

### WHAT LESSONS CAN SOUTH AFRICA TAKE FROM COUNTRIES THAT HAVE ALREADY ROLLED OUT A SUCCESSFUL RENEWABLE ENERGY AGENDA?

Key lessons include integration into the grid, and having an energy regulator. South Africa could implement a gradual integration of renewable power to the grid as large-scale integration could result in increased costs as seen in Germany. In Germany, as government subsidies and tariffs incentivised investment and production of renewable energy, there was limited thought to the integration of transmission and distribution. As a result, they were not geared up for the increased supply and could not integrate this rapid increase in supply effectively into the system. Then there is a need for an energy regulator (like the National Energy Regulator of South Africa) who sits outside of government to monitor and support the rollout of renewables in a systematic and cost-efficient manner that benefits communities at large.

### WHAT IS THE GROWTH POTENTIAL OF THE SECTOR IN THE NEXT TWO TO THREE YEARS AND WHAT FACTORS HAVE BEEN IDENTIFIED AS KEY DRIVERS?

South Africa has been guided by the Integrated Resource Plan (IRP) for 2030 which provides energy mix supply targets for additional capacity to the grid. Most of the additional capacity will be generated from solar and wind, with wind accounting for 14 400MW and solar 6 000MW.

The government has revised the Electricity



Prashaen Reddy.

Regulation Act to allow generation of power for own use and has announced plans to create a new power entity separate from Eskom. This has opened up more opportunities for independent power producers to target mines and remote areas where there is demand. With government's gradual approach to the lifting of lockdown restrictions, it is anticipated that post COVID-19, government would look to invest in the renewable energy industry as it could help industry transition back to normal economic activities.

Key drivers for the renewable energy industry will be a focus on excellent project portfolio execution. There is a call for industry to promote agile execution, with modular plant designs and layouts, as well as strong permitting capabilities in key markets and power purchase agreement expertise to speed up agreements with off-take and project financing. There is also a need to develop toolkits that can flexibly cope with renewable intermittency and its impact on revenues,

## R209.7-billion

Value of investment attracted  
by renewables in 2019



both on the demand side (access to market, ability to profile production curves, and price segmentation) and on the supply side (smart storage solutions and asset pooling).

#### WHAT ARE SOME OF THE ASSOCIATED CHALLENGES FACED BY THE SECTOR, AND AREAS OF OPPORTUNITY?

The challenges associated with the South African renewable energy industry are the same as they have always been, and include:

- Currently Eskom owns and controls the national grid. During COVID-19, Eskom has had surplus power due to reduced demand and issued force majeure notices to renewable power producers.
- Regulations and policies remain a major challenge – there is a call for government to provide fair support and deliver transparent evaluation standards to suit everyone across the board.
- Investor confidence: Other challenges include gaining investor confidence in rolling out the procurement programme. Grid connection and integration is a challenge due to intermittency and proper planning. Funding of small projects is also a challenge as they don't

“The largest hurdle for independent power producers is the ability for companies to connect to the grid.”

– Reddy

appeal to banks.

- Access to cheaper electricity: South African rural communities have low levels of access to electricity. Most of the municipalities in townships continue to owe large amounts of money to Eskom. Thus a cheap energy alternative could help reduce costs to customers as well as expand the offering to remote and rural communities.
- Supporting nation building: Eskom has recently issued a request for proposal to secure supply of electricity from independent producers who produce greater than 5MW capacity. Eskom's long-term strategy should also be revised as demand for energy increases and supply decreases as coal plant use decreases. Given that Eskom's strategy has been based on a 50-year plant life, most of its plants are facing maintenance problems and reduced agile network connection. In line with the above-mentioned opportunities are prospects for skills and capabilities in the renewable sector.

#### HOW WILL THESE CHALLENGES IMPACT THE ENERGY MIX SCENARIO GOING FORWARD?

Government has started with revising some of the regulations, including a proper IRP for 2020. The more government leads the IRP the faster we can reach the energy mix targets. South Africa's main energy supply remains coal and this will be a large contributor for the next decade; however gas and renewables are increasing market share and will take up the space that coal power station end-of-life will create.

#### WITH HOME OWNERS LOOKING TOWARDS ADOPTING RENEWABLES, WHAT WILL BE THE IMPACT ON MUNICIPALITIES?

Municipalities have been very active in promoting renewable power generation. For example Western Cape municipalities are allowed to have small-scale embedded generation of renewable power under 1MW. The government has permitted municipalities to generate their own power in accordance with the IRP.

Furthermore, the IRP will help optimise the supply and demand options after being completed.

The traditional business model of electricity should be re-examined as it is based on revenue collection through volume (consumption-based) sales. Municipality electricity revenue would be negatively affected as more households invest in renewable energy, thus tariffs or monthly charges should be introduced to counter the financial losses that might be a disincentive.

#### ANYTHING MORE YOU'D LIKE TO ADD?

One thing we cannot forget is that renewable energy is here to stay. Natural gas has been a major enabler of change to a cleaner energy mix, especially in the power sector. Gas has steadily displaced coal for base-load generation and has been integral to enabling the dramatic growth of intermittent renewable electricity sources, such as solar and wind. Natural gas delivers carbon emissions half that of coal; however, it has received relatively little credit for lowering emissions.

The emergence of renewables has to be balanced with the potential impact on the coal value chain. Coal mines and their ecosystem will see impacts in the medium term with the global move away from coal as a source of fuel. There is a significant risk of job losses which will need to be offset by investing in upskilling workers to maintain renewables as a future employment opportunity.

Furthermore, investment in constructing photo-voltaic panels needs to be looked at as a means of creating additional jobs in the sector. ■

Renewables is a growing sector.



# SAMANCOR CHROME

partners with Applied Principles

Samancor Chrome, the world's largest ferrochrome producer, recently signed a contract with Applied Principles for the use of its compliance software across all its business units. With a workforce in excess of 7 500 colleagues, Samancor Chrome is an innovative and progressive company that makes a significant contribution to the South African mining sector and is actively striving to be an employer of choice. Samancor Chrome delivers an annual capacity of 2.4 million tonnes of ferrochrome, the company says.

According to Applied Principles, Samancor has completed a rigorous proof of concept (POC) of the Applied Principles software in two of their business units, TC Smelter (TCS) and Ferro Metals (FMT). As part of the POC the software has been used for lab checks, production checks (including furnace inspections and shift checks), SHEQ audits, maintenance and engineering checks (including slag carrier, conveyer and overhead crane checks, and water treatment maintenance inspections). In addition, as part of the POC, real-time integration into the Samancor MES (manufacturing execution system) was developed.

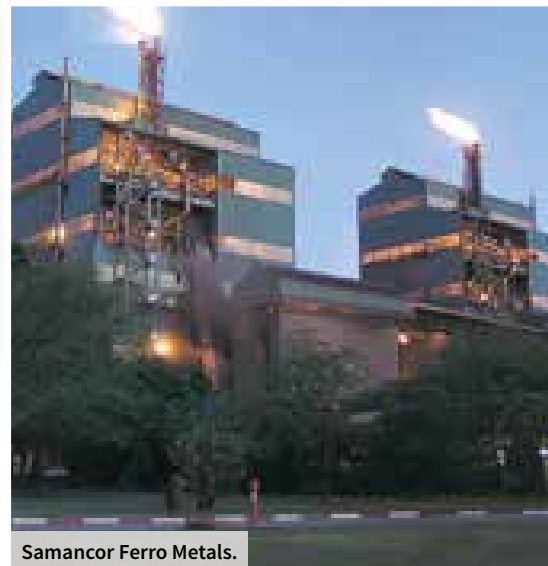
Applied Principles Software is a business process compliance tool that can be used anywhere in the business where there is a need to perform checks, tests and inspections. One advantage of the product is real-time data capture and visualisation. In this sense, department managers are in full control of their data.



From left to right: Johan Olivier (Applied Principles), Sollie Swanepoel (Samancor – BIS Group Manager), Rudi Stickling (Samancor – BIS Specialist) and JJ Kotze (Applied Principles).

A key advantage that works in favour of Samancor is the software's ability to facilitate departments to create their own bespoke processes, procedures and corrective actions for different areas or sites of the business. Examples of data capture within tasks can include (but are not limited to) general workflow procedure, requiring signatures, and scanning of barcodes, photos of non-conformances and real-time integration with Bluetooth non-contact forehead thermometers. The data capturing part of Principle Suite is versatile as it is able to carry out tasks online and offline where strong wireless network connections are not always feasible on-site, says Johan Olivier, service delivery manager at Applied Principles.

However, once the device is back in



Samancor Ferro Metals.

range, tasks can then automatically upload to be audited. A completed task may include email alerts for non-conformances flagged at various stages of tasks, which can be sent to a customised list of recipients immediately upon completion, says Olivier.

Importantly, in early May, Samancor approached Applied Principles with a request to use the software for daily COVID-19 questionnaires, with real-time integration with non-contact Bluetooth forehead thermometers. Applied Principles developed this functionality at short notice with checks. The system went live in early July.

Sollie Swanepoel, BIS group manager at Samancor, says, "The Applied Principles software has revolutionised our ability to manage compliance across our business; their versatility and approach has been nothing short of game changing. Their turnaround responsiveness in relation to the development of the software to enable real-time, daily checks for COVID was impressive; they have become our partner in every sense of the word." ■

**“The Applied Principles software has revolutionised our ability to manage compliance across our business.”**  
– Swanepoel



An aerial photograph showing a modern industrial facility in the foreground, featuring large cylindrical storage tanks and a building with a solar panel roof. To the right, a vast field of solar panels is visible. In the background, a dense forest covers a hill, and a city skyline with various skyscrapers is visible under a blue sky with scattered clouds.

