

# MINING

## REVIEW AFRICA



### MINING IN WEST AFRICA

NIGERIA, TAKE A BOW

P14

### ROBUST SCREEN EXCELLENCE

P4

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“ This pandemic has also shown us how important it is to exploit our natural resources sustainably, ”

Arc. Olamilekan Adegbite, Minister of Mines and Steel Development of Nigeria

#### SPECIAL REPORT P43

EARTHMOVING  
& EARTHWORKS





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## ↑ FRONT COVER

Continuous engineering improvements have no doubt contributed to Vibramech securing its largest single order in its 43rd year of operation – which entails the supply of over 30 units of vibrating equipment to the latest state-of-the-art marine diamond processing vessel in 2020. **P4**

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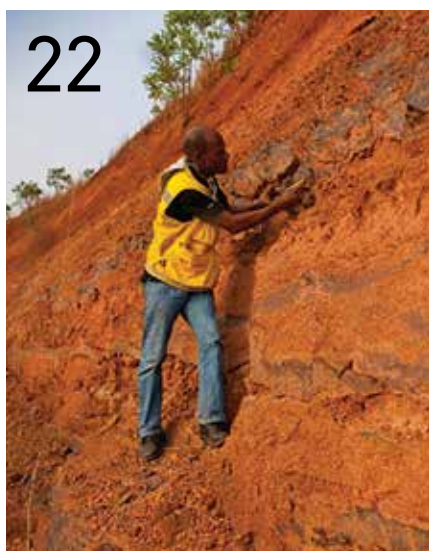
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**EDITOR'S COMMENT**

# NIGERIA

## A shift in mindset required

If I were to ask you which countries come to mind in the West African region, it is likely that Ghana, Burkina Faso, Ivory Coast and Mali will feature at the top of your list. You might think Liberia, Guinea or even Sierra Leone.

Why? These are the 'hot spot' mining countries in the region, known for their abundance of gold and also home to an extensive host of mining juniors and majors.

But would you include Nigeria? My guess is likely not. Generally speaking, the country's investment perception is poor and very little is known about its infant mining industry. Why is that? Is it because the country's economy is built on its oil and gas sector? Is it because Nigeria is not recognised for its untapped mineralisation wealth or is it possibly because corruption seems to be a word closely associated with this particular destination?

Over the last two months, I have found myself fully immersed in the country, largely thanks to our *Nigeria Mining Week* event which thanks to COVID-19 has taken a digital direction this year – giving me the opportunity to get involved in learning more about what the country has to offer the mining sector through a series of webinars in the build-up to a full-scale digital event in October.

Having spent much time with a variety of key players and strategic role players in the Nigerian mining sector, I've learnt a few things and I'd like to share these with you, briefly. Of course, if you want to know more I'd encourage you to read this edition, listen to the webinar recordings of the digital sessions that have already taken place, and register for the upcoming digital event.

My four key takeaways for Nigeria are as follows:

1. Nigeria may have an abundance of oil and gas resources in the country, but it

offers the same mineralisation wealth in mining-related minerals, particularly iron ore, coal, barite, bitumen, limestone and lead/zinc, and the ever so desirable gold. These are also the seven strategic minerals the government has outlined, making them an agenda priority for development.

2. As a general statement, corruption is not a new word to Africa and Nigeria falls within the realms of this difficulty. While I haven't been there myself, I have no doubt that challenges associated with the country do exist – they are no more or less than any other country in Africa – and when did that stop investment and project development? It hasn't and shouldn't in the case of Nigeria.
3. The desire to encourage local downstream/beneficiation opportunities to deliver additional growth that feeds from the core mining industry is admirable.
4. Arc. Olamilekan Adegbite, Minister of Mines and Steel Development in Nigeria, is passionate, determined and driven to see the country's mining industry grow. And, having spent some time with him, I have found him to be informed, well-spoken, technically adept and eager to take the necessary

steps to encourage mining investment. He undeniably ranks in my top five best mining ministers in Africa.

I'm hoping that, within the space of the few minutes taken to read this, I've encouraged you to be more open

to the possibility of investing in Nigeria's infant mining sector, and to expose your company to the wealth and opportunities it has to offer.

You only have to look at the likes of Thor Explorations, Dangote and Kogi Iron to know that Nigeria should feature in your list of West African mining hot spots. **MRA**



Sitting down with Arc. Olamilekan Adegbite at  
*Mining Indaba 2020*



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# VIBRAMECH

## Continuous engineering developments

Provide improved robustness

Continuous engineering improvements have no doubt contributed to **Vibramech** securing its largest single order in its 43rd year of operation – which entails the supply of over 30 units of vibrating equipment to the latest state-of-the-art marine diamond processing vessel in 2020.

The equipment in question ranges from heavy duty/high capacity primary scalping screens to diamond recovery feeders. The large primary scalping screens (the largest operational on seagoing processing plants) have been methodically designed and tailor-made for this specific application, and have been designed using the latest finite element and strain gauge techniques.

"We are pleased by the fact that we have a dedicated +25-year database comprising our meticulous developments, which have empirically improved the longevity of our vibrating equipment, in particular for those used in the marine diamond processing industry," says Vibramech MD David Massey.

"Underlying these developments are our client relationships, through which

we not only receive valuable feedback on their requirements, but with whom we work closely to implement innovative ideas."

Image 1 is one example of Vibramech's flagship double deck marine specification primary screens (overall measurements of 4.1 m x 7.1 m at 25 t). Two of these were delivered during August 2020. This is a benchmark for an exciter driven screen, under the SIEBTECHNIK licence exclusively held by Vibramech since 2005.

Moreover, these particular exciters are specially adapted for marine conditions, in that the exciter weights are protected with stainless steel guards, the studs are given additional anti-corrosion protections and provision is made to monitor the oil levels. The client is also able to adapt

the quality of the lubrication, in an easily accessible manner.

Vibramech's engineering developments have led to substantially improved wear resistance (on its range of vibrating equipment supplied to the marine diamond processing industry), by the use of special features such as huck collar protection, abundant use of stainless steel and galvanised components, thicker side plates, rubber lining on the complete internal surface of the side plates and ceramic coating on all internal exposed surfaces that are not wear protected by rubber lining.

### Going strong

Vibramech is southern Africa's largest manufacturer of vibrating mineral processing equipment. "We engineer solutions for each client's unique mineral processing requirements. Our current installed base of over 15 000 pieces of equipment makes us the southern African leader in market share. We are proud to be the preferred supplier of vibrating equipment to project houses and mines in the region;



and we have earned the reputation of being an OEM that designs and manufactures robust and durable screening equipment,” notes Massey.

Vibramech furthermore supplies its equipment to mining and minerals processing industries throughout Africa, Eurasia, Australasia, North and South America. The company’s equipment is operating in processing plants, ocean vessels and mining operations world-wide, and it has extensive experience in gold, diamond, coal, iron ore, manganese, platinum, chrome, nickel, uranium, copper, mineral sands and aggregate operations.

Vibramech remains confident for 2020 and 2021, as it fully understands the harsh operating conditions which vibrating screens, grizzlies and feeders are subjected to in the mining industry. As such, the company is cognisant that its designs need to cater for both abrasive and corrosive environments.

“Our equipment needs to withstand the high wear associated with the screening of abrasive ores. We also have a range of speciality liner materials, paint specifications and wear prevention compounds which are used to combat the effects of corrosion in the marine and refinery applications. Vibramech even offers the option to supply a screen in stainless steel,” explains Massey.

Vibramech has developed a proven and comprehensive range of vibrating equipment, including, but not limited to: multislope (or banana) screens, horizontal and inclined screens,

dewatering screens, primary & secondary sizing screens, crusher product screens, degrit screens, floats and sinks screens, classifying screens, XRT & X-ray prep screens and feeders, DMS feeders, grizzly feeders, pan feeders, tubular feeders and grease tables.

As sound dynamic behaviour is essential to ensure vibrating equipment reliability, all equipment is built to perform within strict dynamic parameters. All internal mating surfaces are machined in order to maintain stringent dimensional tolerances. In addition, the company’s quality assurance programme makes provision for a full 3D vibration analysis to be conducted on all equipment prior to release. This is used as a benchmark for the life of the equipment.

All equipment is manufactured in-house by Vibramech, in its factory in Chamdor, 35 km west of Johannesburg. Almost every piece of equipment is tailor-made to suit a client’s specific requirements, from both a plant layout viewpoint and process considerations. A present staff complement of over 200 controls all activities from sales through to engineering and manufacturing.

All equipment is designed and manufactured by Vibramech without the use of manufacturing subcontractors. This ensures complete control over quality and scheduling. Furthermore, its flexible and practical approach to screen design enables the client to optimise the vibrating equipment geometry to suit

its specific requirements, resulting in tailor-made equipment.

Vibrator motor and geared exciter repairs form part of Vibramech’s service offering, with repairs conducted to OEM specifications. URAS vibrator motors and geared exciters are part of Vibramech’s key product offering, which, along with other OEM vibrator motors and geared exciters, are repaired at its 25 000 m<sup>2</sup> facilities. The company has distributed URAS vibrator motors as part of its vibrating equipment product offering since 1981 and is the exclusive URAS vibrator motor distributor for Africa and the Middle East.

Vibramech’s field services department continues to service all equipment supplied into the field. It has established regional offices in eMalahleni and Lephalale to service new and existing clients in the Limpopo and Mpumalanga provinces. It also has a permanent sales engineer stationed in Letlhakane, Botswana to provide support throughout Botswana.

Vibramech is B-BBEE compliant under a SANAS accredited generic scorecard. **MRA**



Please visit Vibramech’s website at **[www.vibramechglobal.com](http://www.vibramechglobal.com)** for an overview on how **Vibramech** could assist with your current and future mineral processing requirements.



# Nigeria mining sector

## Key to the country's economic turnaround says mining minister

The COVID-19 pandemic is a wake-up call that Nigeria needs to stop relying on oil to drive its economy. This is the view of **ARC. OLAMILEKAN ADEGBITE**, Minister of Mines and Steel Development of Nigeria, who told audience members during a recent **Nigeria Mining Week** webinar session hosted in partnership with **Mining Review Africa** that the country needs to focus on building the country's mining industry through downstream opportunities.

**GERARD PETER** reports.



↑ The COVID-19 pandemic has shown that it is not wise to rely on a mono-economy

For decades, Nigeria has been predominately a mono-economy, relying heavily on oil revenue to fuel its economy. In fact, few remember that the country once had a thriving mining industry that

dates back to the 1960s. However, an intense global lockdown resulted in a low demand for oil, pushing the price down to record lows. As such, Nigeria's economy took a hefty knock.

"The pandemic is a lesson that we can't only rely on oil to fund our

budget," says Abegbite. "The global clampdown on the movement of people and goods has made it crystal clear to us that we have to develop our manufacturing capacity. Many industries were unable to source spare parts and raw materials due to the international lockdown."

According to Adegbite, COVID-19 has put a damper on the country's aspirations for developing its mining sector. "The government has done so much in the last four years to create an investor-friendly environment, which has piqued the interest of some minors and majors in the global mining industry. It's just unfortunate that the pandemic struck at a time when the ministry had done a lot to revamp the sector. Like every other sector of the economy, the mining sector has not been immune to the adverse effect of the pandemic. The global lockdown, for instance, has precluded the import of equipment and machinery vital to mining.

"Then again, because many manufacturing and construction companies have halted production, the demand for some mined products has tapered off. All these have affected the ability of our sector to generate revenue as we had earlier projected."

### Pandemic forces rethink of economic strategy

However, Adegbite avers that the pandemic does have a silver lining.



"From another perspective, this pandemic has also shown us how important it is to exploit our natural resources sustainably and treat the environment responsibly. The pandemic restricts movement and has closed borders. Its effects on the economy means we need to accelerate our plans for economic diversification, employment and revenue generation for the country. There's no denying the fact that the pandemic has affected the mining community adversely, and we have spent this period re-strategising in order to hit the ground running when the pandemic is over."

To a large extent, Adegbite says, Nigeria's mining sector can turn the country's economic fortunes around by creating downstream opportunities. "We have been working on the downstream/beneficiation policy, having gone through stakeholder engagement and it is now sitting with the Federal Executive Council for final approval. The policy essentially strengthens the regime for beneficiation locally; that is, to stop the exportation of raw mineral ores from Nigeria. To this end, government is providing infrastructure to encourage investors to come into the country and participate in downstream opportunities. Government will provide road, rail and water transportation infrastructure as well as energy.

"The federal government is indeed thinking ahead of how we can truly decouple our economy



The mining industry has a key role to play and this will diversify our economy,"

**ARC.  
OLAMILEKAN  
ADEGBITE**

➤ The minister doing the rounds at last year's Nigeria Mining Week

➤ Adegbite addressing Nigeria Mining Week 2019



from its addiction to oil. In this respect the mining industry has a key role to play and this will diversify our economy and reduce our dependence on oil. Nigeria is open for investors," he concludes. **MRA**

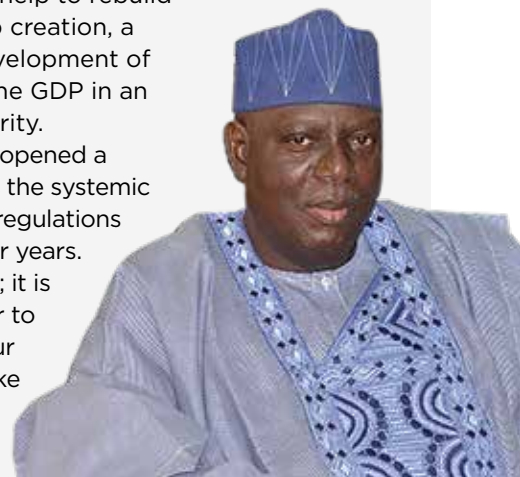
## MINING ESSENTIAL FOR NIGERIA'S SURVIVAL

The COVID-19 pandemic has taught Nigeria a big lesson about the dangers of having a mono-economy that is reliant on oil. This is according to Alhaji Kabir Mohammed Kankar, president of the Miners Association of Nigeria (MAN).

"We have witnessed the below zero demand for oil during the peak period of the global lockdown, as the whole world practically stood still," he states. "This, however, did not stop the demand for basic food and healthcare products. The role of mining in ensuring that these basic necessities can be provided cannot be overemphasised."

Kankar admits that the country's mining sector has a legacy of complex challenges. However, he says that cannot erode the opportunities that exist in developing the mining sector, both upstream and downstream. "The products of mining are also paramount for the manufacture of tools and machinery needed in other industries, especially agribusiness that produces food. Therefore, the development of downstream opportunities in the minerals sector will not only provide the building blocks for the mining industry but it will also help to rebuild the nation through massive job creation, a reduction in crime rate, the development of other industries and growing the GDP in an atmosphere of peace and security.

"The COVID-19 pandemic has opened a window of opportunity to begin the systemic implementation of policies and regulations that we have been discussing for years. Enough talking about strategies; it is time for real discussions in order to deliver the mining industry of our dreams and a sector that will take Nigeria away from its mono-economy," he concludes.



Nigeria has placed great emphasis on creating an investment-friendly environment for mining companies

# Nigeria mining amid COVID-19

Slow but steady progress being made

Nigeria will remain an attractive mining destination if the government continues to ensure the continual gathering of geological data, ensures that policy and regulation are investor-friendly and commits to the development of a local financial ecosystem. **GERARD PETER** reports.

These were the outcomes of a webinar titled, *Driving investment in the Nigerian Mining Sector during the COVID-19 pandemic* was held in the lead-up to the *Nigeria Mining Week Digital Event* in October this year (see page 28), held in partnership with *Mining Review Africa*.

The panel featured Arc. Olamilekan Adegbite, Minister of Mines and Steel Development of Nigeria; Engr. Abdullahi A Sule, Executive Governor of Nassarawa State; Cyril Azobu, head of consulting: West Market Area, PwC Nigeria; and Emma Priestly, consultant and executive director at Goldstone Resources.

In his opening remarks, Adegbite admitted that the government's progress in making Nigeria a top African mining destination has been stymied because of the coronavirus pandemic. However, he is confident that development of the mining sector remains on track. "With a well outlined growth strategy in place and in play, we are still poised for good short to mid-term growth as investors move to capitalise on various commodities," he stated.

Priestly echoed the minister's sentiments by adding that in the two years prior to the COVID-19 pandemic, she has witnessed considerable changes in mining investors' attitudes toward Nigeria. "A good example is Thor Explorations' development of its Segilola gold project. This is the first mine that has been developed in Nigeria for several decades; however, it is showing that development is possible in the country and can still progress amid the COVID-19 pandemic."

Meanwhile, Adegbite added that a number of initiatives are in full swing in order to garner investor interest in the country. "The most important thing is the availability of geological data. Now, for the first time, the government has extra budgetary funding that allows us to embark on nationally integrated exploration programmes.

"Secondly, we have implemented a policy that creates an enabling environment for conducting business effortlessly. We have put incentives in place to attract investment such as tax holidays and duty waivers for mining equipment. We are also working on

developing infrastructure such as a rail network to assist mining companies," he added.

## Investors looking for guarantees

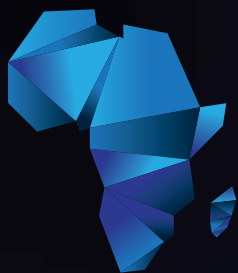
Meanwhile, Azobu weighed in on the conversation, stating that government regulations are key as investors look for stability in political and fiscal policies. "Investors are looking for security of tenure. Also, COVID-19 has resulted in the devaluation of the Nigerian currency so they want to ensure that foreign currency policies and the exchange rate remains stable. They want low costs with high returns and mining is an area where good ROI can be achieved."

Sule added that all state governments have realised the importance of mining as the country tries to move away from its oil-based mono-economy. "For example, in Nassarawa, we are formalising the entire business. This includes facilitating dialogue when there is conflict between mining parties and local communities," he added.

Rounding up the discussion, Azobu stated that COVID-19 should not be a reason to dissuade investing in Nigerian mining. "It takes a few years to plan a mine and you only reap the rewards later down the line. So it is important that we continue to drive investment in the sector even during the pandemic," he concluded. **MRA**

Image credit: 123RF.com





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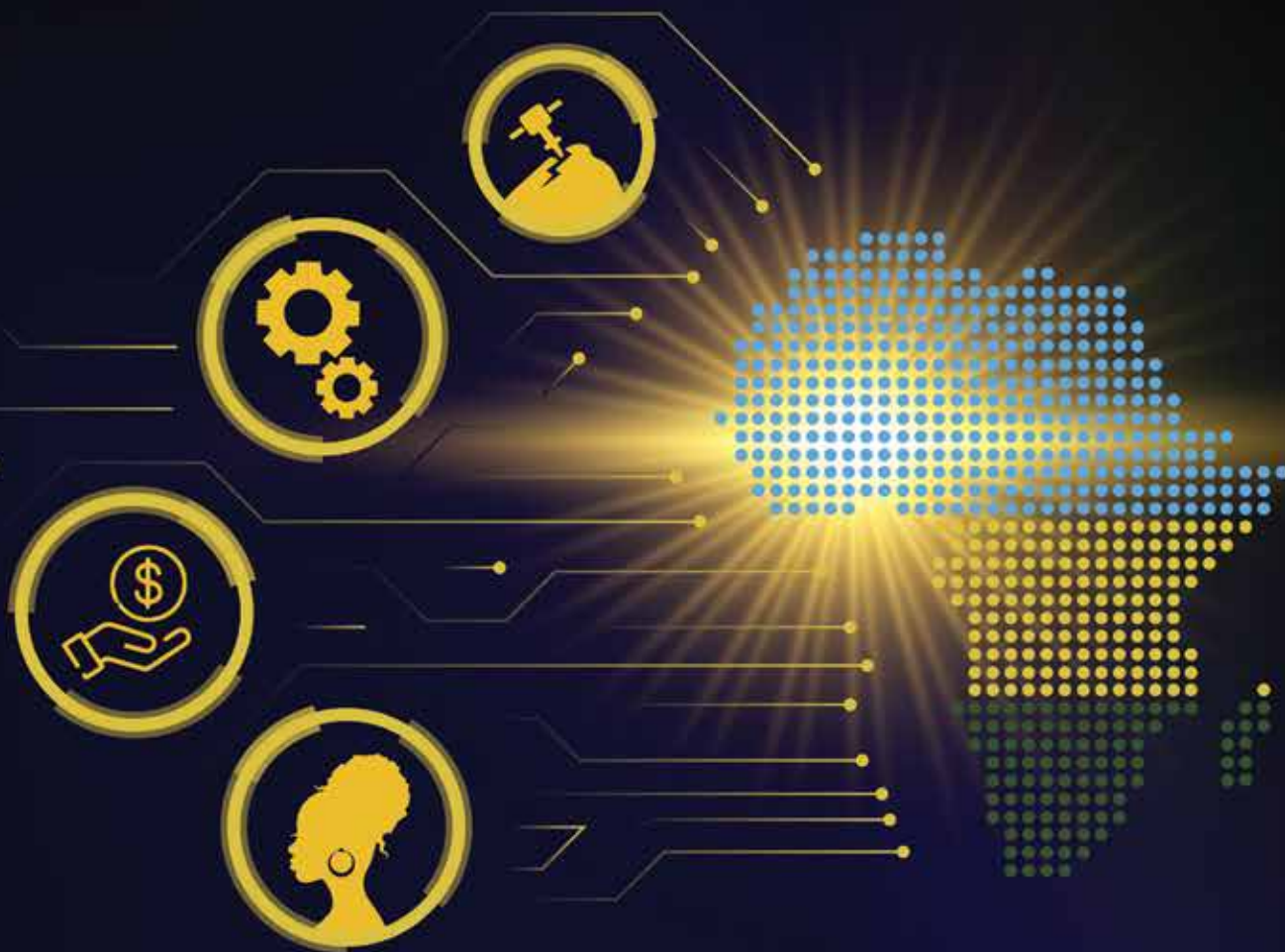
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# New global industry standard

## Improving tailings safety

The **Global Industry Standard on Tailings Management**, officially launched in August this year, establishes the first global standard on tailings management that can be applied to existing and future tailings facilities, wherever they are and whoever operates them.