# Building paths towards a 100% renewable energy future

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# WATER-WISE

Caught between a rock and a wet place

By Nelendhre Moodley

© STEPHAN DUTOIT

Following poor water control measures over the years, South Africa now finds itself caught between a rock and a hard place as its dire water situation continues to worsen. Human Settlements, Water and Sanitation Minister Lindiwe Sisulu recently launched South Africa's National Water and Sanitation Master Plan – but is the plan too little too late? *SA Mining* recently caught up with the Federation for a Sustainable Environment's CEO Mariette Lieferrink for a view on exactly how severe South Africa's water challenges really are and whether the country will be able to meet its Sustainable Development Goals in relation to water by 2030.

Citing the National Water and Sanitation Master Plan's Call to Action launched in November 2019, Lieferrink says the document highlighted South Africa's shocking water situation, with 56% of wastewater treatment works and 44% of water treatment works reported as being in a poor or critical condition, with 11% dysfunctional.

"More than 50% of South Africa's wetlands have been lost, and of those that remain, 33% are in poor ecological condition. Furthermore, between 1999 and 2011 the extent of main rivers in South Africa classified as having a poor ecological condition increased by 500%, with some rivers pushed beyond the point of recovery. In addition, municipalities are losing about 1 660 million cubic metres per year through non-revenue water – this includes all water supplied that isn't paid for, including physical water losses through leaks in the distribution system, illegal connections, unbilled consumption and billed, but unpaid, water use. At a unit cost of R6/m<sup>3</sup> this amounts to R9.9-billion each year."

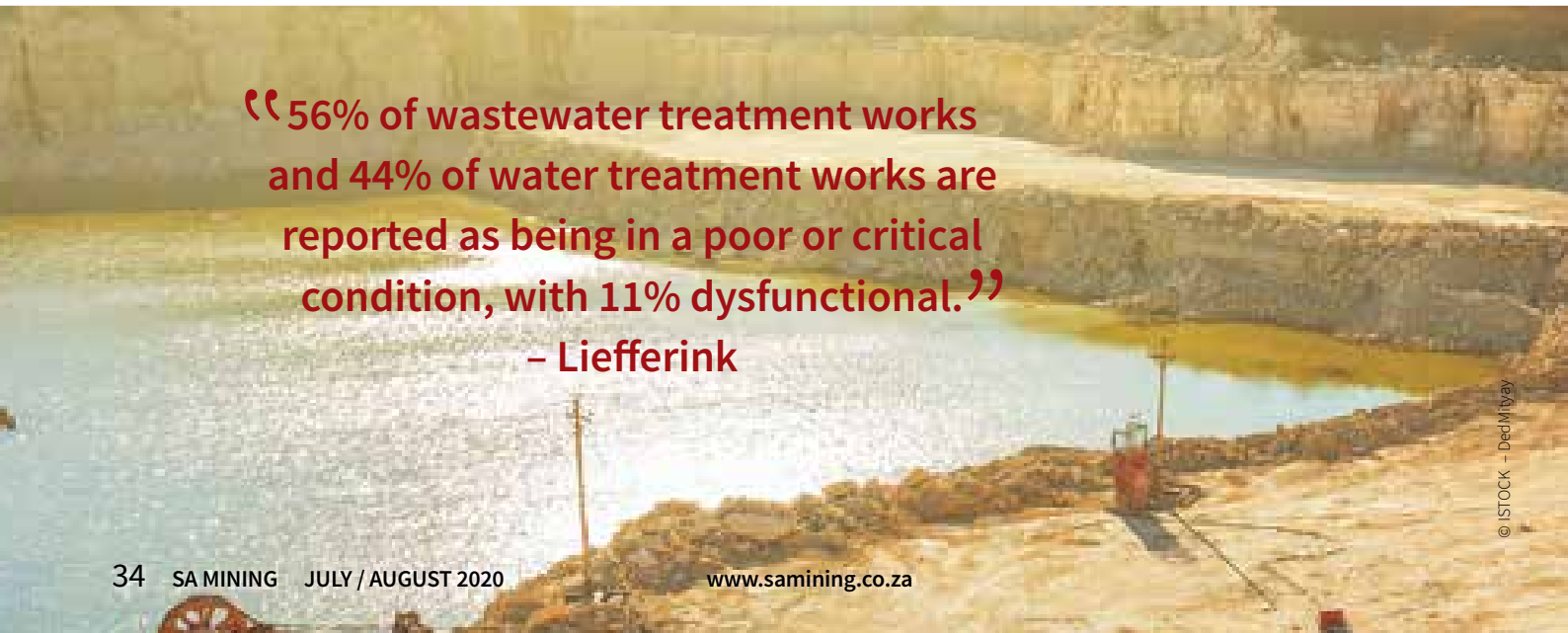
Added to this are the delays in the implementation of Phase 2 of the Lesotho Highlands Water Project (to augment the Vaal River System for greater Gauteng), the uMkhomazi Water Project Phase 1 (to augment the Mgeni System for the KwaZulu-Natal Coastal Metropolitan Area) and the augmentation of the Western Cape Water Supply System, which have

significantly impacted on water security, and subsequently on the socio-economies of the areas.

"If demand continues to grow at current levels, the deficit between water supply and demand could be between 2.7 and 3.8 billion m<sup>3</sup>/a by 2030, a gap of about 17% of available surface and groundwater," notes Lieferrink.

Given the severity of South Africa's water challenges, the National Water and Sanitation Master Plan called for the following interventions:

- Revitalisation of the Green, Blue and No Drop programmes and the publication of results annually.
- Identification and prosecution of major non-compliant abstractors (water thieves) across the country, with a national communication campaign to accompany the action by 2020.
- Identifying and prosecution of big polluters across the country (including municipalities), with a national communication campaign to accompany the action by 2020.



**"56% of wastewater treatment works and 44% of water treatment works are reported as being in a poor or critical condition, with 11% dysfunctional."**

**– Lieferrink**

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- Declaration of strategic water source areas and critical groundwater recharge areas and aquatic ecosystems recognised as threatened or sensitive as protected areas by 2021.
- Review and promulgation of aggressive restrictions within the legislation to restore and protect ecological infrastructure by 2020.
- Secure funds for restoration and ongoing maintenance of ecological infrastructure through operationalising the water pricing strategy annually.
- Establishing financially sustainable Catchment Management Agencies (CMAs) across the country, and transferring staff and budget and delegated functions, including licensing of water use and monitoring and evaluation of water resources by 2020.
- Establishment of a National Water Resources and Services Authority and Regulator by 2020.

“Although government had planned to have these measures in place, at the time of writing the FSE was not aware that any progress had been achieved on the targeted areas,” says Liefferink. “We hope that the impact of the National Water and Sanitation Master Plan will be delivered through action, and through the recognition that ‘you cannot drink paper plans.’”

### **GIVEN THE DEPTH OF SOUTH AFRICA’S WATER CHALLENGES, IS THERE A CHANCE OF MEETING ITS SUSTAINABLE DEVELOPMENT GOALS (SDGS)?**

In 2015, South Africa committed to adopt the United Nations’ Sustainable Development Goals, including Sustainable Development Goal 6 which aims to ensure availability and sustainable management of water and sanitation for all by 2030.

Included in the SDG report, says Liefferink, is target 6.3 which is focused on improving water quality by reducing pollution, eliminating dumping and minimising the release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and reuse globally by 2030; with target 6.6 looking to protect and restore water-related ecosystems.

“According to the Department of Human Settlements, Water and Sanitation’s River EcoStatus Monitoring Programme State of Rivers Report 2017-2018, only 15% of South Africa’s rivers are in a good condition and the Vaal River Water Management Area has no sites that are in a good condition; and according to the SA National Biodiversity Institute (SANBI) National Biodiversity Assessment: The Status of South Africa’s Ecosystems and Biodiversity, two-thirds of the total length of South Africa’s rivers are in a poor ecological condition.”

Furthermore, the Department of Water and Sanitation’s Directorate’s presentation on wetlands and lakes noted that the SA National Biodiversity Assessment (NBA) 2018 indicated that while 6% of wetlands were protected, 79% were in the threatened category.

In addition, “despite the interventions of the SA Defence Force, Ekurhuleni Water Care Company, the minister of Human Settlements, Water and Sanitation and the South African Human Rights Commission in the pollution caused by spillages of raw sewage into the Vaal River, the situation has continued to deteriorate. Rand Water’s quarterly water quality results show that the in-stream quality of water at the Rietspruit at Sebokeng has E. coli counts of 9 188 000 per 100ml. The regulatory limit is 400 counts per 100ml. E. coli in water is a strong indication of sewage or animal waste contamination. In light of these factors, it is difficult to see how South Africa will reach its SDG by 2030,” says Liefferink.

### **TACKLING OUR WATER WOES: IS THERE LIGHT AT THE END OF THE TUNNEL?**

Liefferink has painted a dire picture of South Africa’s water situation. But can new legislative interventions and the mining industry’s endeavours curb the downward slide?



If demand continues to grow at current levels, the deficit between water supply and demand could be between 2.7 billion and 3.8 billion m<sup>3</sup>/a by 2030.



While practical on-the-ground developments remain sluggish, government has made some headway through the promulgation of new water rules and regulations, which include the Water and Sanitation Department's publication (*a collaboration with the Minerals Council*) called Benchmarks for Water Conservation and Water Demand Management (WC/WDM) In the Mining Sector.

The commodity-based national water use efficiency benchmark aims to guide the acceptable levels of water usage by the mining industry, and to improve water use efficiency within the mining operations.

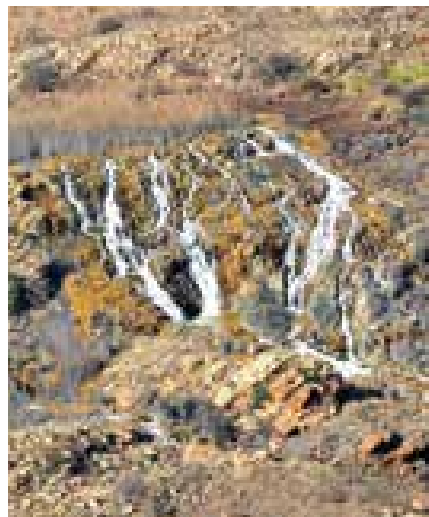
In addition, the Department of Environmental Affairs has published the *Proposed Regulations pertaining to Financial Provisioning for the Rehabilitation and Remediation of Environmental Damage caused by reconnaissance, Prospecting and Exploration* which notes that "financial provision must guarantee the availability of sufficient funds for the remediation and management of residual and latent environmental damage including the ongoing pumping and treatment of polluted or extraneous water".

According to Lieferrink, this in essence means that the CEO or business rescue practitioner of the company is responsible for implementing the rehabilitation plans.

"What is new is the fact that the liquidator or business rescue practitioner is also responsible for the determination of the financial provision and implementing the rehabilitation plans and report."

Lieferrink also flags the South African Human Rights Commission which has directed the Department of Water and Sanitation to comply with the following:

- Include in their annual reports the number of compliance notices or other sanctions imposed including the proportion of successful interventions and/or criminal prosecutions undertaken against non-compliance.
- Take definitive steps to ensure legal



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## R9.9-billion

### Value of revenue lost by municipalities through loss of non-revenue water



Mariette Lieferrink assisting with biomonitoring in the Vaal River.

© JoziGold Maanda Nwendamutswu

protection of our water sources areas through the deployment of the relevant legislative tools in place.

Provide a report on the current state of water monitoring, including:

- Conducting regular determination of the water reserve, including how the DWS accounts for anticipated migration and population growth, limitations or inadequacies in municipal infrastructure as well as other potential impacts on the availability of water resources, such as drought.
- Audit on all existing water-use licences to ensure they adequately protect the water reserve, including basic needs and ecological requirements.
- Monitor compliance with water-use licences and its impacts, particularly in mining areas, and the impact mining has and will have on the water reserve and how this aligns with the National Strategic Plan for Water.

The FSE has yet to receive a response on the Human Rights Commission's progress in relation to the directives, says Lieferrink, however the mining industry has been more proactive in progressing its water agenda, especially Sibanye-Stillwater and DRDGOLD.

Diversified mining house Sibanye-Stillwater, which was recognised as the most "collaborative" and "water-saving" company in the local mining industry by Rand Water in November last year, has participated in the creation of the Water Conservation and Water Demand Management (WC/WDM) Assessment Tool.

In line with its water-wise agenda, the miner has a number of initiatives under way including:

- Potable water independence: using

alternative available groundwater sources and rainwater harvesting to help reduce its reliance on purchased water sources.

Reduce water loss through:

- implementing effective real-time metering, water balance management reporting, proactive leak detection and immediate repair initiatives.
- minimising losses of water through evaporation and seepage by optimising the density of tailings deposition and recovering and recycling of water at our tailing facilities.
- improving water-use efficiency by tracking and managing water-use efficiency KPIs for all consumers.

Gold surface retreatment company DRDGOLD too continues to progress its water conservation plans, which include reclamation interventions at its operations aimed at removing sources of pollution, rehabilitating targeted areas and enhancing ecosystem functioning, including attraction of fauna and flora, and improved water quality, among others.

"We hope that more mining companies will be proactive rather than reactive as far as mine water management is concerned and that businesses will realise that water security presents a critical and profound challenge to South Africa's social well-being and economic growth. Poor water quality is one of the major threats to South Africa's ability to provide sufficient water of suitable quality that can support development needs. The financial resources currently available for managing water quality are insufficient for the task, and do not recognise the level of investment that is required to counteract the economic harm done by declining water quality," says Lieferrink. ■



# WÄRTSILÄ'S TECHNOLOGY

powers Fekola Mine

**R**emote, energy-intensive and fuel-dependent mine owners are dealing with high energy costs as a result of mining operations for myriad practical applications and infrastructure development. To improve power supply at their off-grid Fekola Mine, Canadian gold mining company B2Gold has taken to the adoption of storage and energy management technologies.

Energy system integrator Wärtsilä is delivering a hybrid solution at B2Gold's mine in south-west Mali in late 2020. Wärtsilä's GEMS, an advanced energy management system, will integrate, control and optimise a 17.3MW/15.4MWh energy storage system alongside a 30MW solar PV plant on-site, in addition to the mine's existing 64MW power generator.

This hybrid storage project is the first of its kind in Mali and the largest in the mining sector, demonstrating the growing case for clean energy and its sustainable and economic potential for mines in Africa and beyond. Its objectives are multiple: it must ensure grid stability, provide energy security, integrate renewable energy assets, and optimise energy production at a fuel-dependent, energy-intensive and remote mining facility.

Risto Paldanius, Business Development Director, Energy Storage And Optimisation, Wärtsilä Energy Business, explains that: "Our extensive experience with islanded grids in various climatic and geographical conditions will help the Fekola Mine, and others of its kind, to achieve their sustainability and cost-saving goals."

## ADDRESSING HIGH ENERGY USE IN A REMOTE OFF-GRID AREA

The project will hybridise the energy supply of Fekola Mine, with a combination of renewables, storage, power generator, and energy management system. This will reduce the facility's dependence on imported heavy fuel oil, saving operational and transportation

costs, as well as reducing greenhouse gas (GHG) emissions, the company said.

The main application of the Fekola hybrid project is to provide and maintain islanded grid stability. This means dispatching energy storage and renewable energy generation assets with the right reserve level to maintain high grid reliability for a mine in a remote area with no connection to any larger grid. GEMS and the storage system combine stable frequency and voltage with the highest utilisation of renewables in a reliable way.



Risto Paldanius, Business Development Director.

Wärtsilä's GEMS software will use artificial intelligence as well as automated and forecasted data, including load demand and weather, to optimally operate the system's generation assets and maximise efficiency.

Further, by enabling energy production optimisation, GEMS ensures the lowest levelised cost of electricity (LCOE) for the Fekola Mine. LCOE is a function of lifetime costs divided by energy production, so more efficient energy production and lower LCOE renders long-term savings. For instance, GEMS supports the starting of major mining equipment without the need to bring additional engine generating sets

online, allowing operations to maximise the time that gensets are down. As a result, the project is expected to reduce operating costs by more than 7%.

GEMS will integrate and optimise renewable energy generation assets in tandem with traditional fuel-powered gensets to deliver 18%+ of the total site power requirement for the Fekola Mine.

## CLEAN ENERGY POWER GENERATION

Wärtsilä's energy storage solutions are both cost-competitive as well as sustainable. For Fekola, project payback is expected in just a few years, with projected long-term savings on mining operations to include 13.1 million litres or more of heavy fuel oil per year. The Fekola solution will also drive decarbonisation, with the mine's GHG emissions expected to decrease by approximately 39 million kg of carbon dioxide emissions per year.

B2Gold is one of the early mining companies to invest in clean energy power generation: "We chose Wärtsilä because of their experience in the region, and because of their capabilities in designing and managing hybrid plants. We wanted to optimise full electricity generation at the mine using solar and energy storage. A key part of this solution is Wärtsilä's state-of-the-art GEMS technology; it was an easy decision," said Jan Clausen, project manager at B2Gold.

The active adoption of clean energy and storage solutions – utilising greater amounts of renewable energy to dramatically reduce energy costs and dependence on heavy fuel power generation – offers a largely untapped reliable energy alternative for the mining sector. For Fekola, the benefits are vast. Not only will the hybrid project improve power reliability and significantly reduce carbon emissions, but it will also decrease fuel consumption and mining operational costs. ■

# KEY CONSIDERATIONS TO UNLOCKING MINING'S POTENTIAL

Whatever form a post-COVID-19 recovery takes, it won't change the basic requirements of a thriving mining sector. Given mining's significance to the South African economy, we can't afford not to get the basics right.

According to the Minerals Council South Africa, mining contributed 8.1% (R360.9-billion) of gross domestic product, generated over R8.6bn in royalties to the state, and employed more than 450 000 workers whose earnings totalled R136bn in 2019. In addition, 40% of total foreign exchange earnings were generated by mining alone.

These numbers don't reflect the true potential of South Africa. Even before COVID-19, we were punching below our resources weight for a variety of reasons, including not consistently getting all the basics right. But the socio-economic crises caused by COVID-19 must compel us to self-correct.

I highlight only a few of the basics we need to sort out.

First, speedy regulatory approvals and support. State authorities should consistently work on different scenarios around the virus – from a grim one where neither cure nor vaccine is found in the next 24 months, to the desirable, where in few weeks it ceases to be a killer.

Whatever scenario turns out to be real, the Department of Mineral Resources and Energy, Department of Water and Sanitation and Department of Environmental Affairs should find mechanisms to speed up approvals within the law.

No economic stimulus anywhere in the world can take place without the input of minerals. This reality should benefit South Africa.

In some minerals such as manganese, coal and platinum group metals, South Africa ranks among the largest exporters. With our minerals endowment we compete with the likes of Australia for the resources market share globally.

State officials should appreciate that speeding up regulatory approvals is not done as a favour for any specific investor. It is a critical element of replenishing dry state coffers and defusing the ticking socio-political time bomb of unemployment.