Strengthening current practices in the mining industry by integrating social, environmental, local economic and technical considerations, the Standard covers the entire tailings facility lifecycle – from site selection, design and construction, through management and monitoring, to closure and post-closure.

With an ambition of zero harm to people and the environment, the Standard significantly raises the bar

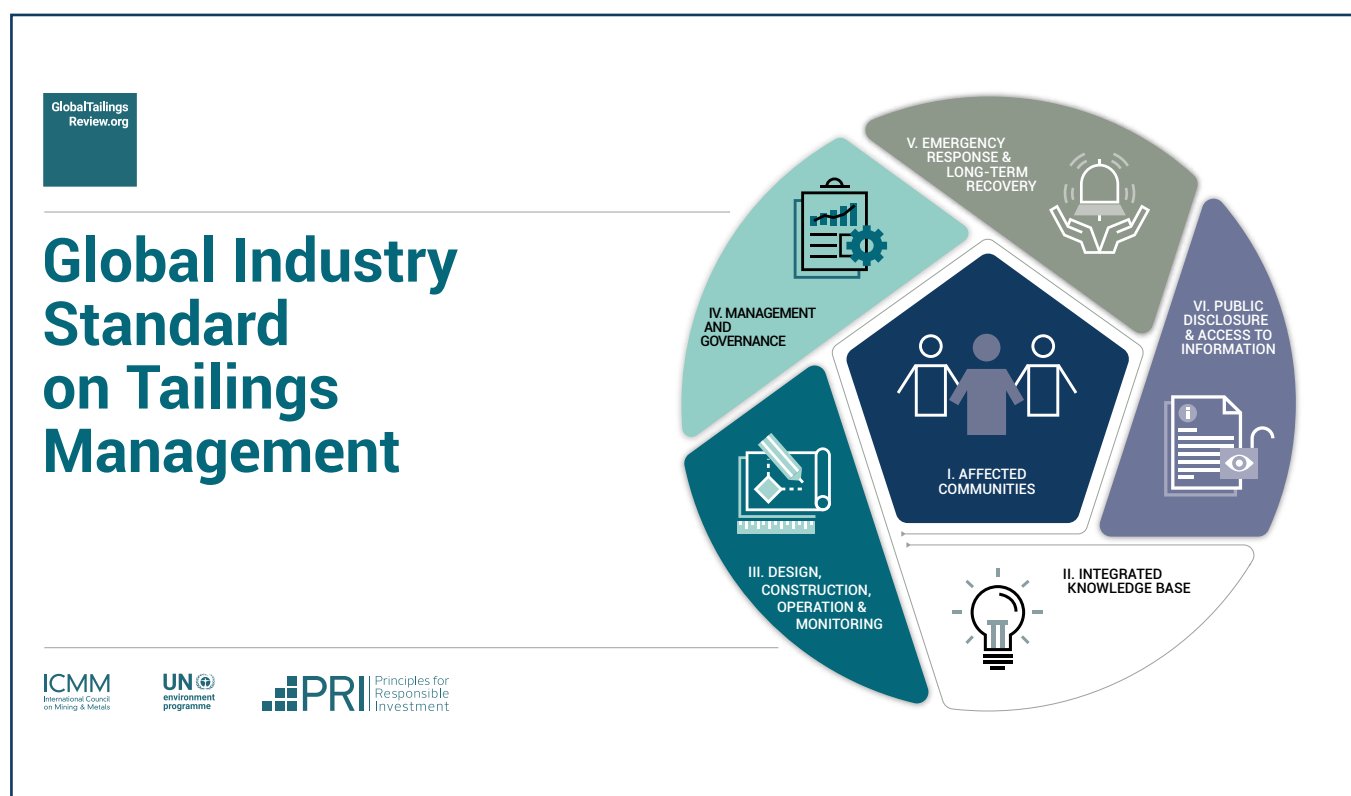
for the industry to achieve strong social, environmental and technical outcomes. It elevates accountability to the highest organisational levels and adds new requirements for independent oversight.

The Standard also establishes clear expectations around global transparency and disclosure requirements, helping to improve understanding by interested stakeholders. It was developed through an independent process – the Global Tailings Review (GTR) – which was co-

convened in March 2019 by the United Nations Environment Programme (UNEP), Principles for Responsible Investment (PRI) and International Council on Mining and Metals (ICMM) following the tragic tailings facility collapse at Brumadinho, Brazil, on 25 January 2019.

The co-conveners have each endorsed it and call for its broad and effective implementation across the industry:

- UNEP will support governments that wish to incorporate and build upon





this Standard into their national or state legislation and policies;

- PRI, representing US\$103.4 trillion in assets under management, will be developing investor expectations to support all mining companies in implementing the Standard; and
- ICMM member companies will implement the Standard as a commitment of membership, which includes robust site-level validation and third-party assessments.

The Standard covers six key topics: Affected communities; integrated knowledge base; design, construction, operation and monitoring of tailings facilities; management and governance; emergency response and long-term recovery; and public disclosure and access to information. These topics contain 15 principles and 77 specific auditable requirements for operators to adhere to.

The Standard is further supported by two accompanying documents, published independently by the GTR Chair: an in-depth compendium of papers that explore various operational and governance issues related to tailings, and a report on the feedback from the public consultation.

The GTR was chaired by Dr Oberle with the support of a multi-disciplinary expert panel and input from a multi-stakeholder advisory group. It involved extensive public consultation with affected communities, government representatives, investors, multilateral organisations and mining industry stakeholders and is informed by existing good practice and findings from past tailings facility failures.

In South Africa, the Standard is fully supported by the industry body, Minerals Council South Africa. **MRA**

**FOR QUICK ACCESS TO THE OFFICIAL GLOBAL INDUSTRY STANDARD ON TAILINGS MANAGEMENT DOCUMENT, SCAN THE QR CODE**



## WHAT THE STRATEGIC ROLE PLAYERS HAVE TO SAY



"The catastrophic dam collapse at Vale's Córrego de Feijão mine in Brumadinho was a human and environmental tragedy that demanded decisive and appropriate action to enhance the safety and strengthen the governance of tailings facilities across the globe. I am particularly pleased to deliver a document which reflects and addresses the complexity and multi-disciplinary nature of sound tailings management," **Dr Bruno Oberle, Chair of the Global Tailings Review.**



"The Global Industry Standard on Tailings Management is an important milestone towards the ambition of zero harm to people and the environment from tailings facilities. Its impact will depend upon its uptake and UNEP will continue to be engaged in its rollout. We are encouraged by the ICMM role and commitments on Standard implementation and call on the rest of the mining industry, and those that finance and invest in the mining industry, to make a similar commitment. In order to maintain the integrity of the Standard, it is crucial that a non-industry organisation identify and pursue the most effective implementation model such as the establishment of an independent entity. To this end, UNEP will continue to engage in dialogue with other interested stakeholders to explore potential solutions," **Ligia Noronha, Director of UNEP's Economy division.**



"For decades, people have called for a global standard that can drive best practice. It is tragic it has taken the Brumadinho disaster to make this happen, but a unique partnership has come together to address a systemic challenge faced by the mining sector and we are now as committed to make this common practice in all operations. For the first time we have a global standard that goes beyond existing best practice and establishes the most comprehensive Standard that Investors will hold companies accountable for in their implementation. I look forward to working with all parties to establish an independent entity which will oversee the implementation of the Standard," **Adam Matthews, Director Ethics & Engagement, Investment Team, Church of England Pensions Board.**



"In January 2019 we called for there to be a new industry standard that drives best practice to address the risk of tailings facility failure, and we have been assured by the Global Tailings Review's independent expert panel that if this standard had been in place, the disaster at Brumadinho would not have happened. We expect all mining companies to comply with this framework, and responsible investors looking to address the risks of tailings failure now have a responsibility to drive implementation, incorporating the Standard into stewardship and active ownership strategies," **John Howchin, Secretary General, Council on Ethics for the Swedish National Pension Funds.**



"The Standard will be integrated into ICMM's existing member commitments, which include third party assurance and validation, and we are in the process of developing supporting guidance. Members have committed that all facilities with 'Extreme' or 'Very high' potential consequences will be in conformance with the Standard within three years of today, and all other facilities within five years," **Tom Butler, CEO of ICMM.**

# August 2020

Top 5 trending stories on [miningreview.com](https://miningreview.com)



## Mine tailings: How to effectively manage the risk

Disasters such as Vale's Brumadinho

focused attention on the mining industry like never before. By charging the CEO of Vale with 250 counts of murder, the Brazilian government directly challenged mining companies to reduce the risk from their operations, and to be seen to do so. They are not alone. There is also a significant effect on how investment and raising capital will be viewed in the future.



## Orion Minerals receives final mining right for Prieska

"We are pleased that the final regulatory

hurdle for the development of the Prieska copper-zinc mine has now



been fulfilled. In less than five years we have been able to locate, acquire, drill out, complete a high-quality bankable feasibility study and fully permit a world-class modern mine, to international best practice standards." – Orion Minerals' MD and CEO, Errol Smart.



## Minerals Council launches first National Day of Women in Mining



Image: 123rf.com

This first National Day of Women in Mining seeks to spur the process within the Minerals Council leadership, in mining company boardrooms and within mining companies themselves, and to put the advancement of women firmly on the agenda. Every year the industry will come together in August to take stock of progress.



## Exxaro's Matla men say #Kwanele to gender-based violence

Earlier this year, the Minerals Council South Africa launched a campaign to address sexual harassment and gender-based violence in South Africa's mines and their host communities, as well as the labour-sending communities. Exxaro is actively supporting this campaign and will find ways to continue driving this initiative

both within their organisation and the communities in which they operate.



## Deep Insights #12: Women of Impact Episode 5 (Podcast)

After forays in marketing and

investment banking, Kim Schoepflin joined South African OEM Kwatani. Successfully balancing her work with her family life, today she is the CEO of one of the leading African suppliers of vibrating equipment to mines. In this podcast she shares some wisdom about what got her to where she is today, and how other women can follow in her footsteps. [MRA](https://miningreview.com)



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# The current state of the Nigerian mining industry

## Role of mining sector in minimising the adverse effects of COVID-19

By **Habeeb Jaiyeola, PwC Nigeria, Associate Director**

The Nigerian economy has been growing slowly since the oil price slump of 2014. Since then, volatility of global oil prices has negatively impacted growth performance. Between 2000 and 2014, GDP grew at an average of 7% annually. However, after the oil price slump in 2014 – 2016, alongside negative production shocks, the GDP growth rate fell to 2.7% in 2015. The country went into its first recession in 25 years in 2016 and saw the economy contract by 1.6%.<sup>1</sup>

Like the rest of the world, Nigeria was hit by the COVID-19 pandemic. Nigeria recorded its first case on the 27 February 2020. Since then, the different sectors of economy have felt the adverse effects of the pandemic.

As a result of the pandemic, the economy is expected to contract sharply this year. This is primarily driven by the decline in oil prices, oil production cuts and supply chain disruptions. The pandemic containment measures put

forward by the government have cut domestic demand drastically.

The case for diversification has intensified as a result of the COVID-19 induced oil price slump earlier in the year. As illustrated in Figure 1, the price of Bonny light, Nigeria's oil blend, has been highly unstable and dropped to US\$21 per barrel in March. This unexpected shock has made the economy vulnerable and forced the Nigerian government to revisit its budget and revise its benchmark oil price

for 2020 from \$57 to \$25 per barrel. Furthermore, the oil production curve continues to slope downward below the 2 mbpd average target which was set by the government.

Economic activity has also slowed down. This is as a result of declining net exports due to the disruption of global and domestic supply chains, border closure to nonessential trade, limited markets for exports due to fall in global demand and the devaluation of the Naira which has made it more expensive to import foreign goods.



↑ Figure 1: Bonny Light Crude Prices; Source, CBN



## Brief overview of the mining sector



The current administration has made active attempts to diversify the Nigerian economy away from crude oil. One such attempt is prioritising the mining and agricultural sector by creating incentives for investment. The approval of the Medium-Term Expenditure Framework and the Fiscal Strategy Paper places emphasis on the importance of solid minerals in catalysing the economic growth strategy in the country.<sup>2</sup>

The mining sector is a critical backbone of the industrialised value chain, being an essential source of input materials for significant sectors, such as construction, automobiles, electronics, shipbuilding, etc. Like oil and gas, Nigeria is well endowed with metallic minerals, but it has not exploited its potential for industrial development due to poor infrastructure for extracting, processing and transporting exploited minerals.

The weak value chain in the sector is evident as steel processing operations depend on imported raw materials such as billets, semi-finished products, etc. valued at \$618 million in 2018.<sup>3</sup>

Following the creation of a Sector Roadmap and its objectives, the Federal Government of Nigeria obtained credit from the International Development Association (IDA) and The World Bank to fund the Mineral Sector Support for Economic Diversification (MinDiver) project which is aimed at implementing the targets of the Sector Roadmap and revitalising the mining sector's contribution to the economy. The key focus of the MinDiver project includes:

- Establishing a strong foundation for mining sector development;
- Facilitating downstream sector development and enhancing competitiveness; and

S/N	Mineral	States	Current state	Primary Use
1.	Lead/zinc	Ebonyi, Benue, Adamawa, Taraba, Nasarawa and Plateau	Exported	Construction
2.	Coal	Kogi, Benue, Gombe and Enugu	Local use	Electricity
3.	Bitumen	Ondo	Imported	Road construction
4.	Limestone	Edo, Ogun, Cross River	Exported (as cement)	Cement
5.	Gold	Kaduna, Kogi, Zamfara, Sokoto and Osun	Exported	Jewelry
6.	Iron ore	Zamfara, Kogi, Enugu, Niger, and Kaduna	Low utilization	Steel production
7.	Barites	Nasarawa	Local user	Oil and gas exploration

↑ **Table 1: The seven strategic minerals** Source: (Nigerian Mineral Roadmap 2015 and MMSD)

- Monitoring and coordinating project management activities.

## Nigeria's strategic minerals



In some African countries, certain minerals have been prioritised to drive the growth of the mining sector and the economy as a whole. For example, the Democratic Republic of Congo is focused on cobalt and witnessed a 100% annual increase in revenue generated from the mineral.<sup>4</sup>

Nigeria has a diverse mining sector made up of high value commodities, with over 44 minerals deposited in over 500 locations across the 36 states including the Federal Capital Territory.<sup>5</sup> In 2015, the Federal Government (FG), through the Ministry of Mines and Steel Development, identified 'Seven Strategic Minerals' – coal, bitumen, limestone, iron ore,

barite, gold, and lead and zinc – for priority development in a bid to revive the mining sector, unlock its potential and diversify the economy away from crude oil.

These minerals are deposited across the country and have not been fully explored due to a myriad of factors.<sup>6</sup>

**1. Limestone** – Limestone is an industrial mineral required to produce cement. Nigeria has large deposits of limestone in Gombe, Benue, Kogi, Sokoto, Edo, Oyo, Ebonyi, Ogun and Cross River states. The annual national demand for limestone is estimated to be around 27 Mt with companies like Dangote, BUA and Lafarge dominating the cement industry. The operations of these companies alongside conducive policies have been beneficial in strengthening the value chain and increasing local production.<sup>7</sup> Today Nigeria has moved from being a net-importer of cement to a net-exporter, saving around \$10 billion in foreign exchange in the past decade.

**2. Coal** – Coking coal, also called metallurgical coal, is used in the form of coke and serves as fuel in conventional steel processing as it provides the heat energy needed to melt down the raw materials. It also

acts as a reducing agent in the blast furnace.

Nigerian coals are generally non-coking; hence, most of the cokes derived therefore are not directly utilisable in blast furnaces. Nigeria has a proven reserve of 639 million metric tonnes of coal.<sup>8</sup> There are several opportunities that this mineral proffers, particularly with the coal to power project which aims to create more sustainable energy sources for Nigerians.<sup>9</sup>

**3. Gold** – Gold is one of the most valuable resources in Nigeria. It also accounts for an extensive number of artisanal mining activities. Large deposits of gold have been found in the north-west and south-west of Nigeria and other parts of the country, mainly as a result of exploratory activities and activities of artisanal miners.

Thor Explorations' Segilola gold project in Osun state is expected to be a game changer in the industry as the facility aims to mine and produce gold ore.

More recently, the Nigerian government has licensed gold refineries to produce the metal for export and for the Central Bank of Nigeria to become an off-taker, buying at international prices.<sup>10</sup> The Presidential Artisanal Gold Mining Initiative was recently flagged off by the Federal Government, working with the Solid Mineral Development Fund.

**4. Iron ore** – Iron ore is one of the critical minerals used to produce steel. There are over 3 Bt of iron ore found in Kogi, Enugu, Niger, Zamfara, and Kaduna States. Earlier in May, the Federal Government inaugurated the Ajaokuta Presidential Project Implementation Team. The implementation team was commissioned to prepare and submit periodic work plans and develop concession contract terms towards reviving Ajaokuta Steel Company Limited.<sup>11</sup>

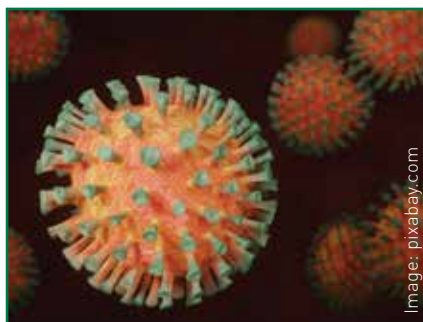
**5. Lead and zinc** – Activities related to lead and zinc mining are ongoing in Nigeria. While some small-scale quantities of lead-zinc ores are exported in their crude form, no concrete steps have been taken to process the ore to metal.<sup>12</sup> In 2017, the Nigeria Extractive Industries Transparency Initiative (NEITI)

reported that three of the 26 minerals exported accounted for 73.81% of total exports. The commodities are zinc ores and concentrate, lead ores and concentrate, and silica sands and quartz.<sup>13</sup>

**6. Barite** – Barite is a mineral that occurs extensively in Nigeria. Its usage ranges from oil and gas exploration to other industrial uses. Recently, the Ministry of Mines and Steel Development announced support for the local mining and production of barite as an import substitution for foreign sourced barite.