If there was anything that caused delays in the past, it's time now to fix it to allow investors to take advantage of the opening up that will eventually happen.

Second, a stable and absorptive labour regime. There is a risk that companies might mechanise more radically to reduce health risks and improve productivity. If the virus is not contained, this would be inevitable.

But in the event that it is contained, and in light of the disastrous unemployment rate, all stakeholders should work towards finding the sweet spot for increased employment, increased productivity and mechanisation.

This means management of mining companies and unions have to engage in a way that guarantees stability in industrial relations and



Vuslat Bayoglu,  
MD of Menar, an  
investment company

encourages companies to invest and employ more people.

Third, community stability. Because of the colonial and apartheid legacy, a number of host mining communities are cynical of the motives of some investors.

No sooner do they see yellow mining equipment moving in the neighborhood, after a mining licence has been issued, than they believe a mine is printing money. Few understand the risks involved in raising and deploying capital.

There is no doubt that there are investors who damage relations with communities by trying to operate in the old style instead of being good neighbours. Community unrest has increased the costs of investment, and has served as a moral hazard to communities by heightening investor risk.

So far, the state and mining industry have yet to develop a coherent plan involving all mining players to manage community relations. The government's assumption, based on the mining charter, is that community empowerment projects and shareholding is good for community stability.

There are many instances where mining companies have done all the right things – source the bulk of their services from communities, employ from local communities and contribute to local development initiatives – but they still bear the brunt of community unrest.

In some cases, unrest is caused by jealousies among business groups and political factions in communities. The sooner the regulatory authorities, mining companies and host communities devise reasonable and enforceable plans to deal with this problem the better.

Fourth, reversing decline in investor confidence. The government

should spare no efforts in improving investor confidence. The latest South African Chamber of Commerce index shows investor confidence at the levels last seen at the height of anti-apartheid sanctions in the mid-1980s. We are capable of doing better as a constitutional democracy with a free market economy.

The government would do well to appreciate the existing investors and create an enabling

environment for them to expand operations. Unfortunately, neither investment conferences nor unrepresentative business organisations are a solution.

The government must develop capacity to understand the needs of specific companies that have the potential to create jobs and assist them accordingly.

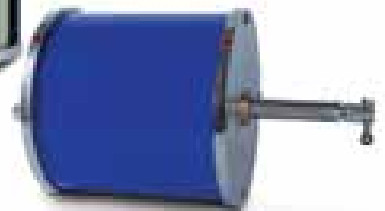
Fifth, and lastly, fixing Eskom. We can do all of the things mentioned above, but if we can't fix Eskom, we must forget about economic recovery. Even if we recover, we will punch below our potential if Eskom is not performing optimally.

To repeat a point shared by many in the mining sector: South Africa needs cheap and reliable electricity supply. We have the means and resources to provide it. ■



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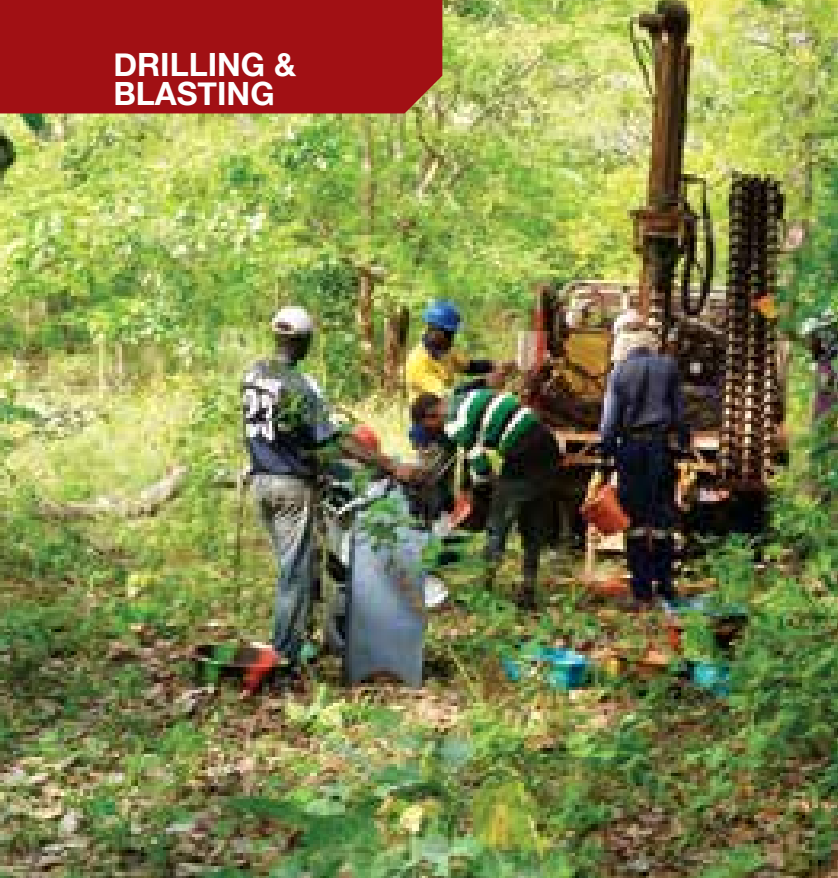
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# POT OF GOLD

Manas Resources digs deep  
By Nelendhre Moodley

**A** SX-listed gold exploration company Manas Resources is busy advancing its three key assets in Côte d'Ivoire, West Africa – the Mbengué Gold Project, the Eburnea Gold Project and the Tortiya Gold Project. *SA Mining* recently caught up with CEO Chris MacKenzie for greater insight into the company's strategy and project progress.

**AS AN EMERGING GOLD EXPLORATION COMPANY, IS MANAS RESOURCES' STRATEGY TO BE A GOLD PRODUCER, OR IS IT AIMED AT UPGRADING THE RESOURCE FOR SALE TO A GOLD DEVELOPER?**

Our main focus, and the core skills of the company's leadership, is exploration to the pre-development level. Of course the future progress of the company will depend on the nature of any resource we discover – an exploration company can become a miner. But our aim is to find a large and attractive resource that would be attractive to a major miner. We benefit from having two supportive shareholders who are also major players in the West African mining scene: Resolute Mining, our major shareholder, and Perseus Mining.

**WHAT IS THE CURRENT STATUS OF YOUR WEST AFRICAN PROJECTS AND WHAT PLANS ARE IN PLACE FOR PROJECT DEVELOPMENT UP TO 2021?**

All our three main projects are at the exploration stage, varying from grass-roots and conceptual at the Tortiya Gold Project (TGP) to advanced exploration at the Mbengué Gold Project (MGP). We are continuing to advance exploration at the projects through 2020 using a systematic approach developed to identify targets with the potential to become major resources. The company remains well funded and able to respond quickly once early drill success identifies potential resource areas.

**TELL US MORE ABOUT YOUR MBENGUÉ GOLD PROJECT?**

MGP is an exciting prospect for Manas. It contains four major auriferous structures – the Toumoukro, Mbengue, Mamba and Tongon shears. Each is over 15km long and the bifurcating Tongon shear structure is approximately 25km long.

It had a lot of "smoke" in the form of good drill intercepts from previous exploration campaigns conducted by

Perseus Mining, a key player in the West African mining scene. Perseus is very active in Côte d'Ivoire and Manas is in the process of earning 70% of permit PR272 (one of two permits comprising the MGP) from them. The other permit we own 100%, and within a few months of it being granted we are actively exploring a newly discovered 16km gold trend along a major shear structure.

Unlike many other prospects in the country, MGP is well located close to existing mine infrastructure. Barrick's Tongon gold mine, which produces around 250 000oz Au annually, only has around two years of mine life. Tongon is less than 10km away from our main prospect, Le Vieux-Madala-Turaco, where we've defined some major geophysical targets which also have excellent auger drilling results. Further auger drilling is ongoing here and we expect to generate some world-class targets for follow-up by reverse circulation drilling later this year.

Despite all that, the enterprise value of the company remains low in comparison to its peers and we see that as a highly attractive proposition to existing and potential investors.





Manas Resources projects are at exploration stage.



Projects vary from grassroots to conceptual stage.

“Our aim is to find a large and attractive resource that would be attractive to a major miner.”

– MacKenzie

**WHAT IS YOUR STRATEGY FOR YOUR FLAGSHIP PROJECT? ANY KEY MILESTONE IN PLACE FOR THE NEXT TWO YEARS?**

For MGP we expect to rapidly advance those targets with resource potential closest to the Tongon mine through the course of 2020, with a view to outlining the resource potential there within two years. At the same time we'll also be using our diligent, systematic approach to progress our two other projects so we can assess their resource potential quickly and cost-effectively. We anticipate that within two years we will have been able to advance each of the three projects to that stage if they show promise, using existing cash resources wisely.

**HOW MUCH HAVE YOU INVESTED TO DATE IN BRINGING YOUR PROJECTS TO THE CURRENT STATE?**

To date we've invested around \$1.2-million in our exploration efforts on the three projects. Manas is in a very strong financial position, with \$7.7m cash in our 31 March 2020 financial statements. We have a streamlined board and management structure and our exploration costs and burn rate are also low:

we've recently invested in our own auger drilling machine to reduce our unit cost exploration overheads.

**WHAT IMPACT, IF ANY, HAS COVID-19 HAD ON OVERALL PROJECT DEVELOPMENT AND PROJECT FINANCING? DO YOU HAVE TO AMEND YOUR STRATEGY IN ANY WAY?**

Like just about every exploration company globally, the pandemic has impacted our operations in Côte d'Ivoire. Prior to lockdown we were aware of the potential risk and had implemented some mitigation measures, and the leadership of the company has also acted to conserve cash by reducing corporate and administration costs. Initially we ceased all fieldwork to assess the risks and see how the in-country restrictions would affect things. After seeking advice from the Ivorian authorities, Manas resumed activities in early May while minimising the risk to staff and local communities. We're monitoring the situation closely and will be able to respond accordingly if infection flares up again. Obviously since our cash position is strong, we're able to proceed more or less as planned with minimal inconvenience.

**ASIDE FROM THE PANDEMIC, ARE THERE ANY KEY CHALLENGES ASSOCIATED WITH THE MGP PROJECT? HAVE YOU IDENTIFIED ANY OPPORTUNITIES THAT YOU WISH TO UNLOCK DURING PROJECT DEVELOPMENT?**

The main challenges to the MGP are that if gold mineralised zones don't have the thickness or grade to make a substantial standalone economic deposit, we would need to consider toll treating any potential resource. However if that proves to be the case, there's always the potential for any resources that we identify to be incorporated into the plans of the two mines within 50km of the project.

**ANY OTHER INFORMATION YOU'D LIKE TO IMPART?**

Obviously the world of exploration and gold mining post-COVID 19 will be different. Because of our cash position we are well placed to take advantage of any opportunities arising. 2020 is certainly an interesting time to be a Manas shareholder. ■

# PROJECT DELIVERY IN A POST-COVID-19 WORLD

Engineering firm Worley is initiating a pioneering distributed workforce model, offering a more flexible working environment, and has moved more than 45 000 staff members from offices to safe working environments over the past three months. This is as a result of the COVID-19 pandemic.

To support this transition, Worley has formed an advisory group to ensure remote work can be accomplished with the same level of integration and security as if done within a company facility, the company says.

According to group CEO Chris Ashton, COVID-19 has prompted the opening of a “talent door” by emphasising how complex projects can be collaboratively delivered from any location across the globe.

“We’ve demonstrated that we can deliver projects in a virtual environment, as Worley’s technology systems allow engineers to access advanced 3D modelling systems from home and

enable staff to collaborate from different locations to deliver projects virtually,” he says.

Robert Hull, vice president for Mining, Minerals & Metals in Africa, says the business recognised the potential impact of the pandemic early, implementing structures towards a global response which were then applied at regional and local levels.

Hull says the future of Worley business will include working differently, more efficiently and effectively, and working from home.

“While we are confronting a new world, we see many benefits in terms of flexibility and efficiency, as well as an opportunity to accelerate change. In the mining, minerals and metals space, feasibility studies and design proposals have seen little decline in demand and we are operating at full capacity, while our construction teams not involved in essential services continue to work from home while waiting for lockdown restrictions to ease,” he says.

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## BME LAUNCHES NEW BLASTING GUIDE APP

Explosives manufacturer BME recently launched a new, free Blasting Guide application for Android mobile devices, enabling users to rapidly calculate and check blast designs.

Currently available for download from the Google Play Store, the new BME Blasting Guide mobile app replaces traditional paper booklets carried and referenced by in-field users. It includes a blast design calculator, quick calculators and prediction calculators, the company says. Other app features include surface blast design rules of thumb, environmental guidelines, a table of common rock properties and a BME contact directory per country.

The app runs both metric and imperial unit measurements, making it useful across the globe. "The new app is an integral part of BME's pioneering approach to harnessing the power of digital technology in the blasting sector," says Christiaan Liebenberg, software product manager at BME. "This platform gives our

Blasting Guide a mobility and ease of use that makes a blasting engineer's job easier and more productive."

Liebenberg says that while the app is not a blast design tool, it is a powerful means of verifying blast design outputs and making important blast planning decisions.

"The blast design calculator is a series of guiding formulas that allows a blaster or engineer to plan a blast from start to finish," says BME blasting science global manager

D Scott Scovira. "The blast design calculator utilises user inputs including burden, spacing, stemming height, sub-drill, hole diameter, bench height and explosive type to determine explosive loads, powder factors and other outputs. It could be used, for example, to investigate potential blast patterns for a greenfield site, where numerous scenarios can be quickly generated and calculations checked."



BME's Blasting Guide is now available as an app on Android devices.

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## PLATREEF SINKS SHAFT 1 TO 1 000M BELOW SURFACE

TSX-listed Ivanhoe Mines' South African subsidiary Ivanplats has completed the sinking of Shaft 1 to a final depth of 996m below surface, at the company's palladium, platinum, nickel, copper, gold and rhodium Platreef mining licence, the company says.

The Platreef Project, which contains the thick, high-grade, flat-lying, underground Flatreef Deposit, is a Tier One discovery by Ivanhoe Mines' geologists on the northern limb of South Africa's Bushveld Igneous Complex.

The company says underground mine development work will focus on the

construction of the 996m-level station at the bottom of the shaft, with final completion forecasted by the end of July 2020, ahead of the contractual schedule. The shaft can then be reconfigured and equipped for rock, personnel and material hoisting, Ivanplats says.

The new auxiliary winder for the 7.25m diameter Shaft 1, which is scheduled to be delivered to Platreef later this year, will be used to assist in equipping the shaft and thereafter for logistics, shaft examination and auxiliary functions. The auxiliary winder will provide a second means of ingress and

egress from the shaft after removal of the stage winder. Shaft 1 is located some 350m away from a high-grade area of the Flatreef orebody, planned for bulk-scale, mechanised mining.

"The Platreef Project has long been recognised as one of the world's largest deposits of high-grade platinum-group metals, nickel and copper. With the sinking of Shaft 1 now complete, we are exploring near-term development pathways at Platreef that will allow us to expedite production at the next world-class mine on the northern limb," says co-chairmen Robert Friedland.



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# THE CHANGING WORLD OF WORK

**B**y this time we have probably all been exposed to the new world of work in some way or another. Some had possibly already begun preparing for this world before the COVID-19 pandemic. For most, though, we are now finding this reality thrust on us by the local and global lockdowns mandated by governments as a means of controlling the spread of the virus.

Is this, though, not an opportunity to more fully embrace and solve the challenges of the new world of work? We need to catch up to the technological advances introduced through the Fourth Industrial Revolution, before they overtake us. Failure to do so may see the consulting engineering industry unable to meet the time and cost efficiencies that our clients require of us in this digitised and competitive world of business.

The modern world of work has shown us that it is possible to be productive despite not being in the office and “reporting for duty” as the traditional norm. However, many still grapple with the need to have people visible in the same room, a throwback to the antiquated factory floor production line, to believe that they are productive. Traditional managers may fear that their lack of immediate sight of their employees may lead to decreased productivity.

I would argue, though, that we change our perspective, shifting focus more towards goal-setting driven towards producing tangible outputs in predetermined timeframes, rather than spending energy focusing on inputs where one may appear to be busy but show little evidence of true productivity.

While it's true that distractions in the office often detract from one's ability to optimally use the time available, different challenges exist when working remotely.

It requires a large amount of self-discipline, a healthy work ethic and a reasonable workspace to ensure that time is effectively and efficiently used. At one level, this is going to require more maturity on the part of both employers and employees to mitigate the risk of creating a trust deficit in the working relationship leading to disciplinary measures. On another level, employers may find a growing need to develop management systems that monitor remote working productivity levels by setting short-term progress reporting targets and tracking online usage of key software packages. This is preferable to discovering, too late, that a project design completion may be delayed when a client is expecting progress.

It also is evident that even before we start addressing the technology and costs of gearing up for remote working, there will be a need for a cultural shift and a mindset shift regarding what we define as a workplace. An investment in behaviour may be required long before one embarks on an investment in technology. This is not simple, as behavioural change is arguably more difficult to implement than technological change.

In our current experience, the lines between work and non-work are blurring in new and unusual ways, and many employees who are working remotely for the first time are likely to struggle to preserve healthy boundaries between their professional and personal lives. To signal their loyalty, devotion, and productivity, they may feel they have to work all the time. Afternoons will blend with evenings; weekdays will blend with weekends; and little sense of time off will remain. It is possible that some employees may be asked to continue working remotely for several months even after lockdown, so it is important that some advice be made available to help employees avoid burnout.

Harvard Business Review (HBR) research has shown that workers often unintentionally make it hard for their supervisors, colleagues and



Chris Campbell  
Consulting Engineers  
South Africa CEO

employees to maintain boundaries. One way they do so is by sending work emails outside office hours. In five studies involving more than 2 000 working adults, HBR found that senders of after-hours work emails underestimate how compelled receivers feel to respond right away, even when such emails are not urgent.

COVID-19 has indeed amplified these pressures. Even for employees who have a natural preference to separate their work and personal lives, the current circumstances may not allow them to do so. Many schools are closed and day-care may no longer be an option, placing additional burdens on working parents. Even companies that already encourage employees to work from home are likely to have some trouble supporting staff who face the many challenges of working at home in the presence of their families.

New to working remotely fulltime over the past month, I can certainly attest to the challenge of not being able to separate my work space from my home space and my work time from my home time. The spaces are the same and the time delineations become blurred. With nowhere to go, managing time should be easy, but maybe choosing when to be productive is the challenge. One could choose to start working late and eventually stop late as opposed to the regimental “eight to five”, and still achieve the required output, if these are the times when you are able to function optimally. Although, perhaps you have also found that you do not “switch off” as though it is the end of the working day, as you might when leaving the physical office, and so you could easily find yourself immersed in work-related activities late into the night.

There are already companies who, instead of measuring the time at the office, measure productivity and reward the output of employees. This is mostly in recognition of the fact that dedicated employees tend to work long hours anyway and should be rewarded for output with more flexible working hours. Some companies have even dispensed of the formal limit on the number of leave days, as they realise that employees are working well in excess of the normal eight hours anyway and are producing satisfactory results so time off at any time may be granted.