**7. Bitumen** – Nigeria has very large deposits of bitumen, however the mineral has been largely untapped, and bitumen is still imported to meet domestic demand and consumption.

### The impact of COVID-19 on mining operations in Nigeria



COVID-19 led to draconian lockdown measures in countries around the world, including Nigeria. Reduced mining operations and lower demand led to the closure of mines worldwide. The uncertainty that accompanied the pandemic has also led to the volatility of commodity prices in the sector. However, the price of gold surged as a result of the pandemic, as gold is largely seen as a reliable store of value. This led to a surge in gold smuggling and illegal mining. For instance, in late April, the government arrested a number of illegal miners in Zamfara state which is known for artisanal mining activities related to gold mining.

According to the National Bureau of Statistics, mining and quarrying makes up 0.17% of employment in Nigeria.<sup>14</sup> Artisanal and small-scale miners who make up about 85% of miners in Nigeria cannot continue with their regular activities as a result of the pandemic.

Thus, the disruption in mining activities has had a significant impact on the lives and livelihoods of miners in the country.

The mining sector in Nigeria has not been considered an essential service which has caused challenges for revenue generation. It has affected operators in some of the following ways:

- Interstate lockdown has restricted the movement of explosives; and
- The construction industry, which depends on input minerals, has been affected due to accessibility issues.

For artisanal and small-scale miners (ASM) who make up a significant portion of the mining workforce:

- Buyers face travel restrictions in purchasing mineral products;
- Subsistence and small-scale miners who work in the informal sector face unemployment with no savings or welfare benefit to fall back on; and
- As a survival mechanism, subsistence miners have switched to alternative sources of income such as farming and fishing as these are considered essential products.

In terms of regulators, the pandemic has led to:

- An interruption of field work such as ASM extension and formalisation services due to interstate lockdown and social distancing practices;
- Inadequate technological infrastructure to retrieve ASM formalisation documents virtually from ASM miners

### Legislation and regulatory framework in the mining sector



Exploitation and exploration of solid minerals are governed by the Nigerian Minerals and Mining Act 2008 (the Act), and the Nigerian Minerals and Mining

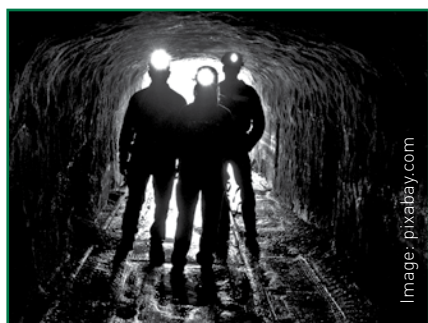


Regulation 2011. The Act vests control of all properties and minerals in Nigeria in the states and prohibits unauthorised exploitation or exploration of minerals. According to the Act, all lands in which minerals are found in commercial quantities shall from the commencement of the Act be acquired by the Federal Government in accordance with the Land Use Act. Property in mineral resources shall pass from the government to the person who lawfully acquires a right over the exploration or mining of the mineral resources.

The Act also provides for the establishment of the Mining Cadastre Office (MCO) which is responsible for the administration of mineral titles and the maintenance of the cadastral registers, and empowers the Minister of Mines and Steel, by regulation, to determine areas eligible for the grant of an exploration or mining lease based on a competitive bidding process.

The Federal Ministry of Mines and Steel Development is the body which is responsible for prospecting licences for both local and foreign investors to participate in the exploitation of the vast mineral resources in Nigeria. The ministry executes its mandate through the Mines Inspectorate Department, Mines Environmental and Compliance Department, Mining Cadastre Office, the Artisanal, Small-scale Mining Department, and the Mineral Resources and Environmental Management Committees established in each state of the Federation.

## Recommendations



It is clear that the mining sector can contribute immensely to the growth and development of the Nigerian economy. However, for these benefits to be seen, there are certain institutional, legislative and operational bottlenecks that need

to be addressed to ensure the smooth operation of the key players in the sector.

The following recommendations offer guidance on how the government and key stakeholders in the mining industry can accelerate the growth of the sector.

### 1. Short term

- Block revenue leakages and align scarce human and financial resources to priority projects.
- Align mining ecosystem with all stakeholders; that is, government and private sector. Furthermore, the government should foster transparency and frequent engagement between relevant bodies to improve organisational efficiency and prevent waste of resource resulting from duplicity of roles.
- Initiate virtual mining council meetings to sustain collaboration with state governments.
- Support and upskill the Mineral Resources and Environmental Management Committee (MIREMCO) to provide real time on ground support for actualisation of FG initiatives.
- Engage in more active monitoring of mining activities to outlaw illegal levies on miners.

### 2. Medium term

- The government should continue and intensify formalisation efforts of ASMs to increase employment and enhance the lives and livelihoods of mining communities.
- Improve the security of mines, especially in remote communities.
- The mining sector should be considered an essential service to mitigate oil price shocks and support the economy.
- Identify minerals that are quick wins and leverage on the seven strategic minerals to catalyse the growth of the sector. Emphasis should be placed on the minerals of the future.

- Intensify local efforts focusing on minerals that reflect strong global prices and are globally competitive.
- Support the local processing sector to reduce importation dependency and improve trade balance.

### 3. Long term

- Intensify data gathering across the value chain to drive evidence-based decision making and policy formulation.
- Promote the formalisation of artisanal miners.
- Strengthen local content efforts to spur domestic production, create employment and lower import dependence.
- Improve mining infrastructure requirements by promoting public private partnerships.
- Promote safe mining practices, health and sustainable mining operations to ensure mining communities and workers do not feel the adverse effects of mining practices. Mining operations should also consider the environment and should be carried out in a sustainable manner.
- Leverage on the Africa Continental Free Trade Area (AfCFTA) to strengthen regional integration, benefit from economies of scale, gain competitive advantage and expand market reach. **MRA**

#### Footnotes:

- <sup>1</sup> World Bank
- <sup>2</sup> Ministry of Mines and Steel Development
- <sup>3</sup> International Trade Centre – World Trade Map
- <sup>4</sup> Financial Intelligence
- <sup>5</sup> Ministry of Mines and Steel Development
- <sup>6</sup> Ministry of Mines and Steel Development
- <sup>7</sup> Ministry of Mines and Steel Development
- <sup>8</sup> Bureau of Public Enterprises
- <sup>9</sup> Ministry of Mines and Steel Development, IEA
- <sup>10</sup> Mining Global
- <sup>11</sup> Ministry of Mines and Steel
- <sup>12</sup> Corporate Nigeria
- <sup>13</sup> Nigeria Extractive Industries Transparency Initiative (NEITI)
- <sup>14</sup> National Bureau of Statistics

### About the author

Habeeb Jaiyeola has been an associate director for PwC Nigeria for the last 14 years. Prior to that he fulfilled a managerial role for the company within the energy, oil and gas, power, utilities and mining divisions.



# Moving away from a mono-economy

Nigeria advancing infrastructure to promote mining beneficiation

“We have been working on a local beneficiation policy that will strengthen the economy of Nigeria. To this end we intend to build and provide infrastructure including road, rail, water, and energy infrastructure. This will encourage investors to see long-term value. Nigeria is open for business.” **RICHARD JANSEN VAN VUUREN** reports.

This statement was made by Arc. Olamilekan Adegbite, Minister of Mines and Steel Development, Nigeria, in his opening statement during a webinar hosted by *Mining Review Africa*, Nigeria Mining Week, the Miners Association of Nigeria, the Ministry of Mines and Steel Development, and PwC (Nigeria) titled: “Downstream opportunities in Nigeria’s mining sector.”

Alh. Kabir Mohammed Kankara, President of the Miners Association of Nigeria, warned against Nigeria’s

reliance on a mono-economy driven by the country’s oil industry.

“Looking ahead we see the minerals sector being the foundation for strengthening our economy while creating substantial employment opportunities.”

During the webinar a question was asked of participants: “What do you think will have the biggest impact on the development of the downstream sector of the Nigerian mining industry?”

#### The options included:

1. An improvement in infrastructure
2. A review of policies and regulations

3. Incentives to drive investment
4. The development of human capital

#### The feedback from the webinar participants indicated:

1. An improvement in infrastructure (36%)
2. A review of policies and regulations (19%)
3. Incentives to drive investment (31%)
4. The development of human capital (14%)

Fortunately, this is something that Nigeria has highlighted as it is of extreme importance and focus for the government in ensuring the country is able to realise its downstream objectives, and the associated growth intended from the mining sector – which remains the starting point for any beneficiation opportunities.

The MD of Kogi Iron, David Turvey, for example highlighted the necessity for power infrastructure in the country during the webinar – something that can be easily facilitated thanks to its natural gas reserves. “It also holds the key to delivering our intention to build our Agbaja iron ore mine and cast steel plant,” he noted.

Josephine Emotan, another panellist on the webinar, shared her vision of the Nigerian mining sector and downstream potential – saying that with the right policies in place and the ongoing support from the government, Nigeria’s

## MOVING AWAY FROM A MONO-ECONOMY

Nigeria’s estimated annual steel imports US\$3.3 billion

Mining estimated to contribute 3% of GDP by 2025



potential is significant. Considering she owns two mining and downstream associated businesses in the country, she was a well-informed speaker who shared strong insight into the topic.

Nigeria aims to increase mining's contribution to GDP to 3% by 2025 and so the government is creating an enhanced geological cadastre to enable prospective investors to access data on potential areas to target for exploration.

It has also put in place incentives, including a tax holiday of as long as five years for projects entering production and the removal of import duties on mining equipment.

Nigeria has largely untapped deposits of 44 minerals including gold, iron ore, coal, tin and zinc, across more than 500 locations. Most of the mining in these areas is artisanal. Artisanal gold mining has the capacity to become commercially sustainable and wholly governable – not just in Nigeria but across Africa. "It is clear that Nigeria has an abundance of

mineral wealth but the value add is just not being realised at present, and this does need to change and bring economic value to the country," noted Mary Iwelumo, PwC government and public sector lead and head strategy, West, Nigeria.

The government of Nigeria has licensed two gold refineries to produce the metal for export and for the central bank to hold in its reserves. One of the refineries is in Abuja and the other is in Ogun.

It goes without saying that the Nigerian Geological Survey Agency (NGSA) is largely involved in not only showcasing the country's mineralisation through survey initiatives, but is constantly reviewing how best to secure downstream opportunities that connect with those minerals. Dr Abdulrazaq Garba, director for the NGSA, told webinar attendees that the organisation is active in helping to achieve government's downstream objectives. **MRA**

#### Webinar moderator:

Habeeb Jaiyeola: PwC Nigeria, Associate Director, responsible for the public sector Energy Utilities and Resources service, Nigeria

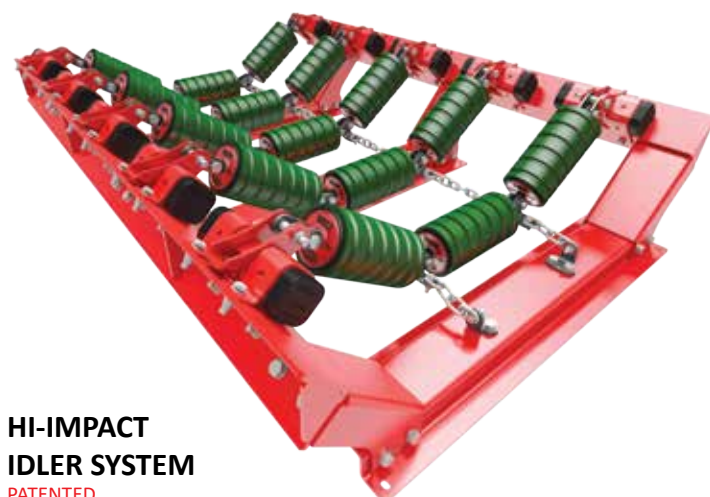
#### Panellists:

- Dr Abdulrazaq Garba, Director General, Nigerian Geological Survey Agency, Nigeria
- Josephine Emotan, CEO, Emotan Global Ventures, Nigeria
- Mary Iwelumo, PwC Government and Public Sector Lead and Head Strategy, West, Nigeria
- David Turvey, Managing Director, Kogi Iron, Nigeria

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An aerial view of Segilola's construction in progress

# Thor Explorations

## Putting Nigeria's gold reserves on the mining map

Despite the COVID-19 pandemic, TSX-listed **Thor Explorations** continues to make steady progress at its Segilola gold project in Nigeria and is on track to pour first gold in Q2, 2021. However, as CEO **SEGUN LAWSON** points out, Segilola is more than just the company's flagship project; it is Nigeria's first large-scale gold mine, which will lay the foundation for attracting more mining investment in the country. **GERARD PETER** reports.

Lawson has been at the helm of Thor Explorations since its inception in 2011 and has led all of the company's acquisitions and financings. In August 2016, the company completed the acquisition of a 100% interest in Segilola in Osun State, approximately 120 km north-east of the capital, Lagos. The project comprises an indicated resource of 556 000 oz at 4.2 g/t, an inferred resource of 306 000 oz at 4.7 g/t and a probable reserve of 448 000 oz at 4.2 g/t. A 25-year mining licence was issued in September 2016 and environmental approvals are already in place.

Under Lawson's guidance, the project has moved swiftly from exploration to

### IN SHORT

Construction at Segilola remains on schedule and within budget for the company to pour first gold in Q2, 2021.

a construction phase which began in February this year. In August, Thor Explorations announced that construction was progressing on track and within budget, despite the COVID-19 lockdown restrictions.

It was able to achieve all of this without compromising on the health and safety of its team, reporting no Lost Time Injuries to date.

"We have been progressing construction of key areas," starts Lawson. "We have completed the water storage facility and this will fill up naturally to its final height over the next four months. We have also been building the camp and administration areas, including all the technical buildings. We are also working on the process plant and in July, we poured first concrete."

Away from the site, the other key component is that 60% of the procurement of long-lead items has been completed. "The first shipment of items has already arrived at the port in Lagos and we are expecting another delivery in Q4 this year, with SAG and ball mills scheduled for delivery in January 2021," adds Lawson.

Part of the reason that Thor Explorations has been able to continue its steady progress is because the company managed to ensure that it had staff onsite before Nigeria's COVID-19 lockdown began. The company managed to get its EPC team on site in February and has managed to isolate the site since then. "This means all the key workers are accommodated on site and the labour force has been recruited and housed in the nearby villages which are in close proximity to the site. We have also restricted travel outside the



area and COVID-19 monitoring and mitigation measures are ongoing at the site.”

Segilola’s EPC contractor is Chinese-based Norinco International and, according to Lawson, this has benefited the project because the Chinese have been one step ahead of the rest of the world in terms of dealing with the coronavirus pandemic. “The team brought their COVID-19 handbook with them and have implemented measures such as handwashing, testing of temperatures, social distancing and access control. What was also very important was using signage around the site and surrounding villages to make people aware of the virus and how it is spread. Thankfully, to date we have had no COVID-19 cases at Segilola.”

### Communities are stakeholders

Lawson further explains that community engagement is a key pillar of the company’s vision. “As a big project in a remote region, we have a duty of care and the community is one of our stakeholders. Not only do we provide jobs for them but we have a duty to ensure they are informed about COVID-19.” To this end, the company has held workshops and put up signage in nearby villages. Thor Explorations has also made a donation to a laboratory in the state to provide test kits for the local villages.

In addition, the company has provided much needed local employment. Already, over 360 jobs have been created, with 92% being Nigerian nationals and approximately 56% from local communities.

However, Segilola’s development stretches far beyond the borders of Osun. It is a landmark project that demonstrates that projects of this magnitude can be successfully implemented and built in Nigeria. Lawson adds that getting the project into production will boost investor confidence in the country and should attract more exploration dollars into Nigeria.

“Furthermore, when you consider the size of Nigeria, it is incredible to think that there is no large-scale mining in the country. This demonstrates that there is a large geological part of Nigeria that is underexplored. Segilola will show international investors that projects like this can be successfully developed in Nigeria. This will result in jobs and skills creation and revenue for the country.”

### Building a foundation for success

There is no doubt that Nigeria doesn’t feature highly on the list of African countries brimming with mining potential, largely because it has relied on exploiting its oil reserves. And it was for this reason that it was a challenge for Thor

When you consider the size of Nigeria, it is incredible to think that there is no large-scale mining in the country,

SEGUN LAWSON



Explorations to secure investment for Segilola. “Investors don’t know the country and the geology of the country, so from the very outset it was always going to be a big ask.

“We had to think outside the box to get the project funded. We ended up securing around US\$104 million from different sources. These included finance from our EPC partner and we collaborated with African Finance Corporation to secure \$86 million. The organisation is 40% owned by the Nigerian Central Bank so it was keen to get involved in the project; as we closed that deal, Segilola became a lot more attractive to the international mining investment community.”

Lawson is confident that Segilola will lay the foundation for unlocking Nigeria’s mining potential. “You don’t have to go very far to find case studies about how mining can benefit a country. If you look at Burkina Faso, you just have to rewind 20 years to see how the establishment of the first mine led to the development of 15 mines in quick succession. I think Segilola will be the first but it will also unlock doors for further mining development in Nigeria,” he concludes. **MRA**



The water storage dam will reach its full height in four months



↑ The construction of the camp and administration buildings is progressing on schedule

# Kogi Iron's Agbaja cast steel project

## Changing Nigeria's industrial landscape

ASX-listed iron ore and steel production focused company **Kogi Iron** is slowly but surely making steady progress in moving its **Agbaja steel project** in Nigeria up the value curve. With a feasibility study underway, securing finance requires intensified effort – as does the need for the country to reinforce its investment attractiveness, MD **DAVID TURVEY** tells **LAURA CORNISH**.

There can be little doubt as to the quality and size of the Agbaja project. Kogi Iron holds a land position which covers a large part of the Agbaja Plateau. This hosts an extensive, shallow, flat-lying channel iron deposit with an indicated and inferred mineral resource of 586 Mt with an in-situ iron grade of 41.3% iron, including 405 Mt at 45.1% iron contained in oolitic-style mineralisation – reported in accordance with the JORC Code (2012).

Impressively, this already large resource covers only 20% of the prospective plateau area within two licences – meaning the potential to expand the resource is significant.

“Large, flat-lying ore bodies offer great value in the iron ore sector. The ore is near surface so it is easy to extract and with a soft consistency is also easier to process. And while the in-situ grade requires removal of impurities from the ore to produce an iron ore concentrate containing 53-56% iron, the operating cost to produce a final concentrate product is significantly below that of fine-grained, magnetite-dominant, hard rock deposits, which are typically costly to mine due to being narrow and steep, while requiring very expensive grinding as well,” Turvey states.

### IN SHORT

Will Kogi Iron be the company to showcase Nigeria's mining and downstream potential? It's a real possibility.

### Taking a different approach

Having a quality ore body is only one component to delivering a successful project. Of equal importance is the end user and the costs associated with delivering product to that particular end user market.

“The Kogi Iron board saw the greatest value opportunity emanating from Agbaja in serving the local Nigerian steel market, which despite having known occurrences of iron mineralisation and small, poorly defined deposits, does not produce any of its own iron ore and steel but instead is known to pay elevated prices to import scrap metal steel from other regions,” Turvey points out.



"Considering Nigeria is one of the largest economies in Africa, its economic growth is being hindered by its inability to produce its own steel products needed to support infrastructure and industrial growth," he continues.

The decision was consequently taken for Kogi Iron to expand its strategic direction – which now incorporates the construction of a steel plant that can feed and support the local market to replace imported scrap steel raw materials. This has been well received by government and reduces the usual challenges associated with securing off-take agreements.

"The potential to do this cost effectively further supports our narrative. Nigeria is a world-class producer and exporter of oil and gas products, which drives strong export revenue. With a gas pipeline that runs adjacent to our ore body, the ability to deliver low cost steel production is high. Considering iron ore and electricity are the largest cost components for any steel producer, this puts us at a distinct advantage," Turvey highlights.

And while Kogi Iron is looking for government and market transparency in terms of import parity pricing to replace scrap steel at present, the MD is quietly confident that the cost to produce steel locally has the potential to be significantly lower.

### Where to from here?

A pre-feasibility study completed in 2014 concluded that Agbaja had the potential to produce a 55% iron ore concentrate for export of between 4 and 6 Mtpa.



↑ Agbaja oolitic iron ore

When Turvey joined the company in 2019, he immediately saw the barriers to entry and risks in iron ore export markets and infrastructure costs and has since brought the project back in size and scope – taking cognisance of the cash needed to build the project and the investor perception challenges that Nigeria still faces.

"Our current bankable feasibility study (BFS) is focused on evaluating development of a staged steel project, starting with relatively small-scale steel production, which can be incrementally expanded based on economic demand and commercial merit – a smart move considering the impact of COVID-19 on the country. Even so, at this small scale we need to secure about US\$8 million in funds to complete the BFS, which we may raise in phases to preserve value and minimise shareholder dilution as we progress forward."

Kogi Iron did start excavation of a small-scale trial iron ore mining pit during July (~50m x 30m x 5m deep), using a local Lokoja-based company. The trial iron ore mining and subsequent

studies provide key inputs for the feasibility study, including:

- Geological mapping, sampling and assays to inform and support the iron ore reserve estimate;
- Materials characterisation of overburden and iron ore as a basis for the cost-effective design of an ore beneficiation plant;
- In addition, the company plans to evaluate the environmental, social and governance (ESG) impacts, benefits and local business opportunities from its mining and processing iron ore, including:
  - a) Water and tailings management
  - b) Building and road materials
  - c) Horticulture and agronomy

For Turvey, the key at present is focusing on three main value drivers that are critical to the project's development, after which the rest of the study work will "fall into place". This initial work requires the company to raise and spend US\$1 to 2 million over the next six months to enable it to complete the following:

**Niger River near**  
Kogi's Agbaja project



1. Technical component: Refining test work for the removal of impurities (phosphorus). Kogi Iron has selected a Tier 1 engineering group in Sweden for the process guarantee on this test work.
2. Securing a draft gas supply agreement as a 10-year renewable contract for significant gas volumes at a competitive price. This contract would be the basis to attract third party public-private partnership (PPP) investment in construction and operation of a gas-fired electricity generation facility with cornerstone electricity offtake by Kogi's steel project.
3. Government-sanctioned market entry policy based on import replacement price parity to support offtake agreements with current steel fabricators (local customers) and market transparency.

"Securing each one of these value drivers is likely to significantly increase interest in Kogi Iron's story – which should hopefully reflect in market activity, liquidity and increase in our share price," Turvey envisions.

This could see the company attract corporate activity or become the target of a takeover by another steel producer or industrial group, but Turvey is comfortable with this potential pathway. "The board and my roles are to bring our project up the value curve to a point where others see and realise the value, especially when it requires working closely with government policy and the community. My previous experience with mining and related industrial

On site at Agbaja

Kogi Iron has the ability to position itself as a pioneer with its own steel plant and security of iron ore supply – both in-country,

DAVID TURVEY



projects in emerging economies such as Indonesia, Malaysia and Saudi Arabia provides me with confidence in Kogi Iron's opportunity," he concludes. **MRA**

## STEEL POTENTIAL

The Agbaja project could potentially produce up to 1 Mt of cast steel feedstock annually with raw materials to be sourced within a 70 m radius of the project site. The iron ore is to be mined from company leased licences. The project is close to major infrastructure such as main highways, power and water. When fully operational the project is expected to employ over 1 000 people directly, and a significantly larger number indirectly as suppliers of services to the project.

**FOR MORE INFORMATION ABOUT NIGERIA'S MINING DOWNSTREAM POTENTIAL, SCAN THE QR CODE AND WATCH A 90-MINUTE WEBINAR SESSION ON THE TOPIC**



Niger River near Kogi's Agbaja Project, Nigeria



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# Nigerian leading lady

## Bringing gemstones to the fore

Nigeria-born mining entrepreneur **JOSEPHINE EMOTAN ABURIME-SHINE** wants to be a catalyst that sparks economic growth in the country – particularly for the mining sector. With passion and commitment as the core drivers that motivate her, and a mining business that holds great prospect, she represents the future of what a thriving Nigerian mining sector could look like, writes **LAURA CORNISH**.



Emotan was not looking to become a mining entrepreneur, but her love for precious stones aligns with Nigeria's lucrative gems potential and about five years ago this evolved into a number of business opportunities.

Although born in Nigeria, Emotan grew up in the UK, but returned to Nigeria in her capacity as a gemstone collector, knowing that the country has a lot to offer in the field. Proposals to acquire mine sites quickly followed and so Emotan Global Ventures (EGV), the first of two companies, was established.

Today EGV owns various metals deposits, including gold, zinc and

### IN SHORT

Nigeria is a gemstone hotspot and – thanks to one local Nigerian lady – could make it onto the global investment radar.

copper – producing small amounts of ore at present.

In her capacity as CEO and chairperson of the company, Emotan also has plans to establish an official buying centre as part of the EGV business – which will facilitate open opportunities for Nigerian traders, in addition to cut

and polished stones sourced from her own companies.

Subsequent to the development of EGV, Emotan saw the need to register a second business in Nigeria – one that today focuses predominantly on buying new mining licences in the country. "Under this business – Piramen Ventures – Emotan owns 10 gemstone licences – comprising resources containing rubies,

sapphires, topaz, fluorite, zircon, etc. The country is undeniably home to a viable precious stones mining business, and I hope to showcase this through my business," she says.

Like EGV, Piramen Ventures is also producing small quantities of gems, including sapphires and fluorite at the moment. With a full-scale lapidary in her company armour, Emotan's business has the capability and capacity to produce cut and polished stones, which she is hoping will open the financial doors to adding a jewellery production centre as well.

Naturally, as a Nigerian citizen, Emotan believes in the value of downstream opportunities to further enhance and build on the country's mining potential – and she is equally and undeniably determined to help drive this market sector.

### Growing the mining portfolio

Prior to lockdown regulations implemented in Nigeria, Emotan had about 50 permanent employees on her payroll, over and above additional temporary workers on site. "COVID-19 and social distancing required us to review this," and as such the CEO has reduced her head count to about 30 at present.

Nonetheless, Emotan has a great vision for both EGV and Piramen – one that will see the mines open up on a larger, even industrial scale. "This requires input from experienced miners and I am looking to engage with the





**Emotan Global**  
Ventures has its  
own lapidary

“

I believe that Nigeria can be a global gemstone beneficiation centre that is recognised internationally and in so doing receives the monetary credit it deserves,”

**JOSEPHINE  
EMOTAN**



industry to find and secure suitable partners to help grow this arm of the business,” she highlights. This should fast track the development of the mining sector – particularly for precious stones.

EGV has also more recently invested in the purchase of some new equipment which will enable the gold and copper mines to be processed as well.

## Understanding Nigeria

As a general statement, Emotan feels that Africa does not realise enough benefits from its mining sector. “As a local mining entity, I am happy to work hard but I want this to be for the benefit of the country – and this means investing in the downstream sector and not selling materials in their raw form to foreign investors.”

“I believe that Nigeria can be a global gemstone beneficiation centre that is recognised internationally and in so doing receives the monetary credit it deserves,” Emotan highlights.

And while she acknowledges that Nigeria still struggles with a negative investor perception. She also points out that most countries have difficulties

– an informed decision considering Emotan is well-travelled. “It is in fact easier to do business in Nigeria than in many other places I’ve been to. The country should not be tainted negatively by a few bad examples,” she emphasises.

Fortunately, the Nigerian Minister of Mines and Steel Development, Arc. Olamilekan Adegbite, is making good progress on improving the mining sector’s investment attractiveness rating. “We still have a long journey ahead of us, but we are on our way.”

Emotan is however looking to government to review their policies as part of this process – particularly with regard to managing illegal miners, mine security and much needed infrastructure. Improved policies in this regard will make a significant difference in accelerating the development of the industry.

“Irrespective of where the country stands today, I feel a responsibility and determination to help drive the development of the mining industry in order to see the financial gains being injected back into Nigeria and to see it prosper,” Emotan concludes. **MRA**



Cyril Azobu of PwC Nigeria at the 2019 event's opening session. PwC is a key event partner.

# Nigeria Mining Week

## Key event going digital in 2020

Nigeria's burgeoning mining sector is still very much in the spotlight following the announcement that the **Nigeria Mining Week** conference will proceed on a digital platform from 12 to 16 October this year. In addition, it has been announced that a live event will take place in Abuja from 11 to 13 October 2021.

“Because of the COVID-19 pandemic, it is safer to reschedule the **Nigeria Mining Week** proceedings for 2020, as we prioritise the safety of the participants,” says Nigeria's Minister of Mines and Steel Development, Arc. Olamilekan Adegbite. “We look forward to engaging with the industry digitally this year and hope to hold the event in 2021, in the second week of October.”

The minister has remained true to his word and has been very supportive of the digital offering by the event organisers and has participated in two of the live, topical webinars in the series so far (see report on page 18). “In the absence of international roadshows, we have engaged through webinars. In the interim, we are working on our policies locally and getting good results

in cooperating with our partners and the Nigerian States,” he states.

**Nigeria Mining Week** is organised by the Miners Association of Nigeria (MAN) and is held in collaboration with PwC and Clarion Events Africa. It is supported by the Ministry of Mines and Steel Development. This year marks the fifth edition of the event, which has garnered increasing interest over the years. Adegbite adds, “There's no denying the fact that the pandemic has affected

the mining community adversely. The community is spending this period re-strategising so that when the pandemic is over we can once again hit the ground running.”

The President of the Miners Association of Nigeria, Alhaji Kabir Mohammed Kankara, concurs, saying “The global lockdown occasioned by COVID-19 has practically taught the world new ways of doing things and our annual **Nigeria Mining Week** is not



↑ The PW Nigeria team at the Macy lead and copper project



exempted. Thanks to digital innovation that provides the platform for online interaction, the Miners Association of Nigeria, as the organiser of the annual event, hereby enjoins our members, donors, investors and other participants all over the world to link up to the virtual edition of *Nigeria Mining Week* 2020 and other digital platforms organised to whet our appetite for the main event."

### Widespread industry support

Since the start of the pandemic and the resultant travel and movement restrictions, the event's co-organisers Clarion Events Africa have made a successful and innovative transition from live events to digital and virtual conferencing and networking, with several of its events across the continent taking place online.

Leading mining sector players and longstanding partners of *Nigeria Mining Week* are supportive of the changes in the event's format and dates, particularly concerning health and safety. The upcoming digital event has so far garnered platinum and gold sponsors from well-known in-country entrepreneurs and project pioneers.

This includes Emotan Global Ventures, returning diamond sponsors for both the upcoming digital and live events, while PW Nigeria (PWN), Udo Udoma & Belo-Osagie (UUBO), Punuka and AG Vision are all gold sponsors.

Josephine Emotan Aburime-Shine, the CEO of Emotan Global Ventures, states, "*Nigeria Mining Week* is a great platform for the sector to be more visible. I would like the world to know that Nigerian minerals and metals wealth is 100 times greater than her oil wealth, and as we wake up and begin to realise this, this country will one day be labelled the land of milk and honey."

Meanwhile, Chris McQuillan, mining director at PWN adds, "PWN has been sponsoring the event since it began and we believe *Nigeria Mining Week* is the premier mining event in Nigeria, as the show continues to grow and attract attendees from all aspects of the mining world. Now in a digital format it remains as crucial to the Nigerian mining sector as ever.

"Given the unprecedented global pandemic we are currently facing,"

states Segun Lawson, CEO of Thor Explorations, "We understand the precautionary requirements and we respect the decision to put health and

safety of participants as a priority. We very much look forward to the event in 2021 where we will be a very supportive participant." **MRA**

## DIGITAL EVENT: 12-16 OCTOBER 2020 WHAT TO EXPECT

"It is clear that the industry is eager to engage, ask questions, find solutions and close deals," says event manager Sabrina Tab. "The digital event offers five days of free, interactive content and engagement with an expected 2 000 attendees."

The online platform will include nine webinar sessions, eight technology shootouts, nine roundtables, a matchmaking platform and an exclusive interview series with key stakeholders from the mining industry. About 30 sponsors and exhibitors will participate, proving that Nigeria's mining sector is becoming a key destination, not only for investment but for local and international industry suppliers of specialised services and technology.

### Live session themes will include:

- Inter-ministerial discussion: A continuous collaboration for growth
- Diving into laws and the regulations: What the future holds for the mining industry in Nigeria
- London investors roundtable
- Series of pre-recorded interviews with State governors and project developers
- Horizon 2030: Preparing for the Fourth Industrial Revolution
- Minerals of the future in Nigeria
- Finance: Key actions to support the mining sector today
- National Integrated Mineral Exploration Project (NIMEP) project updates
- A to Z guide to investment in Nigerian mining
- Power to the mines
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# West Africa

## A dilemma facing mining consultants

**By Ivan Doku, principal resource geologist at SRK Consulting and also SRK Ghana country manager designate and incoming director of the board of SRK Ghana**

Travel restrictions due to the COVID-19 pandemic are going to make it difficult for West African mines to use expatriates as competent persons (CPs) or qualified persons (QPs) to sign off mineral resource and reserve estimates. Might the lockdown help the region's efforts to promote local procurement of these services?



Syama gold mine in Mali (Source: Resolute Mining)

Four of the top five largest gold miners by production in 2019 have footprints in West Africa. I refer to these four as the mining 'BANK' of the region – Barrick, AngloGold Ashanti, Newmont and Kinross – because the footprint of their combined mineral assets is substantial relative to that of their competitors.

Together with mid-tier and junior miners, the BANK companies dominate mining in the region, with strong footprints in Ghana, Côte d'Ivoire, Mali, Burkina Faso and Guinea. Notably, BANK companies are not indigenous, and neither are the mid-tier players. In the last decade, however, there has been an increase in legislative instruments that bind prospecting and mining permit holders to increasing their local content. Some regulations encourage miners to make use of raw materials sourced locally, where these are available and of the required quality.

### Fewer expatriates

Localisation efforts are also aimed at key skilled personnel on mining operations. This has led to fewer expatriates operating in the region's

mining space. The regulations attempt not only to achieve more local content; they also hope to encourage skills transfer from expatriates to locals at all levels of management. They have largely been successful at mines' operational levels, although less so for more specialised expertise.

A review of annual reports of most miners indicates the use of independent and foreign mining consultants as CPs and QPs to sign off on mineral resource and mineral reserve (MRMR) estimates.

In the case of BANK, where they have made use of in-house CPs, there is a tendency to seek third party assurances from this category of consultants. This is to complement the statements they have issued or to verify the appropriateness of the internal processes they have followed in the declaration of their MRMR statements.

### Not many local consultancies

Rarely have any of these miners engaged locally-based consultants as CPs or QPs for their MRMR estimates, for a couple of reasons. Key among them is the virtual non-existence of local consultancy firms that meet the reputational standards of these

companies, their investors and the stock exchanges where they are listed. This should definitely be a concern for proponents of localisation. The history of mining in Ghana, for instance, spans almost the same duration as mining in South Africa; however, the availability and quality of consultants from these two countries do not compare – at least in terms of the mining sector.

In Ghana – currently the number one gold producer in Africa – emerging local consultants are mostly skilled personnel who have retired from either the BANK or mid-tier miners. They are seeking ways to gain a fair share of the consultancy cake which remains dominated by foreign firms. To be successful, local consultants usually collaborate with the big brands dominating the region; alternatively, they lobby lawmakers to increase local content requirements through legislation.

A win-win situation is more likely with the former option. The latter option, which relies on legal pressure, will impact negatively on the profitability of the foreign consultancy firms – but will also create other hurdles for attracting investment. What is required is a careful balancing act between the national interests of West African countries, their ability to attract mining investment, and the expectations of miners and their shareholders regarding technical competency and standards.

Ghana will be a test case and, depending on how the pendulum swings, will affect how other mining countries in the region proceed.





↑ View of the Bibiani gold mine's processing plant (Source: Resolute Mining)

## Pandemic could boost collaboration

COVID-19 and its impact on international air travel has added another dimension to this equation, putting more impetus behind the collaboration option. The longer these restrictions are in place, the more they will erode the financial revenue of foreign consultancy firms working in the region. Their usual modus operandi is to fly into the region for site visits, then revert to base and issue a report from there.

The reason why big brand consultancy firms have not set up remote offices in the region is primarily to do with the lack of a guaranteed revenue stream to offset the costs of paying for salaries, skills development and overheads. Contractual agreements between miners and consulting firms are usually on a short-term basis with no guarantee of future work; this uncertainty underpins the fly-in, fly-out approach.

## Solutions beyond 2020

The restriction of movement across national borders is likely to remain intact for as long as a vaccine for COVID-19 is unavailable. Furthermore, any easing of these restrictions will still require days of isolation or quarantine, which will add to the cost of doing business across borders.

The role of CPs and QPs in certain types of technical studies usually includes site visits. The international codes for Reporting of Exploration Results, Mineral Resources and Mineral Reserves certainly require these kinds of visits – unless exceptional circumstances prevail, which must be disclosed. It is

anticipated that technical reports are in future likely to include caveats such as: "Due to the lockdown restriction, a site visit was not undertaken."

It is too early to tell if this kind of caveat will be accepted by stock exchanges and regulators, especially if material flaws associated with technical studies are found to be directly linked with a CP or QP not familiarising themselves adequately with the site conditions on the ground. This will be a

period of navigating uncharted waters, and it poses real concerns if borders remain closed.

Our experience in the region suggests that large consultancies are now facing an important decision regarding their ongoing presence in the West African region. In the aftermath of the 2008 global recession, SRK established our Ghana office in 2011. This office was strategically positioned to mainly provide geotechnical and geological services to the mining industry in West Africa. We anticipate that the easing of border restrictions within the region will lead to an uptick in workload. Those big brands that take a step of 'faith' by investing in a local presence are bound to witness a harvest season if COVID-19 persists.

SRK certainly sees a valuable symbiosis between strong consultancy services that are located in-country and the ongoing needs of mining companies operating there. Access to high-quality, independent technical studies is a vital aspect of sustaining a firm foundation for the region's mining sector. **MRA**



↑ Mine employees social distancing at Mako gold mine in Senegal (Source: Resolute Mining)

## About the author

Ivan Doku has experience in the application of sound quality assurance and quality control in geological measurements. He is an expert in geological modelling, mineral resource estimation of precious/base metals and industrial minerals. He has undertaken several due diligence audits and technical studies of mineral assets across the African continent. His mining experience spans a period of 13 years. Doku holds a GDE (Mining) & MSc Eng from Wits University and a BSc Eng (Geological) from the Kwame Nkrumah University of Science and Technology.



# Endeavour Mining

## Solidifying its position in West Africa as a 1 Moz gold producer

Following the acquisition of SEMAFO in July this year, TSX-listed West African gold producer **Endeavour Mining** has successfully integrated the assets into its operating model. The company is now on track to meet its full year production and all-in sustaining cost (AISC) guidance by producing over 1 Moz of gold at an AISC of less than US\$900/oz. This is on the back of higher than expected gold production in Q1, 2020, an expected strong H2, 2020 as well as higher than expected gold prices. **CHANTELLE KOTZE** writes.

### IN SHORT

The merger between Endeavour Mining and SEMAFO has created West Africa's largest gold producer, with six mining operations and an attractive growth pipeline.

While the first half of 2020 was focused on the acquisition and successful integration of SEMAFO into the company, the focus for the second half of the year is cash flow generation due to higher gold production, lower non-sustaining spend, lower exploration spend and the benefit of higher gold prices.

A big focus for the company is also continuing to build optionality within its portfolio, through its unwavering commitment to exploration, Endeavour Mining President and CEO Sébastien De Montessus said during a webcast of its

second quarter and half year production and operating results.

Following the combination of Endeavour and SEMAFO's assets, Endeavour's portfolio consist of four cornerstone mines: namely the Ity and Houndé mines in Côte d'Ivoire and Burkina Faso respectively, and the Boungou and Mana mines, both in Burkina Faso, which were added to the portfolio following the acquisition of SEMAFO. Endeavour's Karma and Agbaou mines in Burkina Faso and Côte d'Ivoire, respectively, top off the list of operating mines.