It remains important, though, that we are mindful of maintaining physical and social boundaries. Under traditional circumstances, we dress up and commute to the office and then at the end of the day go back home. When working from home, there is no need for a commute to the office, however a walk outdoors is advised to prepare your mindset for work. Likewise, if on the odd occasion you remain in the clothes you slept in, there is no problem, but it is recommended that you more often dress up as though you were at the office. Even observing the odd casual Friday is good.

Working from home requires that we more consciously balance and prioritise work and home lives to focus on the important issues. While we should always strive for good time management, working from home makes this all the more important as we lose our routines, our visual reminders to do certain things, and our physically separate spaces.

It is critical to achieve a healthy work-life balance, so that you are able to perform consistently at optimal levels of mental and physical wellness while at the same time meeting your professional commitments to your manager, your team, and yourself. We will have to consciously consider how best we embrace this paradigm shift, both as employer and employee, so that we adequately prepare for this new world of work. The tools, the equipment and the training required for this to work must now become a serious part of the company business plan if it is indeed your strategic intent to use the advantages offered by the new world of work. ■

# WHAT'S NEXT FOR RECORDS AND INFORMATION MANAGEMENT

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By Ashley De Klerk, managing director of Metrofile Records Management South Africa.

When businesses step into the post-coronavirus future, they will need to find a balance between what worked before and what will need to happen to succeed in the next normal.

**E**nvisioning business as it should be in the next normal will vary per sector. What is common across all sectors is the increased importance of managing records and information. In the past, information typically informed historical reporting, with internal needs and compliance taking priority.

Today, executive management requires far more external information for security, predictive thinking, and to innovate for the future. Compliance and risk management are still key but the field of records and information management has become bigger and far more complex.

This is just the beginning of what will be a period of constant change, making it increasingly important to build an information management framework that is trustworthy, agile and resilient enough to maintain business continuity in the face of an uncertain future – one that is likely to include a larger staff contingent working remotely, potential loss of IP through forced staff redundancies, increased regulation and compliance, and tighter cost controls.

## ENSURING TRUST

Business optimisation and growth are driven by good decision making, which in turn can

only be reliably driven by high-quality data. After all, if you can't trust your underlying data, how can you trust the decisions you make? At the same time, organisations will need to make the move to digital quickly in order to improve efficiency and reduce the physical contact required for handling records and information in paper form.

Trust in the quality, reliability and security of information is therefore becoming increasingly important. Yet many businesses have still not set up their processes for the complete digital management of records.

## ENABLING AGILITY

To generate value-creating and value-protecting opportunities, businesses will need the ability to reconfigure strategy, structure, processes, people, and technology quickly. Enabling these reimagined processes, as well as new regulations and legislation, will require agile electronic document management systems (EDMS).

Global surveys have shown that while agile businesses perform significantly better, only a minority of organisations were actually adopting agile business processes. Due to the current crisis, many more have now been forced to do so with positive results.

The COVID-19 pandemic has accelerated the Digital Transformation or Fourth Industrial Revolution. Whatever the term, the fact is that there is a new and fast-improving set of digital and analytic tools that can reduce the costs of data management processes while fostering flexibility.

## BUILDING RESILIENCE

In addition to enabling trustworthy and agile business processes, successful companies will also need to redesign their operations and information management systems to protect their businesses against a wider range of potential shocks and disruptive events.

A greater reliance on digital processes introduces new risks such as IT security and a lack of digital skills in the workforce. Prior to COVID-19, business continuity planning focused on resuming operations after a disruptive incident like a fire, earthquake, or cyber-attack. The current reality has placed greater emphasis on building long-term resilience, and has seen a lot of companies and CEOs accelerating their discussions on digital transformation as an integral part of their business continuity.

The ability of business leaders to refocus on the task of building sustainable business processes will define the companies that emerge intact from the pandemic over the next two years.

Now is the time to start imagining what's next for records and information management in your business. ■

“Many businesses have still not set up their processes for the complete digital management of records.”

# LIFE AFTER COVID-19: WHICH SECTORS ARE SET TO THRIVE IN AFRICA?

“In the wake of COVID-19, Africa has the chance to transform what much of the world sees as insurmountable challenges into monumental opportunities.” – Christopher OH Williams, president of African Leadership University.

The COVID-19 pandemic has had the world on its knees, forcing countries, from the most industrialised to the least developed, into prolonged sanitary lockdowns and upending whole economies. As a result, the world has now stepped into recession, one of a scale far greater than the financial crisis of 2008, and potentially comparable to the 1930s Great Depression.

With less than 2% of the world's recorded COVID-19 cases to 21 May 2020, Africa, which accounts for 17% of the world's population, was far less affected than many dreaded. However on the economic front, the pandemic will severely dent the continent's growth trajectory. According to the World Bank, sub-Saharan Africa is heading towards its first recession in 25 years, with average GDP growth predicted to nosedive from 2.4% in 2019 to -2.1 to -5.1% in 2020, depending on how long the pandemic lasts. The economic powerhouses of the continent, Nigeria and South Africa are predicted with economic contraction in excess of 8%.

Africa as a whole, whether by luck or circumstance, has contained the deadly infection compared to countries with more sophisticated health systems. In so doing, Africa has, in our view, sown the seed for the future resilience of its economies.

True, the continent – as the rest of the world – will be reeling for some time. Most African countries have limited fiscal space to sustain measures to bolster economic recovery. However, from lessons learnt from Africa's handling of the COVID-19 crisis and the shape of things to come, in the short to medium term the continent will be teeming with investment opportunities to grab.

First, in sectors having emerged unscathed and stronger from the crisis; second, in traditional “backbone” industries that will need strengthening to make them fit to withstand similar shocks in the future. In the long run, the inherent attributes that have put Africa on the radar of investors across the world will once again come into play for the continent to rise anew.

**WHAT SECTORS TO KEEP AN EYE ON? TECHNOLOGY-ENABLED SECTORS AS PILLARS OF RESILIENCE COVID-19 HAS BEEN A STRONG REVEALER OF THE POWER OF TECHNOLOGY TO SUPPORT LOCAL AND REGIONAL VALUE CHAINS, ENABLING THE COST-EFFECTIVE DELIVERY OF A HOST OF SERVICES TO CONSUMERS CONFINED IN THEIR HOMES.**

Specifically relevant in these times have been the digital education initiatives deployed in many countries, in the likes of Kenya's Eneza Education in partnership with telco giant Safaricom. In a post-COVID



Alan Witherden,  
Business Development  
Director at Ocorian

era, more online education platforms can help programmes and curricula achieve scale, reaching out to larger student populations at a lower cost, without the traditional brick-and-mortar investments. Initiatives to build leadership and entrepreneurial skills will also be critical: “We are catalysing the next generation of consequential entrepreneurial-minded African leaders needed to unlock this new era of opportunity,” says African Leadership University president Christopher OH Williams, a client of Ocorian.

Undoubtedly one of Africa's most resilient sectors to the current crisis, the financial technology industry (fintech), with its mobile-enabled payment platforms, has been providential in ensuring that large volumes of transactions could still be processed, hence supporting vital economic activity from isolated farmers, small enterprises

and self-employed individuals. Before the pandemic, fintech was already thriving in Africa. According to WeeTracker, in 2019, fintech attracted more than 50% of the \$1.34-billion raised by African start-ups.

In the health sector too, technology was put to good use, evidenced by the self-monitoring COVID-19 triage tool developed in Nigeria and the drone-enabled delivery of medical supplies in Rwanda.

Whether in financial services, education, health or other technology-enabled sectors, digital applications deployed successfully

under COVID-19 are unlikely to be scaled back once the crisis subsides. For the security they offer, these sectors may be vital for investors looking to build a recession-resilient portfolio in Africa. COVID-19 has revealed, more clearly than ever, Africa's potential for technology-driven innovative investments.

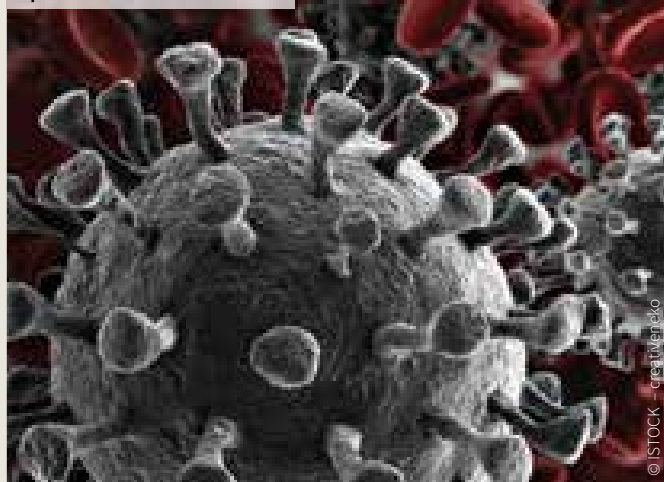
## THE MANUFACTURING SECTOR: STRENGTHENING LOCAL AND REGIONAL VALUE CHAINS

With the pandemic disrupting international supply chains, many countries in Africa have resorted to quick-fix home-grown solutions, especially to ensure production of life-saving COVID-related medical

equipment and supplies. Textile factories abandoned export-oriented production lines to supply local communities with masks; in Nigeria, a military facility helped alleviate the shortage of oxygen; South Africa issued a tender for the production of ventilators. Examples abound of such emergency conversions, which reflect the potential for African industries to respond to local demand swiftly.