In addition to its operating mines, Endeavour has four development projects, which are able to provide near-term growth opportunities for the company, namely:

- Nabanga (acquired from SEMAFO) in Burkina Faso, which completed a preliminary economic assessment (PEA) in 2019;
- Bantou (acquired from SEMAFO) in Burkina Faso, which is approaching PEA stage;
- Kalana in Mali, which is currently underway with an updated feasibility study (PFS); and
- Fetekro in Côte d'Ivoire, which is underway with a PEA.

Following the commissioning of the 4 Mtpa Ity CIL plant in April 2019, Endeavour launched optimization and de-bottlenecking work to increase the plant capacity to 5 Mtpa, which it completed in November 2019





The company also has a portfolio comprising several longer-term Greenfield exploration targets in Burkina Faso, Côte d'Ivoire, Mali, Guinea and Niger, where exploration is expected to be ramped up in future.

### Optionality through exploration

During the first half of the year, Endeavour spent \$36 million (over 85% of its total 2020 exploration budget), with over 234 800 m drilled – the largest programmes of which were at Houndé, Ity and Fetekro.

At Houndé, over 73 000 m was drilled, focused mainly on the Kari area, increasing Houndé's measured and indicated resource by 554 000 oz to 4.45 Moz. The Kari area now accounts for 57% of Houndé's total measured and indicated resource. Mining began in July at the Kari Pump deposit. Drilling campaigns at Sianikoui also provided positive initial results.

Meanwhile, over 85 000 m was drilled over the greater Ity area. The majority of the drilling at Ity was focused on the Floleu licence (located only 6 km south of the processing plant), which hosts the Le Plaque deposit. The indicated resource at La Plaque has increased by 44% to 689 000 oz, and currently ranks as Ity's second largest and highest grade deposit.

Endeavour also spent \$8 million on exploration in the first half of the year and drilled over 75 000 m at Fetekro, mainly focused on the Lafigué deposit, in addition to initial drilling on the Iguela target. Endeavour released an updated resource estimate for the Lafigué deposit in August, which noted a 108% increase in indicated resources to 2.5 Moz at an average grade of 2.40 g/t of gold. An updated PEA based on the larger 2.5 Moz Indicated resource is due in Q4, 2020.

Meanwhile, at Kalana, an exploration budget of up to \$2 million has been planned for in 2020. This will be used to follow up on nearby targets,



↑ **The Mana mine in Burkina Faso** was added to the portfolio following the acquisition of SEMAFO earlier this year

↑ **Endeavour Mining** plans to restart mining operations at Boungou in Q4, 2020



A big focus for the company is also continuing to build optionality within its portfolio, through its unwavering commitment to exploration, ”

**SÉBASTIEN DE MONTESSUS**



with the programme expected to be conducted in the second half of the year and a PFS on Kalana expected to be published thereafter.

Moreover, other Greenfields exploration entailed the drilling of 5 000 m on the Tanda Bondoukou property in Côte d'Ivoire which yielded positive results; while drilling at Agbaou and Karma will begin during the second half of the year.

Once these studies for Fetekro and Kalana are published, Endeavour will be better positioned to decide which project to prioritise and advance to feasibility stage.

It is Endeavour's aim by the end of 2021 to have two strong DFSs, which are well optimised for both of these projects to decide on which one should be developed first in terms of returns. In parallel, Endeavour will continue to work on Bantou and Nabanga.

### DIVIDEND ON THE HORIZON

Endeavour expects to be in a net cash position in the coming quarters, at which point it intends to pay an initial dividend to its shareholders. Du Montessus says that the dividend may however come more quickly than currently planned given the strength of the gold price.

The company would also consider the possibility of a share buy-back if it felt its share price was undervalued.

### DID YOU KNOW?

Endeavour's gold production for the first half of 2020 came to 321 000 oz or 479 000 oz, with the addition of the Boungou and Mana mines. This is a significant increase compared to the 292 000 oz of gold produced in the first half of 2019, as a result of the start-up of the flagship Ity CIL project. With the addition of Boungou and Mana, the company is on track to meet its 2020 production guidance of between 995 000 and 1.1 Moz at an AISC of \$865 to \$915/oz.

## FIVE-YEAR EXPLORATION TARGET

In 2016, Endeavour set itself a long-term target of discovering 10–15 Moz of additional gold resources over a five-year period. Since then, the company has discovered 7.1 Moz from 2016 until now – achieving 71% of its five-year target after four years. The company aims to add additional resources to this figure during the second half of 2020, particularly at Fetekro.

With the opportunities identified to date, Endeavour is confident that it is well on track to achieve its target, while also doing so at a very efficient average discovery cost of below \$15/oz.



## Priorities for the remainder of 2020

One of the key priorities for the remainder of the year is the restart of mining operations at Boungou in Q4, 2020, once a new mining contract is awarded and with an enhanced security and operations plan in place. This includes working with the government in order to ensure that its people, partners and assets are safe when mining restarts. De Montessus met with Burkina Faso's prime minister Christophe Dabiré in the second quarter to discuss a security plan. Operations at Boungou were suspended in November 2019 owing to the deteriorating security situation in Burkina Faso.

With the aim of extending the mine life at its four cornerstone mining

operations, De Montessus says that Boungou in particular offers the best opportunity for a positive impact in the short term as the security plan will enable Endeavour to embark on exploration activities beyond the mine perimeter, which it has not been able to do up to now.

Meanwhile at Mana, the company will also focus on extending the current mine life through an ambitious near-mine exploration programme. The company believes that with ongoing exploration success, Mana will be a key asset for Endeavour for many years to come.

The focus at Ity and Houndé remains on exploration. At Ity, the focus is on bringing the high-grade Le Plaque

deposit into production, with a mining permit and updated reserve estimate for Le Plaque targeted for the third quarter. Further exploration drilling is planned to explore Le Plaque at depth and in several directions as well as the exploration of its neighbouring deposits – the Daapleu deposit and the Daapleu SW target.

Meanwhile at Houndé, Endeavour aims to release a maiden reserve for Kari West, along with an updated Houndé mine plan in Q3, 2020, followed by a maiden reserve for Kari Center and Kari Gap in Q4, 2020. A new 20 000 m drilling programme is expected to start in the second half of the year, through to 2021, as the resource along the Kari trend remains open. **MRA**

Exploration at Ity



## THE RIGHT OPPORTUNITY

In keeping with its objective to maximise returns for investors through its active portfolio management approach, Endeavour won't hesitate to look for a new potential owner for an asset that no longer fits within its portfolio, with a focus on projects with a mine life of at least 10 years, capable of producing 200 000 ozpa.

Based on the fact Karma and Agbaou do not fall within the company's cornerstone operations, the approach taken at these mines will be determined by the performance and potential of these assets, as well as the current gold price environment.

With the changing gold price, Agbaou is looking good in terms of strong cashflow in 2021, based on the current mine plan.

Meanwhile at Karma, there is interesting optionality on a lot of refractory ore which could be more economic to mine at the current gold price. If this is not attractive enough, the company has already been approached by prospective buyers with the potential to acquire the asset.

"We will take a decision on these assets based on what would be the best outcome in terms of capital employed, allocation of management time and returns for shareholders," says De Montessus.





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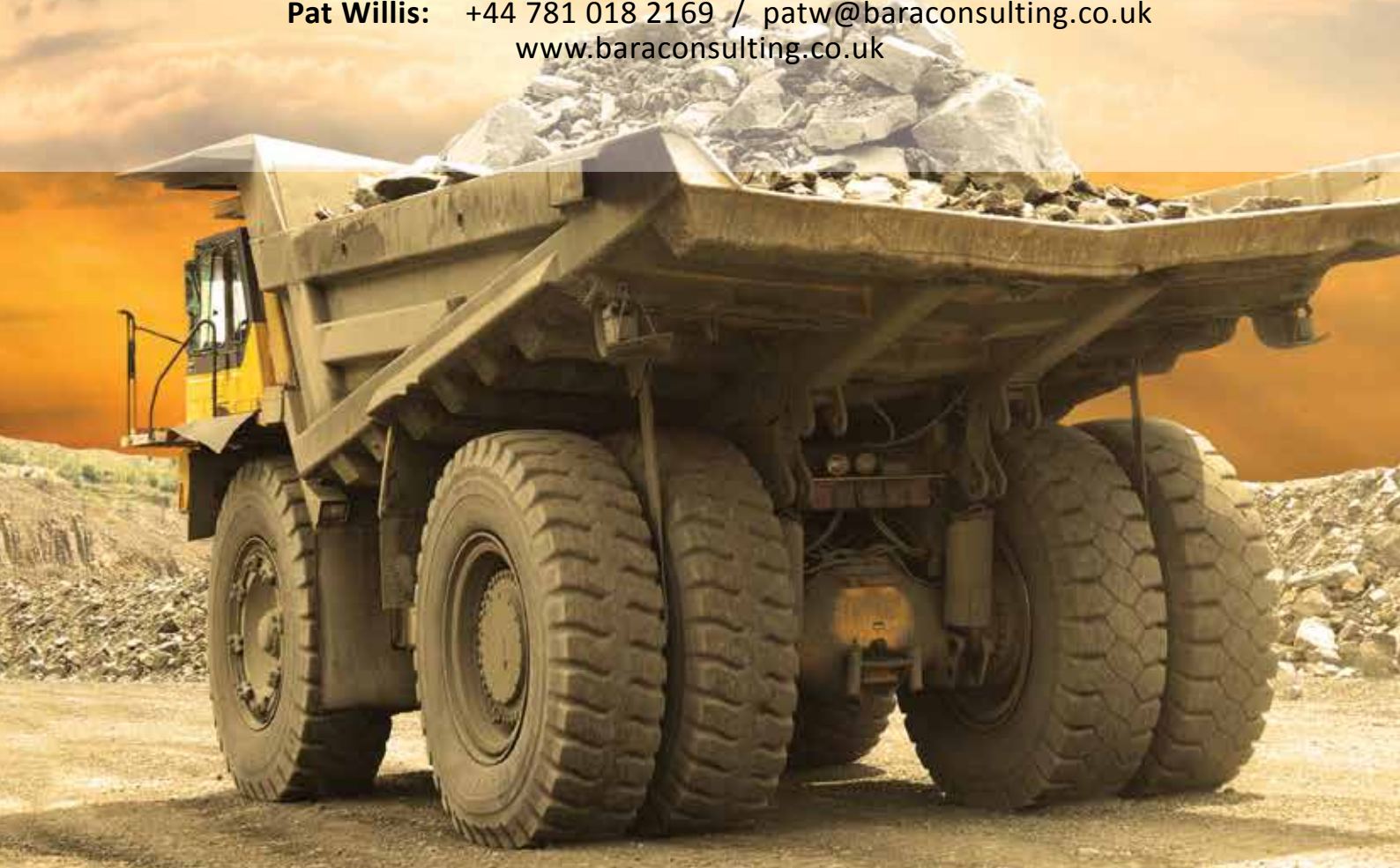
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# Altus Strategies

## Uncovering Africa's resource potential

AIM and TSXV-listed African mining project and royalty generator **Altus Strategies** has found the sweet spot when it comes to balancing risk and reward within the mining sector. CEO **STEVE POULTON** is bullish about Africa's mineral resource potential which, when combined with the company's business model and the strategic backing of private gold investment company La Mancha, offers shareholders maximum exposure to the mining sector with lower risk and capital outlay, writes **CHANTELLE KOTZE**.

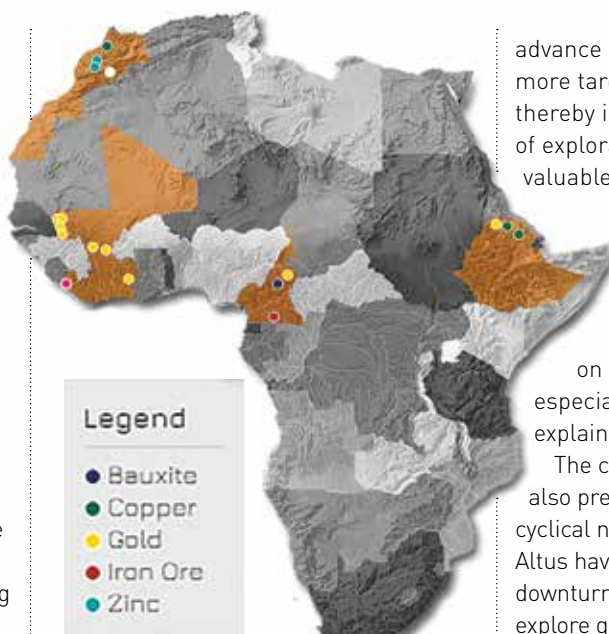
### IN SHORT

Altus Strategies' business model of 'explore, discover, repeat' has enabled the company to build a diversified resource royalty and project pipeline in several of Africa's richly-endowed mining jurisdictions.

Unlike traditional junior mining companies, which focus on unlocking one new project in just one jurisdiction, Altus has diversified its risk profile quite substantially by making mineral discoveries across multiple licences simultaneously before transacting on them with third parties who acquire equity in the projects, with Altus retaining a royalty on any future cash flow. This model, Poulton says, reduces shareholder risk as the company's interests are diversified by commodity and by country, while shareholders have exposure to the potentially substantial short term gains that come from making a new economic discovery, but also the potential long term revenue streams from operating mines.

Poulton explains that as a project and royalty generator, having completed reconnaissance exploration and defined targets, the next step in the business model is to attract joint venture partners to fund what the company considers to be the highest risk phases of exploration, which include resource definition drilling, in return for an equity interest in the individual discoveries. It is at this point that Altus may receive milestone-based equity and cash payments and retains a production royalty on each asset.

With a strategy of financing and diluting at project level through joint venture partnerships, Altus is able to



↑ Altus Strategies' project footprint



↑ Core samples at Diba

advance multiple projects and test more targets per 'shareholder dollar', thereby increasing the likelihood of exploration success and growing valuable discovery optionality.

"Our strategy therefore diversifies the inherent risks presented by any one project, commodity or jurisdiction and allows us to be less reliant on capital markets for funding, especially during cyclical downturns," explains Poulton.

The company's business model is also predicated on embracing the highly cyclical nature of the mining sector, with Altus having used the recent nine-year downturn to cost effectively pick up and explore ground when other companies were selling or simply not competing to acquire prospective land tenements.

"Our objective is to position our shareholders in such a way that they can benefit dramatically as and when markets turn and the value of good quality projects substantially increases back to fair value," Poulton notes.

### Growth over the years

While the company's establishment in 2007 was impacted by the global economic crisis in 2008 and a lack of investment interest in exploration businesses, the company used the time to reinvigorate its focus and exploration project portfolio pipeline as well as solidify its corporate structure and management team.



Having been private for 10 years, it was in 2017 that Altus Strategies went public with an IPO on the AIM market of the London Stock Exchange, which was quickly followed by a dual listing on the TSXV in 2018.

With a growing portfolio of assets, in 2018 and 2019 Altus was focused on exploration across its various projects. In mid-2019 the company entered into discussions with La Mancha, which acquired a 35% strategic shareholding in Altus for C\$11.2 million. This was completed in February 2020, and Karim Nasr, CEO of La Mancha Group, was appointed as a non-executive director of Altus in April. La Mancha owns approximately 24% of TSX-listed Endeavour Mining and over 30% of TSX-listed Golden Star Resources. Following this investment, Altus has a strong treasury with cash and listed securities worth approximately C\$16.5 million.

This investment from La Mancha will allow Altus to aggressively grow and further diversify its portfolio of high

quality and strategically located gold and base metal projects as well as royalty interests across Africa.

### Africa offers huge potential for exploration

"The sheer scale of the African continent, its geological prospects and the varied nature of deposits that one can discover in economic concentrations have all stood Africa in good stead for mineral exploration," says Poulton.

The economic reforms that have been underway in many African countries to improve the ease of doing business, as well as the desire for attractive inward investment by their governments, have also enabled exploration to take place.

Due to the relative lack of exploration using modern techniques compared to many other parts of the world, economic mineral deposits can still be discovered cropping out at surface, says Poulton, noting that deposits in Africa (excluding South Africa) are being discovered at average depths of just 9 m. This is much



↑ Diba resource area

shallower than average global depths of 78 m. This means that discoveries can be made much faster and much more cheaply – allowing for the testing of many more deposits in Africa compared to that of other mining jurisdictions.

Despite these opportunities, it is one that a limited number of foreign mining companies are keen to explore, perhaps because of preconceived notions or perceptions about the African continent, Poulton believes. This has however meant that the well-endowed African

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**FAST FACT**

Altus Strategies' business footprints currently has exposure to 20 projects and royalties across Africa in a number of precious and base metals including gold, copper, iron ore, nickel, aluminium and zinc

continent remains largely underexplored and open for those explorers keen to make economic discoveries.

### Advancing its West African portfolio

West Africa in particular, which is home to several major gold mining companies as well as explorers, is host to a number of Altus' discoveries too.

The company's most advanced project in West Africa is the 100%-owned Diba gold project in Mali. Diba is strategically located 13 km south of the multi-million ounce Sadiola gold mine, in the world famous 'Kenieba Window' in western Mali. In June, Altus completed a NI 43-101-compliant mineral resource which confirmed an indicated resource of 4.8 Mt grading at 1.39 g/t of gold for 217 000 oz and an inferred resource of 5.4 Mt grading at 1.06 g/t of gold for 187 000 oz.

In July, Altus released the findings of a preliminary economic assessment (PEA) for an open-pit heap-leach gold mine at the oxide portion of the Diba hill deposit. The PEA indicated an after-tax NPV of US\$81 million, IRR of 469% and payback of 6.9 months, using a 10% discount rate and assuming a gold price of \$1 500/oz against a current price above \$1 900/oz. "This NPV on just this one asset is significantly less than the current market valuation for all of Altus," Poulton illustrates, adding: "And it uses an incredibly conservative gold price and looks at only the oxide portion of the current resource."

The company is currently calculating what drilling needs to be undertaken to test the remaining six targets defined on the property to date, as well as metallurgical test work to determine whether CIL processing would be most suitable in order to capture the deeper ounces at the Diba project.

Altus has also signed a deal with ASX-listed Marvel Gold (formerly Graphex Mining) on its Tabakorole and Lakanfla gold projects in southern Mali and western Mali, respectively, where drilling is currently underway. Marvel is earning an initial 33% interest in these projects under the JV, while Altus holds a net smelter return gold royalty on both.

Meanwhile, at the Pitangoma Est project in southern Mali, Altus has an existing joint venture deal with ASX and LSE-listed Resolute Mining. Resolute have the right to earn up to a 70% interest in the project by funding US\$3 million in exploration and completing a feasibility study. Thereafter, Altus may elect to co-fund its 30% interest on a pro rata basis, or exchanging its interest for a 2% net smelter royalty.



↑ Zone of visible gold at Tabakorole



The sheer scale of the African continent, its geological prospects and the varied nature of deposits that one can discover in economic concentrations have all stood Africa in good stead for mineral exploration,

**STEVE POULTON**



The portfolio of gold assets in Mali has delivered value for the company to date and Poulton says that the gold price, which reached highs of over \$2 000/oz this year, has helped in that regard.

The COVID-19 pandemic hasn't affected the company's ability to build its portfolio of assets, which entails analysing open-source historical data and satellite imagery. The past five months have entailed a lot of desk-based work aimed at finding potential new targets, which is work that would have been done in any event, explains Poulton, noting that the company has used this time wisely to continue to build its portfolio and review project and royalty opportunities. **MRA**

### THE LAST 12 MONTHS AT A GLANCE

In the last 12 months to date, Altus has signed a joint venture and royalty deal on the Lakanfla and Tabakorole projects in Mali with Marvel Gold, signed a non-binding term sheet with TSXV-listed Stellar Africa Gold for the sale of and royalties on the Priro and Zenoula gold projects in Côte d'Ivoire.

The company also signed an option agreement with Firering, for a sale and royalty in respect of the application for the Toura nickel-cobalt licence located in the west of the Republic of Côte d'Ivoire.

Altus also closed a royalty and property sale transaction with TSXV-listed Desert Gold Ventures on the Sebensoukoto Sud and Djelimangara gold projects located in western Mali, as well as vended in its bauxite joint venture with ASX-listed Canyon Resources into equity and received the first 15 million shares out of 25 million shares in Canyon.