In more generic terms, the pandemic has shed light on the necessity to substitute local manufacturing for imports, wherever possible. A strong African manufacturing industry is also a pre-requisite to the success of the impending African Continental Free Trade Area (AfCFTA). The protocol on the trading of goods within this

The COVID-19 pandemic has upended whole economies.







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unified market of 1.2 billion consumers was slated to commence on 1 July 2020. As a lever of trade and economic recovery, the AfCFTA implementation agenda is expected to receive priority attention from African governments after the pandemic.

#### INVESTING IN SECURITY: FOOD AND HEALTH SECTORS POISED FOR GROWTH

COVID-19 will not only tip the scale for locally produced goods. More compelling even will be the urge to ensure food security. This is expected to drive investments across the full agribusiness and food-processing value chains. "Vertical integration and category diversification have proven to be key to sustain the volatility experienced across the food industry. We see opportunities in basic food products post COVID-19 as these sectors are recession-resilient, despite suppressed demand," says Joel Bryce, chief investment and strategy officer of PhilAfrica Foods, also an Ocorian client.

Similarly to the rest of the world, Africa woke up from the pandemic with the realisation that its economic prosperity depends, first and foremost, on the health of its people. At the beginning of the coronavirus outbreak, many African countries found themselves at the bottom of the Global Health Security Index.

Investments in the health sector, including in pharmaceuticals, will get an unprecedented boost. Biomedical Emporium, an Africa-based company and a client of Ocorian, sees "great opportunities in the design and development of diagnostic testing kits, multifunctional cocktail drugs as well as over-the-counter treatment therapies". On a larger scale, many countries on the continent, including Mauritius, South Africa, Kenya and Ghana, were already growing their health sector to become a backbone industry. Investment opportunities will remain plentiful, also as the health sector benefits from new technology applications such as telemedicine.

#### WILL THE SITUATION DIFFER ACCORDING TO COUNTRIES?

The individual capacity of countries to rebound will depend on a host of factors altogether: their growth history and dynamics



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## \$1.34bn

### Investment value by African start-ups in 2019

before COVID-19; the effectiveness of their governance and business frameworks; the strength of their relations with international donors, investor communities and bilateral and multilateral economic partnership agreements, among others.

Understandably, countries that were already on a sturdy growth path, with improvements in ease of doing business and an effective governance framework, will stand a better chance to win back investor confidence in a post-COVID-19 era. Oil-dependent economies and countries with very high levels of external debt will face protracted hardships with a much slower recovery. Based on such criteria, it is reckoned that Morocco, Rwanda, Ethiopia and to a lesser degree Côte d'Ivoire and Ghana could be blessed with a less painful recovery in the short term.

#### SHOULD WE EXPECT A CHANGE IN THE WAY WE DO BUSINESS?

This coronavirus crisis is akin to a paradigm shift which many, across business, government and civil society, hope will bring about a more sustainable, inclusive and green society. The World Economic Forum has called on Africa and the rest of the world to fight the current economic plight with "stakeholder capitalism", on the premise that new rules for community engagement will help companies recover faster. In Europe, it is a European Green Deal, ushered in by the European Commission, on which rests the hope of a competitive, inclusive and climate-neutral 21st century.

This new paradigm, we think, will also permeate the investment philosophy of private equity funds on the continent, with possibly more so-called impact funds becoming the norm and host countries making it mandatory for individual investors to factor in ESG (environment, social, governance) considerations in their decision making.

Africa's recovery will be Africa-led, with its home-bred entrepreneurs and investors poised to benefit first-hand from this new era of opportunity. South African investors are well placed to be part of the journey.

There are already significant investments by South African companies in many African countries, as evidenced by the 180 or so companies served by Ocorian. While there are a number of large, JSE-listed entities that Ocorian represents, most of their clients are owner-managed businesses seeking to expand their horizons into Africa. They are well equipped to do so, leveraging on their local success and unique knowledge of the economic, environmental, societal and political conditions prevailing on the continent. With a stagnating economy and political uncertainty, the incentive to take advantage of business opportunities on the continent could be timely now. ■

# SOUTH AFRICAN MINING AND STALINIST MILITARY – PURGES

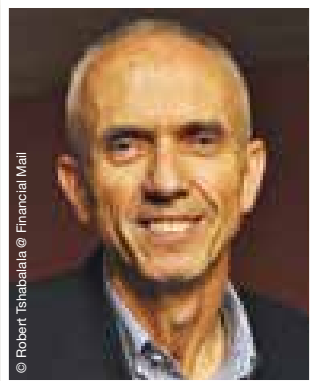
## WERE THEY REALLY IDEOLOGY? OR JUST PLAIN POWER?

**T**he decimation of South Africa's gold industry is increasingly being compared to Joseph Stalin's Great Red Army Purge of the late 1930s in Soviet Russia. From 1887 to 1987 South Africa's gold industry evolved in both size and stature. Tens of billions of dollars were poured into the industry during that time, most of it foreign, and by the 1980s it was at its height: over 550 000 people employed and regular annual production of 650tpa of refined gold. Over \$37-billion per annum in today's terms (R640bn). Stalin's insidious purges of the Red Army ranks just before World War II decimated its capacity hugely and so they met Adolf Hitler's invasion woefully unprepared and lacking hugely in experienced and meritocrat leadership.

Mimicking this in South Africa, the increasing decimation of the Department of Mineral Resources left it wholly unprepared for the surging gold price of the new millennium. As in Soviet Russia during the 1940s, South Africa has seen political and cadre appointments replacing the experienced and knowledgeable custodians in the government departments, especially the Department of Mineral Resources. As the gold price began surging in 2001 onward, like when Hitler's troops were pouring over the Russian border in mid-1941, South Africa's industry was in full retreat. All the built-up knowledge and experience and working relationships that had allowed South Africa's mining industry and ministry to mutually benefit, was now being strangled, dismantled and lost.

Like the Red Army generals and officers being shot or deported to the Gulags and prisons, South Africa's industries and ministries were now being decimated. Eskom, and the Mineral Resources, Water Affairs and Transport departments were collapsing with regulations becoming increasingly cumbersome, contradictory and impossibly "discretionary" and complex. Much like Lavrentiy Beria's NKVD (Secret Police) passing down quotas and discretion to provincial and municipal/junior divisions to carry out policy, executions and destructive actions "as they saw fit".

In the various echelons of the Department of Mineral Resources, "politically unreliable elements" were purged. Many provincial officials were sacked and soon the rank and file underwent the same. As Hitler's forces overran Soviet territory during the early WWII years, the purges continued, much like further purges and reorganisation of the Department of Mineral Resources culminating in the now infamous "Money Bill" of 2004 (i.e. MPRDA). Much like "the worse the Soviet forces did against the invading Germans", the more purges increased – the "more the gold price ran and SA's production fell", the more the mine unions fought for control and the more the Department of Mineral Resources increased the demands and constraints via MPRDA II and later MPRDA III.



**Peter Major**  
Mergence Corporate  
Solutions Director: Mining

Was the appointment and later removal of former Mines Minister Mosebenzi Zwane and Malusi Gigaba (Treasury) the peak of South Africa's gold mining industry madness and destruction – paralleled by the tenure of Beria and Stalin in Soviet Russia? Fifty years after Russia passed from those two supremo despots the country was in ever more disarray. Ditto for South Africa after 25 years. Its official gold industry (private and government) are hugely decimated and in unstoppable decline. But what is growing out of control as the direct result of the decimation is SA's zama zama/artisanal gold industry, with its numbers (men and production) soon to be exceeding those of the formal gold mining sector. With the collapse of government institutions and the mining industry throughout Africa, the rise and growth of the artisanal miners continues unabated – as does

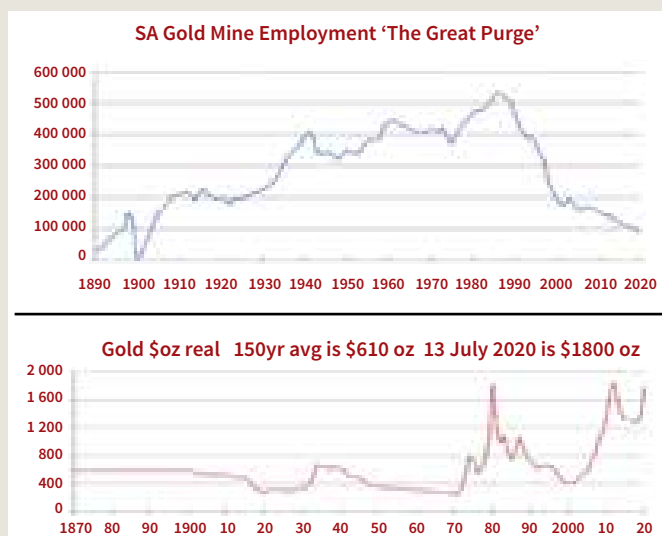
their destruction of the environment and any form of governance and control. Africa today produces around 850tpa of gold, the majority of which gets sold to Dubai through irregular, often illegal chains, that provide the host country with little no or revenue. South Africa is now entering the Uncontrolled Gold Mining Club of Africa.

For decades industry and government (particularly the mines ministry) worked to keep this growing zama zama locust swarm at bay. But the continuous attacks and purges over the past 25 years have increasingly eroded industry and government's ability to contain the storm. Before the end of this decade, South Africa's

official gold production and employment, like all its sister countries north of it, will be less than its unofficial artisanal gold production. This translates to uncontrolled destruction of the environment and complete abandon of any health, safety, labour and environmental regard and control. As for royalty and tax payments, VAT, personal and land tax? Non-existent. The country is losing all that and more. And that is without even mentioning the loss of 500 000 real jobs. Professionals trained and nurtured in a professional environment that once was and could have carried on for another 100 years, to the benefit of the country

and all its inhabitants. Now disappearing forever. And for what reason? Ideology? Avarice? Incompetence? Or design?