# Grinding Solutions

## Maximising mineral value

Innovative and consultative mineral processing company **Grinding Solutions Limited (GSL)** works globally with clients covering the metalliferous, coal, industrial minerals and oil field industries and has a unique approach to solving client problems. The company does so without preconceptions to help maximise mineral value and opportunities in order to meet the ever-increasing global energy and environmental challenges that the mining industry faces.

**G**SL offers a range of consultancy and laboratory services including metallurgical and minerals processing testing from bench to pilot scale and has an in-house pilot plant facility. The company's projects range from initial scoping through to preliminary economic assessments, prefeasibility studies to definitive feasibility studies – and include plant optimisation, troubleshooting, plant audits and due diligence work. The services are all underpinned by expert knowledge and experience.

### A wealth of experience

GSL has a wealth of experience in gold processing including mineralogical department studies, diagnostic leaching, gravity pre-concentrating, biox, flotation, Andre Laplante GRG, cyanide leaching, detoxification and recovery, carbon loading kinetics, Merrill Crowe testing and refractory gold processing covering projects based in North America, Europe, the Middle East and Africa, including AIM and TSXV-listed Altus Strategies' Diba gold project in Mali.

In addition to its experience in gold, the company also has excellent experience in base metal and heavy

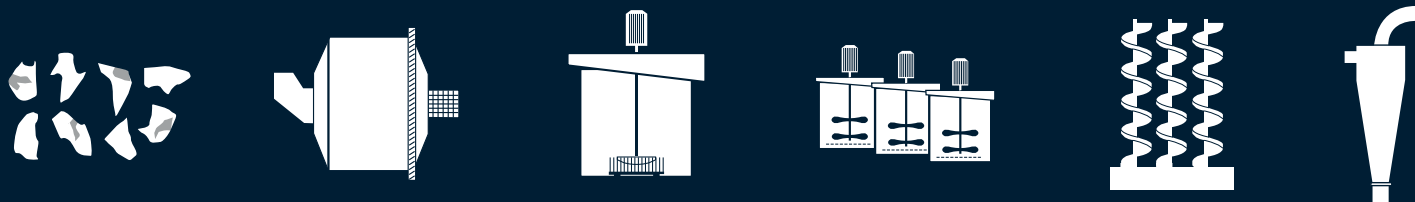
minerals processing, completing numerous laboratory and plant projects in recent years. These projects have ranged from initial scoping studies, variability studies, process optimisation test work and full plant audits and due diligence work. Many of these projects are complex VMS separations and fine/heavy mineral recoveries.

In comminution, GSL is a world leader in ceramic media testing and ultrafine grinding, with a comprehensive range of fine grinding mills. It also carries out a full range of comminution testing and work in conjunction with equipment suppliers to offer clients a comprehensive solution. **MRA**



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# African Gold Group's Kobada

## A starting point to regional progress

When TSX-listed **African Gold Group** (AGG) acquired the Kobada gold project in 2005, very little progress was made thereafter to develop the project. However, following a management change in July 2019, the company has made significant strides towards its goal of starting production in Q2, 2022. **DANIYAL BAIZAK**, vice-president of corporate development, explains to **GERARD PETER** the importance of Kobada in the company's aspirations to become a significant player in West Africa.

### IN SHORT

Average production at Kobada is estimated at 100 000 ozpa for the first five years of operation.

**K**obada is located about 125 km south-west of Bamako, the capital city of Mali. Access to the mine site is via a three-hour trip on good quality roads followed by a barge trip over the Niger River. The region is home to a number of gold producers including Barrick Gold's Loulo-Gounkoto Complex and Resolute Mining's Syama mine. Kobada itself has been around for a long time and first works in the area were conducted in the 1990s, with some initial exploration and drilling done at the time.

When AGG acquired the project in 2005, it undertook an extensive drilling campaign, culminating in a pre-feasibility study (PFS) in 2016. However, Baizak explains that back then, market conditions were not as good as they are today so management at the time decided to opt for a smaller operation

start-up to get cashflow and from that point develop the asset. "Back then, Kobada had a mine life of around eight years. However, due to tough market conditions, the company was unable to raise the funds to develop the project," he adds.

In July 2019, a new management team, led by CEO Danny Callow, was brought in. Callow has more than 28 years' experience in building and operating mines in Africa and his mandate from the board is to develop and build Kobada. "Since day one, the whole team has believed in the potential of this project and we have a clear outline of what needs to be done to move the project forward," states Baizak.

With a renewed interest in Kobada, last year AGG undertook additional exploration drilling, re-analysed all historical drilling and mapping, upgraded infrastructure and constructed

a new, fully equipped camp. The company has further carried out detailed metallurgical test work, all of which culminated in the completion of a definitive feasibility study (DFS) study in June this year. All of this was done on time and 20% below budget, despite the challenges of working during the COVID-19 pandemic.

Significantly, the DFS showed a remarkable 48% increase in the mineral reserves estimate compared to the 2016 PFS – with 2.3 Moz in measured indicated and inferred resources, and 754 800 oz of gold in proven and probable reserves. Average production is estimated at 100 000 ozpa for the first five years of operation. Total production is estimated at 728 654 oz over 9.4 years of mine life, based on current reserves. This will deliver an average total operating cash cost of US\$704/oz for the life of mine.







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### More potential possible

Furthermore, Baizak avers that Kobada has more exploration potential. "We have only drilled less than 15% of the identified shear zones and the licence covers a significant land package. To date, we have only drilled 4 km within a larger 30 km shear zone. Although the ultimate focus will be to commence production in Q2, 2022, while we wait for finalisation of investment talks, in the meantime, we have announced an extensive drilling campaign to expand our resource base at Kobada in order to increase production output and mine life."

Also, in June AGG announced that it would partner with DRA Nexus to develop a separate standalone 11 MW hybrid solar/thermal power plant to supply power to Kobada. The plant will be a combination of photovoltaic solar panels, thermal generators and a battery storage system. "There are not many mines in Africa that have a hybrid power plant. The plant will be fully financed by our strategic partners. This will not only allow us to achieve significant savings over conventional power systems but will also substantially reduce pollution," adds Baizak.

It is estimated that the hybrid power plant will result in annual power savings of \$5 million, pollution reduction of over 5 million litres of heavy fuel oil, over 14 million kilograms of carbon dioxide emissions and more than 8 000 kg of carbon monoxide emissions.

### Platform for expansion

Baizak adds that in order to be successful in a country, a mining company has to be viewed

↑ Danny Callow with members of the local community

➔ AGG has identified a three-phased approach to expand mineralisation

“Since day one, the whole team has believed in the potential of this project and we have a clear outline of what needs to be done to move the project forward,”

DANIYAL BAIZAK



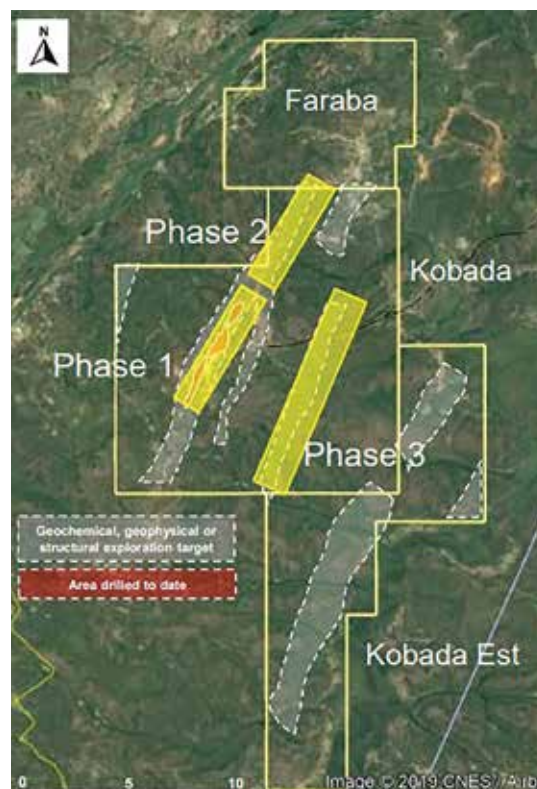
as a good neighbour. It is for this reason that AGG aims to source as many local suppliers as possible. "Mali has plenty of experienced local residents who can help us with this project and to date, all of our suppliers are Mali-based or have offices in the country."

In addition, as part of its good neighbour policy, AGG is in the process of establishing a social and environmental management plan that incorporates initiatives for community health, education, agriculture and employment.

No doubt, the COVID-19 pandemic has had an impact on Kobada's progress but Baizak states that this has been minimal. "The global pandemic took us all by surprise; however, we were fortunate enough to complete all the drilling onsite before the borders closed. The only real impact is that our team members from Guinea who are supposed to be doing public consultation with the nearby villages are currently unable to enter the country."

According to Baizak, the development of Kobada will allow AGG to expand its presence in the region. "AGG views this project as our future and believes it will be the start to building a bigger portfolio thereafter. Currently, we are in advanced discussions with financiers to develop Kobada.

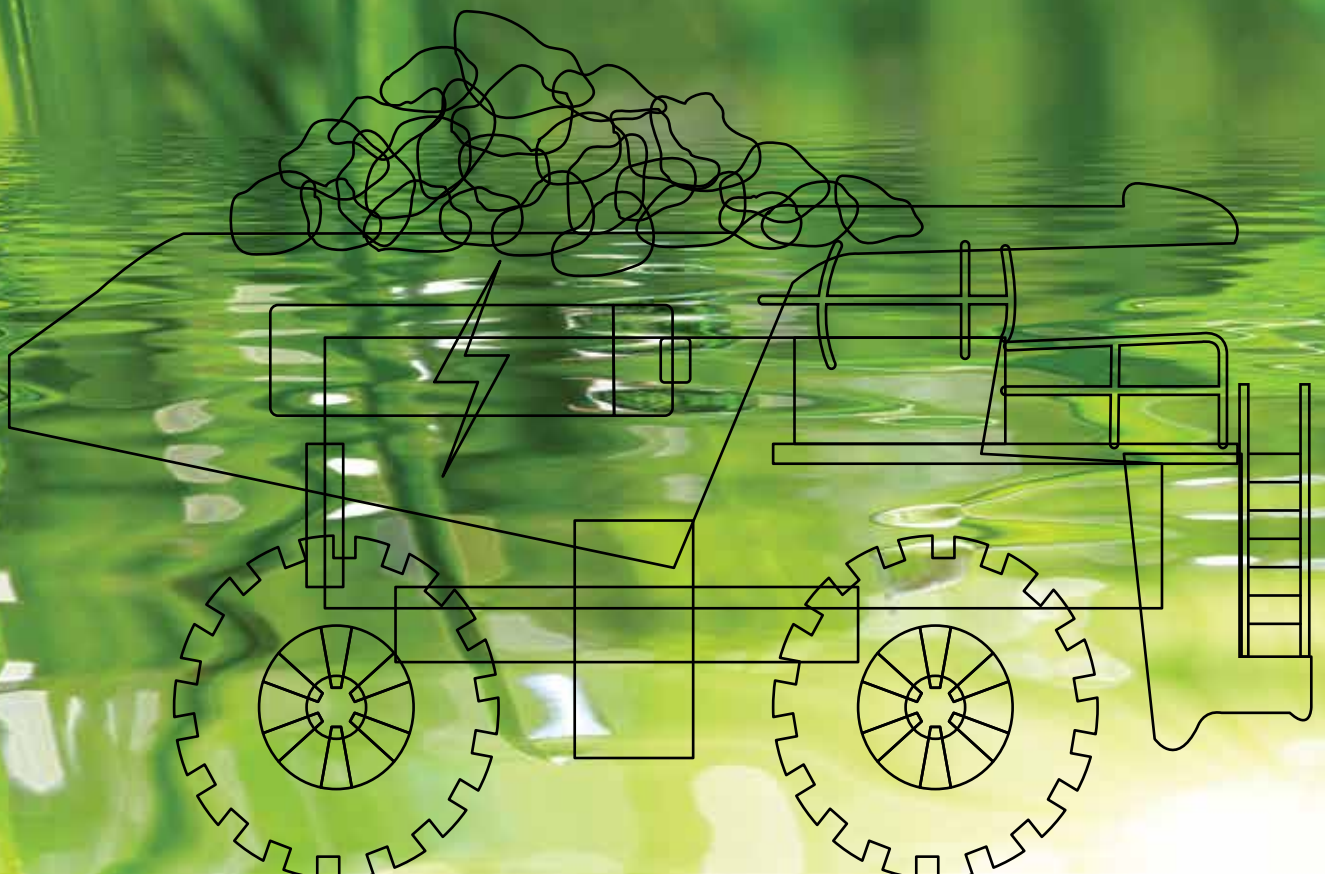
"Ultimately our plan is to start producing gold in order to generate cashflow and that will also allow us to pursue other exploration opportunities that will allow us to expand into other countries in West Africa," he concludes. **MRA**





# SPECIAL REPORT

## EARTHMOVING & EARTHWORKS



Earthmoving EVs: A green revolution has begun

# Electric-powered earthmoving trucks

A revolution has begun

There is a global mandate for all industrial businesses to reduce their carbon footprint – and in coming years this requisite will become government instituted policy. There are many areas across a mine site that offer the potential to improve their environmental impact, and with the rapid onset of technology, this now includes electric powered heavy-duty trucks, **IDEANOMICS** head of communications and investor relations **TONY SKLAR** tells **LAURA CORNISH**.



BeiBen EV truck

**N**asdaq-listed Ideanomics is a global company focused on facilitating the adoption of commercial electric vehicles and developing next generation financial services and Fintech products.

Its electric vehicle division, Mobile Energy Global, provides group purchasing discounts on commercial electric vehicles, EV batteries and electricity as well as financing and charging solutions. The company is

headquartered in New York City and has offices in Beijing and Qingdao, China.

"In essence, our business understands the value of EVs in industrial businesses and through our partnerships with global strategic businesses, are able to offer industry consultative and collaborative connections and solutions on how best

to incorporate this technology into operations," Sklar starts.

While the concept of a heavy-duty mine truck, powered by an EV battery, seems a difficult concept to believe – particularly in South Africa whose uptake of electric vehicles is somewhat slower than in other first world countries – Sklar says it can be done and highlights that within the industrial space, the world is entering the start of a new revolution in this field.

What may be unknown to most on the African continent is that companies have already been operating and delivering EV batteries for large-scale equipment into the industrial space for about 10 years. "China has a 10-year head start on the rest of the world in this area and is producing EV mining trucks that are operating successfully on site. This has been driven by China's internal mandate to clean up their heavily polluted environmental footprint," Sklar notes.

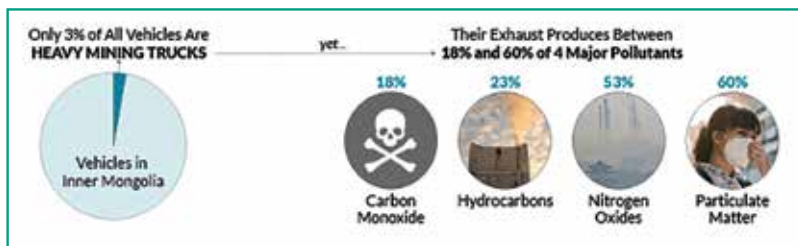
Within its role as a consultant or facilitator in securing EV battery powered trucks in the mining (and other large industrial sectors), Ideanomics has partnerships in place with key stakeholders who can effectively deliver EV trucks that are as productively effective as any diesel-driven truck.

"Not only have we partnered with one of the largest EV battery manufacturers in the world,

## DID YOU KNOW?

An EV battery operated heavy-duty truck including vehicle cost, refuelling/recharging, maintenance, insurance and operation can be 30% - 45% less expensive per year





we also have a close working relationship with a China-based company called BeiBen Trucks Group, one of the most well recognised domestic top-class heavy-duty truck manufacturing companies in China which has been specialising in EV large-scale trucks for years.

### So how is it done?

The process behind powering a EV-powered car is easy: the battery size needed is feasible to fit inside the car and power it regularly from suitable power stations. This concept cannot however be applied directly to mining – for now.

A heavy-duty mining truck requires a lot of torque to haul hundreds of tons of materials at steep grades across a mine site, and regardless of the size of the battery, it will drain within a certain timeframe. "For now, operating a truck using a multiple battery system will compensate for this challenge but with the vast levels of research and development being injected into improving this technology, this will ultimately improve in the short-term future. These batteries do of course offer further opportunity to power smaller vehicles and pieces of equipment as they move through their lifecycle, enabling a mine site to progressively improve its emissions output in multiple areas," Sklar points out.

The real proof of success is always in the eating of the proverbial pudding however – and Sklar says this work has been done. "With a lot

↑ **Electrically powered**  
dump truck

↘ **Autonomous EV**  
dump truck

“

With a lot of interest from a mine site in Mongolia, we have successfully conducted numerous tests and trials with heavy-duty EV-powered mining vehicles,

TONY SKLAR



of interest from a mine site in Mongolia, we have successfully conducted numerous tests and trials with heavy-duty EV-powered mining vehicles," he highlights.

Ideanomics has also seen some interest stemming out of Canada and the company is hoping to secure penetration on the continent before much longer.

"The mining sector is a great industry for disruption and has the power and motivation to showcase the true value of electric vehicles and in so doing make a significant contribution towards making the planet a cleaner place to live in," he continues.

In its capacity as a facilitator helping companies to adopt EV equipment, Ideanomics understands the challenges that may form part of the process over and above the basic purchase of equipment.

"Financing and battery charging remain two key areas that are inhibiting the uptake of commercial EV adoption. But we play a key role in the entire value chain of this industry and have multiple partners across the globe that we can bring to the discussion table while in our capacity retaining the chain that links all different aspects of this business together – assisting with procurement, working with management to solve encountered challenges, creating an ecosystem to swap batteries, and ensuring maintenance and servicing experts are on site."

"No doubt, the incorporation of battery-powered EV trucks will still be challenging for emerging markets but with the commitment of the right partners and their understanding of the associated challenges, most can be overcome. From an Ideanomics perspective, we'd like to see governments incentivise the adoption of the technology through subsidies and bring their countries technologically forward while creating new jobs and cleaning economies," Sklar concludes. **MRA**



**Concor Opencast Mining** is able to operate across the full opencast mining spectrum

# Concor Opencast Mining

## A great expansion vision in play

**Concor Opencast Mining**, a well-known opencast mining business amongst South Africa's surface mines, is strategically positioning itself to achieve significant growth in the short-term future. This in part can be attributed to the greater objectives of Level 1 BEE parent company **Southern Palace Group**, which is looking to maximise on the value its companies and business units have to offer, writes **LAURA CORNISH**.

**C**oncor Opencast Mining represents one of eight business units under the Concor umbrella, and was acquired by the fully black owned infrastructure and industrialist powerhouse Southern Palace Group (SPG) in the latter half of 2017.

"The Concor Group fulfils SPG's vision to meaningfully participate in the main stream economic activities in South Africa, thereby transforming a sector that has despite 26 years of democracy remained largely untransformed," starts Concor Group CEO Lucas Tseki.

"This has seen us change the trajectory for our businesses, including that for Concor Opencast Mining," says the company's MD

Rodger Herne. While in the past the company has been better known for its capabilities of mining steeply dipping narrow ore bodies in the hard rock mining space, the business is looking to establish its name and reputation across the entire opencast mining spectrum, as well as diversify into the bulk materials handling space.

### Expansion strategy outlined

There are two legs to the company's strategy – the first entails diversifying its service offering to incorporate mining and earthmoving support services that

will strengthen its value proposition to potential clients.

"This will include bulk materials handling work, crushing and screening as well as increasing our scope for

drilling and blasting services to include our own in-house fleet. Ultimately, our intention is to provide a cradle-to-grave turnkey suite of services to the industry, one that

starts at early planning stage and journeys alongside the client during feasibility studies and mine design – through to project start-up," Herne outlines.

# 450

The number of employees on Concor Opencast Mining's payroll



## DID YOU KNOW?

Concor has a black CEO and a black woman board chairperson – supporting a board which comprises mostly women with a variety of skills that are complementary

The second leg of the strategy is significant in its own right for any opencast mining company and entails volume and size. “In the past, we focused predominantly on the 80 t excavator class using 40 t

ADTs. We have since invested heavily in our equipment fleet which now includes 55 t – 100 t payload rigid dump trucks and 140 t operating mass excavators as well.”