At the end of WWII, the nightmare(s) had finally ended with some attempts made to bring the perpetrators to justice. Much like the Nuremberg Trials that eventually saw its winding down and premature end due to "tiredness", the same thing seems to be happening with the Zondo Commission. The public needed to see who the leading despots were and just how involved almost everyone was to some degree. But finding the willpower and resources to actually go after the main culprits, let alone trying and incarcerating them, is a challenge. The big difference in the two eras is that in South Africa's case the big culprits are still alive, well and exceedingly wealthy and powerful. ■



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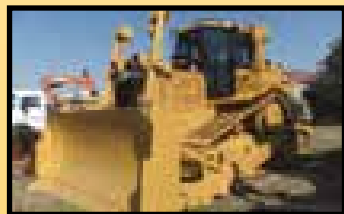
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2 x Bomag BW212D-40 SD Roller  
1 x Dynapac R 3 Point Steel Rolle-13 Ton  
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Tyres  
2 x Sem 668C Front end loaders - 2014



3 x Benford TV1200 DDV Rollers  
1 x Cat CB224E DDV Roller  
1 x Bomag BW120AD-4 Roller



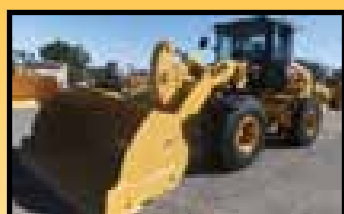
2 x New / Unused Terex 844S 4x4 TLBS  
1 x Cat 428F 4x4 TLB  
1 x Bell 315 SJ 4x4 TLB



2 x Ford Mobilift  
1 x ACE 30 – 12XW Mobilift - 2010  
1 x Callion 10 Ton Crane  
1 x JCB 540-170 Turbo Power Shift



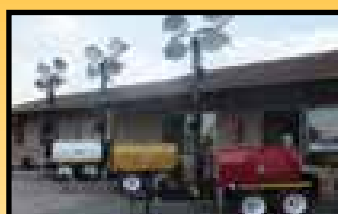
1 x Komatsu PC200-8 Excavators - 2013  
new undercarriage 1 x Komatsu PC200-8  
Excavators - 2012  
1 x Komatsu PC220-8 Excavator - 2011



1 x Cat 938K Loaders 2014  
2 x Cat 950H F.E.L - 2013 Models



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## SANDVIK ZAMBIA ASSISTS WITH COVID-19 RELIEF EFFORTS

Sandvik Mining and Rock Technology has been working with the Zambian authorities to fight the COVID-19 pandemic. Taking proactive steps, Sandvik in Zambia has partnered with the Kitwe major's office to raise awareness and establish an effective response to the pandemic.

Daniel Banister, vice president, sales, for Sandvik Mining and Rock Technology Central Africa, says, "Corporate social responsibility initiatives can be harsh when limited to legal requirements but when a company is truly committed to the community they operate in, and see the positive benefits thereof,

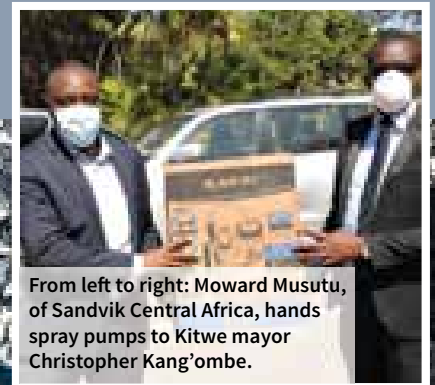
they become an integral part of the community. We believe that being active members in our community is our responsibility and our long-term success is tied to the development of a healthy and thriving community."

Public health is mandated to the major's office to ensure that high standards are observed.

In an effort to assist local authorities in raising awareness and educating the community about the pandemic, Sandvik has donated healthcare material and protective gear listed as requirements from the mayor's office. These include disinfecting equipment such as Hudson

and hand-spraying pumps to help disinfect local markets before traders start their day-to-day activities, vehicle radio systems to raise awareness in the local community, disinfectants, water tanks, white lab coats, gloves, heavy-duty gloves, mouth masks and gum boots.

"We hope this contribution will have a positive impact for our community and assist in flattening the curve for the country," Banister says.



From left to right: Moward Musutu, of Sandvik Central Africa, hands spray pumps to Kitwe mayor Christopher Kang'ombe.



## INMARSAT LAUNCHES TAILINGS INSIGHT FOR SAFER TSF MANAGEMENT

Mobile satellite communications provider Inmarsat recently launched Tailings Insight, a new internet of things solution for monitoring mining tailings storage facilities (TSFs).

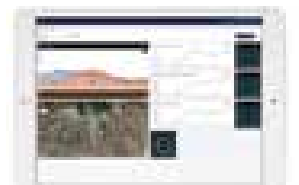
The solution builds on and upgrades its award-winning Tailings Dam Monitoring Solution and is available in two new propositions: Tailings Insight – Cloud, and Tailings Insight – Plus. The flexible propositions are designed to respond to the differing needs of miners, and reflect Inmarsat's commitment to building more transparent, safer management of TSFs globally, the company says.

The two new propositions upgrade and build on Inmarsat's Tailings Dam Monitoring Solution and remove many of the challenges related to data governance, and ensure mining companies have visibility across global tailings portfolios in one place.



Joe Carr, director of mining innovation at Inmarsat, says many miners lack the reliable site-level connectivity required to enable real-time monitoring and management, although on some sites, some companies have this. "The common need that we found among all of our customers and the miners we have spoken to was a platform to help bring all of their

data together. Both of these propositions will be key in helping mining organisations future-proof themselves and respond to the upcoming changes to tailings regulation globally. They can be used in conjunction with each other at different sites across a global portfolio and upgrading from Tailings Insight – Cloud to Tailings Insight – Plus is easy."





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## SUSTAINABLE DEVELOPMENT GOALS

**Danakali Limited supports the Sustainable Development Goals**

\*Funding remains subject to satisfaction of relevant conditions precedent; \*\*DNK announcements, 29-Jan-18 & 30-Nov-2015; \*\*\*Source: DNK announcements, 29-Jan-18

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# DRIVING ORGANISATIONAL CHANGE

to thrive in a post-COVID-19 economy

With the phased reopening of the South African economy in May, mines have resumed activity – albeit with new restrictions. Arjen de Bruin, managing director at OIM Consulting, a Cape Town-headquartered business consultancy that specialises in the mining sector, says that while most mines have been permitted to reopen with a limited workforce and increased safety and hygiene measures, new challenges have arisen in the wake of the lockdown.

The very nature of mining puts workers at increased risk of exposure to the coronavirus. “There are more than 400 000 people employed by the industry. On any given day, thousands of miners are dropped down underground shafts in crowded cages – making ‘social distancing’ impossible.”

The situation is more manageable for opencast mines, De Bruin admits, where it is easier to adhere to distancing requirements. “Mines within the PGM stable and iron ore also benefit from good stockpiles and global supply chain support.”

While opencast mines are currently able to resume operations at 100% capacity, deep-level mines are increasingly pressed to not only make up for lost output, but to meet production targets while operating at 50% capacity.



Arjen de Bruin, managing director at OIM Consulting.

This has significant cultural ramifications for organisations. “As we play catch-up, businesses will naturally reassess how they can minimise costs and streamline efficiencies in an attempt to buffer the impact that lockdown had on output, as well as adjust their processes in response to the new ‘no-touch economy’.

“Efficiency without a culture change is unsustainable. Any existing issues will become exacerbated in the face of the

changed context within which we operate, and will become compounded with new challenges.”

According to De Bruin, OIM Consulting has a proven track record in boosting production capacity through cultural change. The company’s process addresses cultural change, the identification and building of new capabilities, and performance assessment, management and improvement, with a pivotal focus on the supervisor as key to sustaining this improvement.

De Bruin says this start-up phase offers an opportune moment for companies to reassess how they are demonstrating their organisational values. “Crisis catalyses change. We can seize the opportunity to create a more dynamic culture, with better capabilities for leadership, devising relevant tools to deliver a more efficient, effective operation.”

According to De Bruin, the industry is already well positioned to instil and manage the increased safety protocols. “Given the high-risk nature of the work, mines are extremely safety-conscious and are proactive about putting robust protocols in place. They understand requirements such as PPE and have access to rapid response teams and their own on-site hospitals.”

While automation is predicted to accelerate, De Bruin points out that technology is not a panacea and that if implemented too quickly without workforce buy-in and familiarity, companies will lose momentum and won’t see the benefit.

“We need to focus on building genuinely sustainable, productive and healthy companies in a post-COVID-19 world,” he says. ■

“Crisis catalyses change. We can seize the opportunity to create a more dynamic culture.”

– De Bruin

An aerial view of two construction workers wearing high-visibility vests and hard hats, one yellow and one white. They are standing on a rocky, uneven ground, looking down at a tablet computer held by the worker in the white helmet. The worker in the yellow helmet has their right arm raised, pointing towards the ground. The background is a vast expanse of similar rocky terrain.

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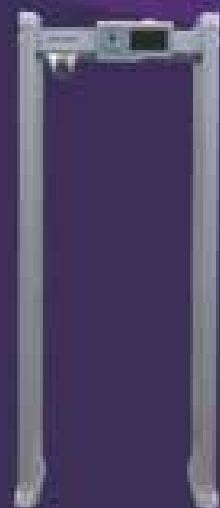
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