With the significant expansion of its equipment fleet, Concor Opencast Mining’s primary objective is to secure new opencast mining contracts: mining mass ore bodies which require the movement of monthly volumes in excess of 1 Mbcm.

Importantly, the expanded fleet is fully supported with the company’s in-house maintenance service, performed in conjunction with the relevant OEMs and compliant with the necessary ISO accreditation as well.

## Past and current track record

Concor Opencast Mining in the past traditionally focused on the platinum sector and consequently has developed a proud track record of mining narrow and steeply dipping ore bodies for clients such as Anglo American Platinum, Impala Platinum and Lonmin Platinum (prior to its acquisition by Sibanye-Stillwater).

“We have more recently expanded our footprint back into the coalfields of Mpumalanga while further developing our extensive in-house drilling and blasting expertise in the region,” Herne reveals.

Outside of the company’s current flagship project – mining the Zwartfontein pit at Anglo American Platinum’s Mogalakwena mine – its current project book includes the construction of the tailings storage facility at Mogalakwena and full drill and blast services at state-owned mining company African Exploration Mining and Finance Corporation’s Vlakfontein coal mine.

“Perhaps what could be considered a third leg to our growth strategy is the execution of work outside of South Africa, across the southern portion of the African continent. We have priced work on a few new projects in Botswana, Namibia and Mozambique and are feeling confident of securing what will be an extremely large project for the company in the near future – which would undeniably change the face of this business,” Herne confirms.

## Unpacking Concor Opencast Mining’s value proposition

While the number of earthmoving competitors in the field has been high until more recently,



↑ The company will be increasing its scope for drilling and blasting services

↑ Bulk earthworks underway with tipping on wingwalls

“We have more recently expanded our footprint back into the coalfields of Mpumalanga,”

RODGER HERNE



Tseki notes that the company has seen consolidation in the market: “This does necessitate that we showcase and maximise on our strengths even more. The quality of our service, coupled with the right expertise and the requisite skills needed for the execution of any project timeously, must be highlighted, as should our solution-orientated approach.”

“Being a fully black, woman-owned company which responds to government’s objective of having more women participating in the mainstream economies of our country, gives us an additional competitive edge in South Africa. Naturally, our flexible approach, and agility to handle challenges without massive corporate structure input ensures quick turnarounds,” Herne concludes. **MRA**

## WHAT COVID-19 HAS TAUGHT THE BUSINESS

COVID-19 has taught Concor Opencast Mining to adapt: to manage its people and projects (both current and in tender process) remotely where necessary, but without compromising on employee safety or service delivery quality

The company offers a range of earthmoving equipment for the mining sector



# Bell Equipment

Always staying close to customer needs

Whether it's in the development of more technologically advanced earthmoving equipment or its comprehensive aftermarket support offerings, **Bell Equipment's** business DNA is driven by customer demand. **DUNCAN MASHIKA**, MD of Bell Equipment Sales South Africa tells **GERARD PETER** that this was ever more important to ensuring that its customers were able to operate optimally than during the COVID-19 lockdown.

**B**ell Equipment has over 60 years' experience in the manufacture, distribution and support of earthmoving equipment to mining operations across the African region, including the supply of articulated dump trucks (ADTs), crawler dozers and excavators. Bell is renowned as an ADT specialist, offering market leading models such as its B45E truck. The B45E runs on average for 18 hours in a 24-hour cycle, seven days a week with a fuel consumption of between 28 and 30 litres per hour and is already utilised extensively in South African mining operations.

In addition, Bell offers a range of aftermarket services such as bespoke

operator training programmes, maintenance contracts and its Fleetm@tic fleet management system. Registered as an essential services provider, Bell was able to service its clients during South Africa's hard COVID-19 lockdown. However, Mashika points out that the company had to make some notable adjustments to ensure that it continued to provide equipment and support to its mining companies.

"Firstly, we had to determine what we needed to have available for our clients," he starts. "Our biggest focus was ensuring that our field service mechanics were available to be deployed to our client's plants as well as ensuring that parts were also available for

them to carry out the tasks they were expected to do."

Bell had to ensure that strict COVID-19 safety regulations were followed when deploying its mechanics to mines. "We were all dealing with something new so we had to adhere to South African as well as international regulations. However, as time went on, we also put in place our own health and safety measures based on our own observations to ensure that staff and customers are safe," adds Mashika.

As a result, Bell had to carry out repairs and services with limited technical staff. Furthermore, the company had to adjust its parts and logistics network quite significantly because the supply chain was under more stress than normal. "Also, our



pick-up points became areas where large numbers gathered. As such, we had to stagger deliveries in order to ensure social distancing,” explains Mashika. Meanwhile, technical support staff were able to support clients remotely.

Now, while operating during the coronavirus pandemic did pose challenges, Mashika believes that the lessons learnt will set the platform for a new way of working going forward. “At times like these, there are some lessons that we cannot ignore. As such, we were learning new things and unlearning other things that we always believed were the best way to work. As the lockdown has been easing, we have still been able to ramp up our operations despite working from home and this shows that staff levels can still be maintained.”

### Affordability and reliability are key factors

As stated earlier, new product developments and service offerings are very much determined by customer demands, with aftermarket services being a key priority. “In our industry, it is understood that the sales team sells the first unit of equipment but the rest are actually sold by our aftermarket capabilities,” states Mashika. To that end, Bell gears a lot of its focus towards ensuring that clients get the most out of their fleets by reducing downtime by the implementation of preventative maintenance measures. It does this through extensive training of its clients.

The company’s training focuses on two areas. The first is operator training to ensure that they understand the capabilities of the equipment so that mines can maximise on productivity as well as prevent any damage to the equipment. The other focus is on technical training and this is ongoing as new product ranges are introduced.

“

In tough economic climates, pre-owned equipment is a viable solution for those companies that do not necessarily need new equipment,”

**DUNCAN MASHIKA**



Now, while Bell is at the forefront of driving automation and more technologically advanced earthmoving equipment, this is by no means the sole driver for expansion in South Africa and the rest of the continent. “We closely monitor technological advances including automation and remote controlled equipment. As a global player, we recognise that our clients adopt technology at different speeds. As such, we need to understand the African market, its needs and requirements before we can implement various technology solutions,” adds Mashika.

Currently, in addition to supplying to ADTs and excavators with hi-tech capabilities, Bell also offers Fleetm@tic, its in-house monitoring system that can be used across a fleet and allows companies to keep track of its fleet 24/7. A mining company can access the system remotely at any time, gaining access to information such as a machine’s health data and identifying future potential equipment failures to remedy them before they happen. Fleetm@tic has proven to be extremely useful in remote mining sites where clients are not always onsite.

Another service offering that Mashika says is popular among clients is pre-owned equipment. “In tough economic climates, pre-owned equipment is a viable solution for those companies that do not necessarily need new equipment in their operations.

“Furthermore, Bell has access to equipment that has been sold in the European market and while they are owned for the same period of time, they have notched up fewer operating hours than they would have in African operations. So although the equipment may be three to five years old, it still has plenty of operational life left. Our local clients still get the same level of reliability at an affordable price,” he concludes. **MRA**

# Making Sure Your Team Gets Home Safely Tonight

# Laying the foundation

For increased production as Delmas-based coal mine expands

Local bulk earthworks contractor **Icon Group** has helped to lay the foundation for coal miner Canyon Coal's extension of its opencast Phalanndwa colliery in Mpumalanga in preparation for the mine's increased production output. **CHANTELLE KOTZE** spoke to CEO **WAYNE NEARY** about the project.

The Phalanndwa colliery, located 10 km east of Delmas, in Mpumalanga, has been producing coal since January 2013. Canyon Coal embarked on an extension project at Phalanndwa to extend the life of the mine to 2027. The Phalanndwa colliery extension project commenced mining in July 2019 and has an approximate mine life of five years.

Icon Group was awarded the project in November 2019 to undertake the groundwork, storm water infrastructure and civil infrastructure to support the extension of the Phalanndwa colliery.

The R2.5 million project entailed the construction of various storm water structures including channels and

berms to pipelines and attenuation structures. It also entailed the civil infrastructure earthworks required for the expansion of the mine, including the necessary water and sewage infrastructure to support new mine facilities, such as the offices, staff facilities, stores and workshops.

"During the project, Icon Group had to contend with abnormal rainfall on site. While the rain did not delay the workload, it forced us to implement creative measures to ensure that run-off water coming in from the surrounding fields and stockpiles did not enter our

excavation or erode our pipelines," says Neary, adding that the company was able to successfully restrict and control the amount of water run-off at the site, despite the excessive rainfall.

As part of the colliery extension project, Icon Group was further tasked to undertake external works for the mine – as the next phase of the project on site.

This external work entails excavating a new entrance and access road to the mine, as well as the installation of a culvert and other concrete works related to the access roads around the mine. This new entrance,

## DID YOU KNOW?

Icon Group has recently added a new service to its offering, namely the installation and supply of liners for dams and landfill sites





which is located closer to the N12 highway, will allow for the moving of equipment and resources in and out of the mine more efficiently.

The project was completed by Icon Group in July despite a few disruptions as a result of the COVID-19 lockdown restrictions in South Africa, which were instituted on 26 March 2020. "While we lost about two months to government-imposed lockdown restrictions, we were able to adhere to the strict protocols put in place by Canyon Coal once we were allowed to return to site. We could also successfully complete our work on site," says Neary.

Having completed work in the platinum sector in South Africa and the diamond sector in Botswana, this was the first project awarded to Icon Group in the coal sector. Despite being the first coal mine that the company has worked on, Neary notes that much of the work is similar to the civil engineering work Icon Group generally conducts at commercial projects.

"While our core competency lies in bulk earthworks and civil engineering, the Phalannndwa project allowed us to showcase that we are not a single-service contractor, and can instead offer a diverse range of services on site for both commercial and mining projects – such as concrete works, water storage facilities and pipe infrastructure," says Neary.

Icon Group has been involved in and is earmarked for a number of projects in the mining sector, says Neary, but due to the COVID-19 pandemic, these projects have been postponed. These projects include two dam projects as well as a road project.

Despite the effects of the COVID-19 pandemic on the mining industry, Icon Group believes it can add value to the mining sector. "We remain closely aligned to the mining sector and will continue to offer a unique service offering, which we believe will pay dividends in the coming months," concludes Neary. **MRA**

## IN-HOUSE RANGE OF BULK EARTHWORKS EQUIPMENT

Icon Group's in-house plant and equipment fleet includes:

- Articulated dump trucks
- Excavators
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- Crane trucks
- Water trucks
- Wheeled excavators
- Mechanical support units
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# Hitachi

## Mining ICT's potential

Hitachi Construction Machinery is placing a strong focus on mining information and communication technology (MICT), a system that uses cutting-edge information technology to optimise earthmoving equipment's productivity. **GERARD PETER** reports.

Hitachi has turned to technology to optimise its earthmoving equipment



At excavation mines, several dump trucks are generally assigned to each excavator and the mined natural resources are loaded on one dump truck after another and then carried to any of the various locations. In order to smoothly and efficiently undertake loading and hauling operations at mines, the dispatcher, who is responsible for dispatching vehicles, issues orders to vehicle operators while judging the state of operations.

Efforts are made to increase productivity of mines by optimising vehicle operation, and these include instructing dump truck operators to move to a different loading site if there is a long waiting time.

Hitachi's Fleet Management System (FMS) is a MICT tool that makes it possible to conduct integrated management of vehicle and machinery operation and provides dispatchers with the information they need. It is equipped with functions that make it possible to determine the location of excavators and

calculate the number of dump trucks based on the load capacity and speed and to automatically set items such as efficient loading areas and hauling routes by entering targets such as the mineral content per truck and expected productivity for each mine.

It is also possible to assist in predicting failures and preventing unexpected breakdowns, to optimise the number of replacement parts and mechanics to be assigned and to reduce overall operation costs because aspects such as a vehicle's fuel consumption and condition can be consistently monitored.

Data such as payload derived from signals from sensors embedded in the vehicle, types of minerals, and GPS location is uploaded to the on-board computer and then transmitted via wireless network to the server. The data is analysed in real-time and displayed on the screens in the dispatcher room. FMS includes advance functions that automatically set the destination and travel route and provides operators with instructions based on key performance indicators such as production volume.

### Greater efficiency in operations

In addition to the FMS, the Autonomous Haulage System (AHS) for dump trucks is another technology that contributes to an increase in the operation and energy efficiency of mining operations. In recent years, however, it has become difficult for mines to create a safe working environment because of the location of mines and the harsh working environment.

The weight of a dump truck that operates at mine sites can reach more than 500 tons when fully loaded. As such, operators with advance driving skills and experience are required to safely and efficiently operate these huge vehicles.

AHS makes it possible for unmanned dump trucks to operate autonomously, with several successful tests already being held at mine sites.

These tests will be used to further improve various aspects, such as the safety, reliability, and efficiency of earthmoving equipment. **MRA**



# Carrying the load

## Atlantis Mining chooses new Volvo R60D rigid

Opencast coal mining subcontracting company Atlantis Mining continues to grow its fleet of Volvo Construction Equipment supplied by **Babcock**.



**Atlantis Mining** continues to grow its fleet with Volvo R60D rigid haulers

Quintin O'Reilly, equipment sales representative for Babcock, says that Atlantis Mining's recently purchased eight new Volvo R60D rigid haulers are the first to be sold in South Africa, and will be put to the test in rugged opencast coal mining conditions.

The first four Volvo R60Ds were handed over to Atlantis Mining on 14 July 2020 and are already in operation at a colliery where they are being used primarily for the removal of blasted rock and hard overburden, with the remaining four haulers to be delivered in October this year.

"The R60Ds will complement our existing fleet of Terex and Volvo Construction Equipment, among them Terex TR60s and a number of Volvo A40F and A40G articulated dump

trucks," says Atlantis Mining MD Mark Johnstone.

Atlantis Mining's longstanding relationship with Babcock dates back to 2000 when the company was appointed as the sole distributor for Volvo Construction Equipment in southern Africa. Over the past two decades, and following the acquisition of Terex Trucks by Volvo Construction Equipment in June 2014, the alliance between the two businesses has been firmly cemented, primarily through Babcock's extensive experience and customer-focused approach as well as Atlantis Mining's appreciation of Terex, and subsequently, Volvo trucks.

### Volvo's range of D-Series rigid haulers at a glance

The new Volvo R60D rigid haulers stay true to their TR60 Terex Trucks' roots

in design principles, but include Volvo updates and modifications in line with Volvo's exacting brand standards.

O'Reilly says that the Volvo D-Series rigid haulers have been specifically designed to reduce operating costs through lower fuel consumption and optimised machine availability. "The machines haul more tons per hour, due to their combination of power, tractive force, comfort and productivity-enhancing systems. This means our customers can meet production targets faster and boost the profitability of their business," he explains.

Johnstone believes the Volvo R60D to be the most cost-effective, reliable, rigid truck on the market that is also simple to maintain and operate. "Nothing comes close to the rand per ton yield of the R60D, and any minor issues can be quickly fixed without the need for specialised training," says Johnstone, adding that when serious breakdowns do arise, a Babcock technician is always readily available to see to the problem.

The Volvo R60D haulers are designed to perform and are engineered to move material faster and more efficiently with heavy-duty hauls to cut cycle times. A high capacity torque converter supplies high levels of rimpull for scaling slopes, while the Volvo cab offers operators convenience and comfort. Safety features strongly on the new R60D and is built into every design aspect, with ROPS (rollover protection structure)-certified body canopy, visibility and unrestricted access to all essential service points.

The three new Volvo D-Series rigid haulers supplied by Babcock – the R45D, R60D and R70D – are all based on the well-proven Terex Trucks TR-Series, and cover payload capacities from 41 to 65 t. **MRA**

# Adapting to change

## Minerals Council South Africa members lead the way

In its fight against COVID-19, mining companies in South Africa have contributed significantly towards bolstering medical infrastructure to treat mine employees as well as mine-affected community members. This includes the construction of several hospitals, repurposing of existing resources and investment into securing critical COVID-19 equipment, writes **CHANTELLE KOTZE**.

**D**espite concerns about mines in South African reopening when the country moved from lockdown level 4 to level 3 on 1 June, the mining sector has been historically known for its sound medical quarantining, screening, testing and medical care infrastructure and practices – all of which have been used to treat tuberculosis, HIV and AIDS. As a result, the mining sector has been extremely well equipped to manage the COVID-19 crisis. The sector's countless clinics and medical staff have helped to ease the burden on the government.

The Minerals Council South Africa has been hosting regular COVID-19 updates since June to highlight the efforts undertaken by its member companies in the fight against the virus.

In a COVID-19 update at the end of August, the Minerals Council showcased several of these initiatives, namely the ones undertaken by Royal Bafokeng Platinum (RBPlat), Impala Platinum (Implats) and AngloGold Ashanti (AGA).

### Royal Bafokeng Platinum

In terms of RBPlat's contribution, the company converted a disused change house at its Maseve mine south shaft into a 200-bed field hospital in

Rustenburg at a cost of R10.2 million. The change house, which had not been used for more than two years, is established to provide initial COVID-19 medical treatment to its employees and the surrounding communities.

The facility can cater for mild to moderate COVID-19 positive cases, supported by medical facilities and healthcare professionals as required; while community members requiring intensive care are referred to the Moses Kotane provincial hospital and RBPlat employees are referred to the Peglerae private hospital.

The 200-bed field hospital was handed over to the North West



A ward inside the RBPlat field hospital



Backup emergency oxygen cylinder bank





**A fully equipped ward in West Vaal Hospital.**  
The 270-bed hospital was identified as an overflow facility in the Dr Kenneth Kaunda District Municipality for COVID-19 positive patients

Provincial Department of Health on 1 July, and to date 60 community members have been admitted, while 250 patients have been treated up to now, including RBPlat employees.

"At no point have we had the facility operate at full capacity. But we are geared up should that be required," says RBPlat executive for investor relations Lindiwe Montshiwagae.

By partnering with the North West Provincial Department of Health, community members are referred to the mine's field hospital by government clinics for COVID-19 treatment, while COVID-19 positive RBPlat employees are referred to the field hospital by the mine's medical staff, says Montshiwagae.

The repurposing included removing the existing change house infrastructure, which comprised lamp racks, turnstiles, lockers and benches. Thereafter, RBPlat deep cleaned the facility, repaired plumbing infrastructure and upgraded electricity infrastructure, while also fixing the emergency and fire-fighting system.

In terms of construction, RBPlat built new entrances and installed doors, as well as a ventilation system. The change house's laundry area was also changed, and new ablution facilities were built.

Following the redevelopment, the RBPlat facility now boasts 2 940 m<sup>2</sup> of floor space able to accommodate

113 male and 69 female patients in 182 fully equipped beds. The space has been subdivided into three sections as follows:

- Five wards, which can accommodate 14 patients each with a total of 70 beds.
- A large hall area that has been divided into three large wards, with 108 beds.
- Three smaller wards, with 22 beds.

Each bed has its own television and personal lockable locker to store patient valuables and is individually screened off from other patient beds for privacy.

"There is still space to accommodate an additional 18 beds, but to date, we have not admitted a sufficient number of patients to warrant the use of these additional beds," says Montshiwagae.

The field hospital is fitted with 108 2 000 W infrared heaters and Sani Disc ultraviolet lights to assist with cleaning the air. Further to this, the hospital contains 36 ultraviolet light air purifying systems that are operational 24/7, circulating the air to remove bacteria and viruses. She points out that the facility is also equipped with two 1 600 kVa emergency generators.

In terms of personnel, the RBPlat field hospital is operated on a 12-hour shift, with one attending doctor and a matron available during the day. These two personnel are on call-out when off shift. In addition, the facility is complemented by two professional nurses and four enrolled nurses. "The enrolled nurses are qualified to administer medication as well as intravenous treatment, should it be required," Montshiwagae explains.

Going forward, the RBPlat field hospital will be maintained at RBPlat's cost, with the cost of doing laundry also on the account of the mining company. The Department of Health will pay for the refilling of oxygen supply tanks, while the department will also pay medical and security staff, as well as meals (prepared off-site), medical waste handling and supply of medication.

The company has an intensive community member screening



**A 14-day, R1.6 million**  
project involved installing an oxygen storage and reticulation facility capable of delivering oxygen to 56 of the hospital's beds



↑ **An aerial view of the Western Deep Levels Hospital** that was leased to the Gauteng Department of Health for six months



↑ **The 4.5 t bulk oxygen storage tank for the supply** of high flow oxygen to 56 beds in the field hospital



↑ **North West Province Premier Job Mokgoro and RBPlat's CEO Steve Phiri** at the official handover of the field hospital to the Department of Health

programme in place which has to date screened over 5 000 community members and its target is to do 10 000 households.

### Impala Platinum

Implats has worked in close collaboration with RBPlat to commission a bulk oxygen supply system capable of supplying the necessary oxygen to the field hospital.

According to Implats group health and safety executive Jon Andrews, there is a critical need for early oxygen supply to patients, particularly those with co-

morbidities, which are deemed as being high risk. Some of the early learnings to date have shown the success of early oxygen interventions in high-risk patients. To do this, Implats collaborated with RBPlat at its field hospital in Rustenburg on the delivery of a bulk oxygen supply to the patients.

The 14-day, R1.6 million project involved installing an oxygen storage and reticulation facility capable of delivering oxygen to 56 of the hospital's beds, with capacity to supply all these beds at full flow levels over 24 hours for ten days.

The bulk oxygen facility included the sourcing of a 4.5 t main oxygen tank, as well as smaller, mobile tanks, piping and auxiliary equipment. A telemetry system was also installed, linking the hospital to the oxygen-supplier, Air Liquide, to help it manage and maintain the oxygen levels. The telemetry system would alert Air Liquide to low storage volumes so that these can be replenished before they run out, explains Andrews.

"RBPlat is one of our neighbours and it's been great to work with them," he says.

This co-ordinated collaboration with RBPlat is in addition to the company's increase in its own medical care preparedness, which entailed increasing the capacity of its internal medical facilities.

### AngloGold Ashanti

Right from the onset of the pandemic, AGA embarked on a number of initiatives to protect both its employees and the communities in which it operates, with the understanding that surrounding communities and businesses are co-dependent on one another as well as on the mining operations.

In one of the initial interventions in anticipation of the imminent rise in infection rates, AGA made available two hospitals that it was no longer using to the government of the North West and Gauteng provinces, in which AGA operates, says AngloGold Ashanti vice president for health Dr Bafedile Chauke.

The two hospitals which were made available to fight COVID-19 include:

- Western Deep Levels Hospital in Merafong, Gauteng
- West Vaal Hospital in Orkney, North West

The Western Deep Levels Hospital is a 300-bed facility, that was closed a number of years ago during restructuring. The building was in good condition with the necessary infrastructure to support a fully functioning hospital and the Gauteng Department of Health opted to convert this into a 175-bed ICU hospital.

In addition to this AGA also made available a 55-room capacity residence to house the Western Deep Level Hospital workers once the hospital has been completed.

Meanwhile, the West Vaal Hospital, was officially handed over to the Premier of the North West Province on 9 April 2020. The hospital is a fully equipped 270-bed, fully operational facility for the management of COVID-19 positive patients.

Over and above the company's internal controls to prevent the infection and spread of the virus, which included the establishment of facilities for isolation of mild and asymptomatic cases, as well as the quarantining of people who come into contact with people who have COVID-19, the company redeveloped a 32-bed hospital facility in Gauteng. This was prompted by the initial COVID-19 infection peak, in June, amid fears of a hospital bed shortage in Gauteng. The hospital facility is awaiting accreditation to treat moderate cases that need closer care and oxygen.

Chauke says that AGA will continue to work with industry peers in continuing to anticipate any further risk stemming from the COVID-19 pandemic in order to provide proactive solutions to address the real need on the ground. **MRA**

### DID YOU KNOW?

The Minerals Council South Africa has made available a public portal to share insights into the Minerals Council's position on COVID-19, useful links, documents, and the latest available information on the virus as it relates to the South African mining industry.



## Mining in Africa

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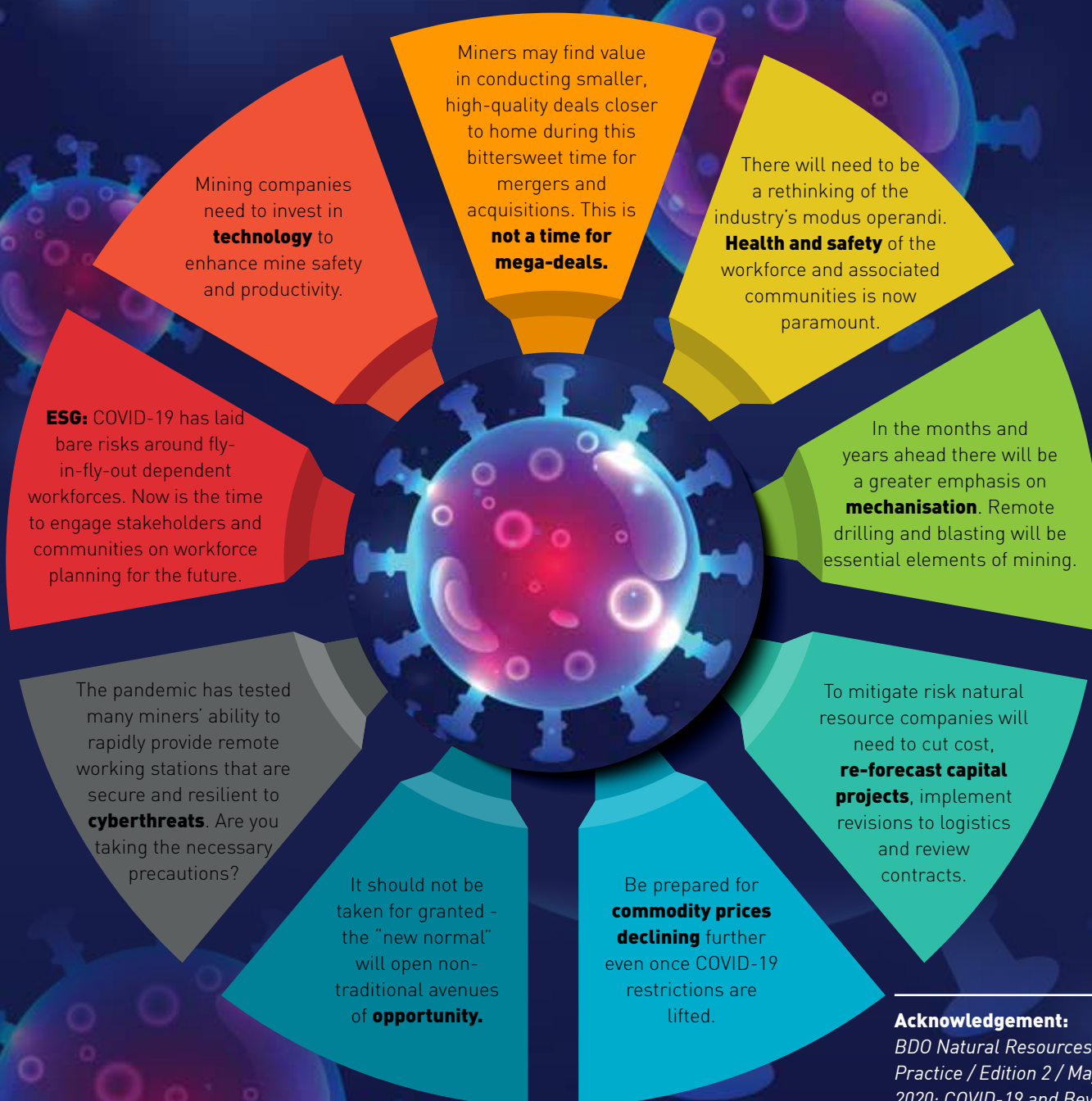
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# The way forward for the mining industry

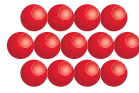
Is this the beginning of a new world? This period of uncertainty has been catastrophic not just for the mining sector, but also for the global economy. For an industry that plans at least 20 years in advance here are some key points going forward:



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# COVID-19

## Puts spotlight on mine digitalisation

The COVID-19 pandemic means fewer people in the mining area, working to achieve the same output; this makes digitalisation no longer a nice-to-have but a vital efficiency mechanism for survival.

This is according to Niel McCoy, business line manager for automation and digitalisation at Sandvik Mining & Rock Technology, who explains that the challenge is that digital strategies often fail due to lack of a vision.

"Most mining companies have for years been working to digitalise their operations, but the difficulty is to know exactly what this process is meant to achieve, and where managers want their mines to be in the future," says McCoy. "Bringing in new technologies means fundamentally changing the way your operation runs, so you need to be ready for the change management that this will require."

The result is that many mines are still struggling to develop and apply digital strategies. Effective digitalisation, he says, involves nothing

less than moving away from the traditional style of management. It means bringing everything towards a more centralised point.

"Digitalisation allows the whole underground mining operation to become visual – as if the 'roof' has been lifted off the mine – and to be managed from an operational management centre," he says. "This gives management a view of all operations in real time, and the ability to optimise the various processes."

Before any implementation can begin, the goal must be clear in everyone's minds – a picture of what their 'mine of the future' looks like. Failing that, he emphasises that the effort becomes extremely difficult to implement and success is not likely. This will then guide the roadmap to be followed for adoption of digital tools. There is a clear journey to follow to be successful in digitalisation.

"Without an end in mind, this will become just another initiative," he says. "Operations people will be unable to contextualise what the digital solutions mean within the big picture, and how it will improve their day-to-day activities and outcomes. This is mainly due to the data not being used in day-to-day management and decision making. It can never be a side project."

McCoy emphasises that digital solutions are not just for managers to see more clearly what is happening on their mines, but is vital for the people on the ground to run their operations more effectively and efficiently. There needs to be full buy-in from the start if the intended efficiencies are to be realised in practice.

"The only way of making mining operations more efficient is to understand what is happening and



where, and to react accordingly as quickly as possible,” he says. “One of the main shortcomings with traditional, hard-copy reporting methods on mines is that it simply takes too long for managers to sort through the raw reports from each shift and identify problems in time to make a meaningful intervention.”

This means that operations can never be properly optimised. Digital tools play a valuable role in addressing this challenge, helping mines achieve their key performance indicators.

“A good example of a KPI in the context of the COVID-19 pandemic is this: How do we get the best out of a reduced workforce?” he says. “Once a mine has clarified how it plans to approach this, it can start selecting the appropriate digital tools to achieve its goals.”

Change management is at the heart of the process, based on short interval control and process management. Sandvik Mining & Rock Technology’s core focus in digitalisation is process management and optimisation, through its OptiMine product.

“There are five different modules within OptiMine that we offer customers, depending on their digital requirements,” he says. “Further digital solutions are also available, relating to aspects including telemetry of non-Sandvik equipment, face utilisation, ventilation monitoring, personnel tracking and ventilation-on-demand through our Newtrax platform.”

McCoy highlights that Sandvik Mining & Rock Technology’s experience in this field is substantial, demonstrated by the fact that OptiMine has been installed at about 66 sites worldwide. He also emphasises that, while industry technology

“

Bringing in new technologies means fundamentally changing the way your operation runs, so you need to be ready for the change management that this will require,”

NIEL MCCOY



↓ Sandvik’s digital solutions for its mining products enable effective operational management

↓ Sandvik’s OptiMine system architecture

## SANDVIK MINING & ROCK TECHNOLOGY’S DIGITAL FOOTPRINT

AutoMine:	59 connected sites
OptiMine:	66 connected sites
My Sandvik:	214 connected sites
Newtrax:	115 connected sites

providers have their own specific focus areas, mines need to ensure that the different systems integrate effectively.

“As a manager on a mine, you don’t want to have dozens of different log-in points and dashboards to manage your operational data,” he says. “Rather, you want just a few key interfaces from which you can gather the overview you need. That is why it is so important to have your digital vision and understand what solutions you will require to achieve this vision.”

Inter-operability is therefore a vital aspect of the digitalisation planning. Sandvik Mining & Rock Technology’s leading inter-operability policy commits the company to working with any other type of information system that a customer has on site. This is to achieve the effective transfer of data between systems, to make it more useful for the customer.

“We are very proud of this policy, and are one of the first original equipment manufacturers to make such a policy public,” McCoy says. “It shows our understanding of the bigger digital picture and our role within it – aimed at ensuring that the customer is empowered to use their data the way they choose.” **MRA**





↑ **Booyco Electronics continues to apply** its technologies for safer, more productive mining operations

With its nationwide team of some 180 field technicians serving opencast and underground mines – by far the largest footprint among players in this field – the proximity detection specialist has remained hard at work. While supporting those coal mines that worked through Level 5 and Level 4, the company has also been assisting customers to ramp up to full production after the initial stoppage.

According to Booyco Electronics CEO Anton Lourens, the lockdown has even given his engineering team some welcome breathing space for their technology development. With collision avoidance standards in mines becoming stricter, technology is responding rapidly.

“Our plans to grow our engineering team from 18 to over 30 experts this year remains on track, giving us added capacity to meet industry needs,” says Lourens. “Even under lockdown restrictions, this expanding team has continued its work on new features and functionality for our products.”

The move to the Level 4 lockdown allowed opencast operations to resume and underground mines to move to 50% production. Booyco Electronics

# BOOYCO

## Continues technology drive despite COVID-19

While the COVID-19 lockdown has forced many companies serving the mining sector to downscale, **Booyco Electronics** is continuing to apply and develop its technologies for safer, more productive mining operations.

was on hand to assist with the required pre-start inspections and equipment checks, which then accelerated with the relaxation to Level 3.

“While the lockdown restrictions were disruptive to everyone, we have learnt valuable lessons and increased our efficiencies over recent weeks,” he says. “This has left us stronger and better prepared to support customers in the field.”

Lourens says the company has not rushed to bring employees back to its offices, taking the safer route of allowing only one third back in June. Where employees were not required to physically touch a product, they continued to be deployed at home.

“To date, we have used the lockdown as a valuable opportunity for training and refresher courses,” he says. “It

has also been vital to communicate constantly with staff and entrench our safety procedures for future continuity.”

Lourens warns that the lost production on mines will mean heightened pressure on the correct implementation of collision avoidance strategies. The anticipation of tighter safety regulations had led many mining companies to target the end of 2020 for proximity detection upgrades.

“In these tough economic times – and with time lost due to COVID-19 – mines cannot afford to get it wrong when executing projects to apply these technologies,” he says. “Detailed planning will be vital in defining and implementing each mine’s specific collision avoidance solutions. The 2020 deadline may now in fact be very difficult for many mines to meet.” **MRA**

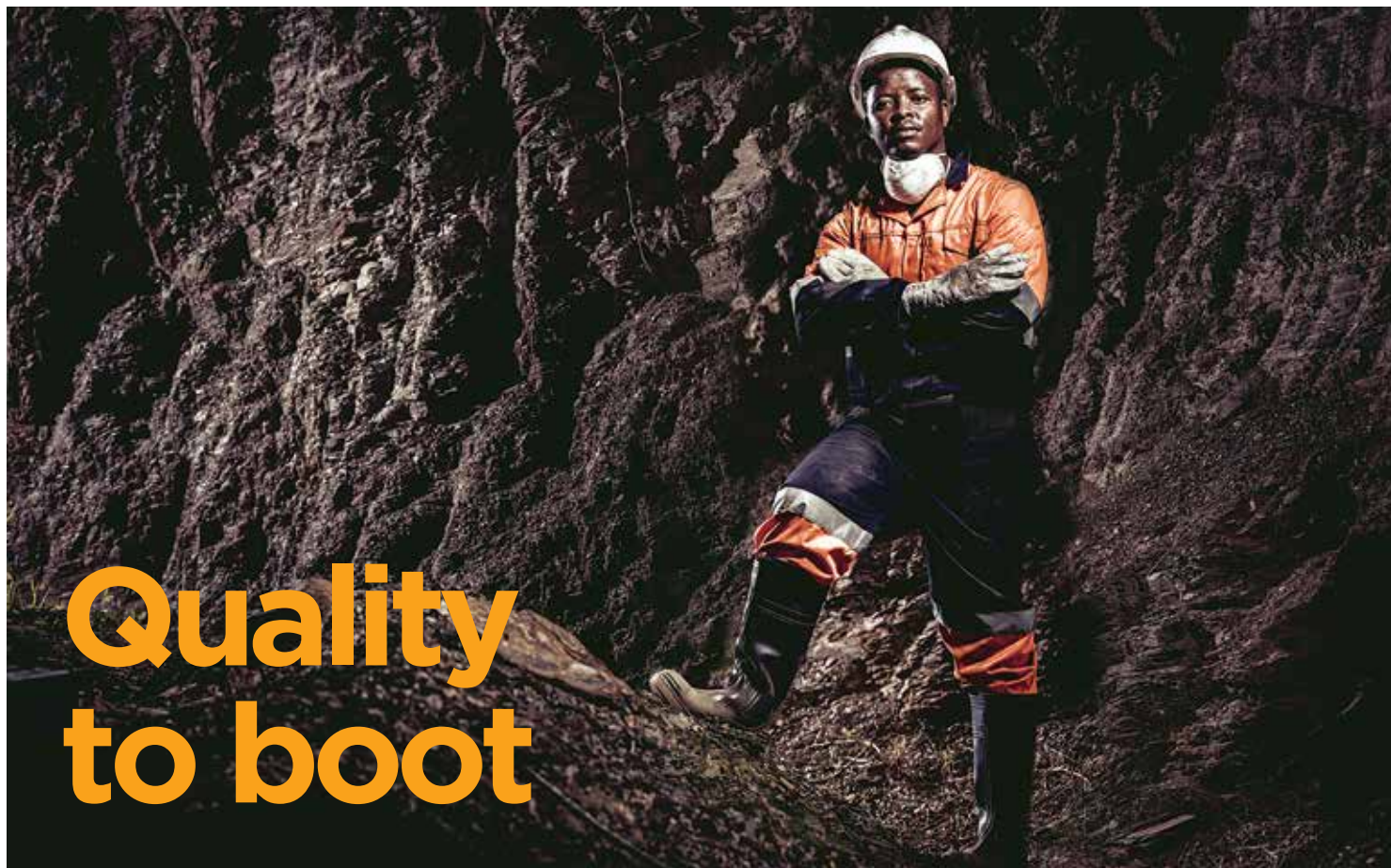


↑ **All necessary precautions were put in place at** Booyco Electronics



↑ **Production at Booyco Electronics is going strong** to meet customer demand





# Quality to boot

## Specialised focus reaps global success

From humble beginnings 80 years ago, today **Wayne Safety** has grown to be Africa's largest and leading gumboot specialist.

The company started manufacturing gumboots with Wayne Rubber producing rubber gumboots in KwaZulu-Natal. This started a long tradition of manufacturing superior quality gumboots and serving workers right at the heart of industry. Today, Wayne is the largest and leading PVC and PU gumboot manufacturer in Africa.

Since 1940, the company has only focused on what it does best – gumboots, and gumboots alone – allowing it to emerge as a specialist in its field and pioneers in both innovation and quality. Miners have worn the company's iconic Egoli gumboot for almost 40 years, fondly referring to them as '*mdala-scathu*' (*mdala iscathulo*), which loosely translates to "the old-timer shoes", because they are known to stand the test of time.

Wayne is the first gumboot manufacturer in Africa to install its own PVC compounding plant, which allows for greater quality control and

a quicker manufacturing process. In 2014, the company became the first (and remains the only) PU gumboot manufacturer in Africa.

Furthermore, over the years, the company has worked on reducing its carbon footprint in line with its objective of sustainability, and today it produces 35% of all its gumboots from recycled materials. The Duralight 1 is well-recognised in agricultural sectors and incorporates a mix of virgin and recycled PVC that results in a high-quality, yet cost-effective, recycled gumboot upon which our customers can trust and rely.

In 2015, Wayne was the first to introduce a fully-integrated metatarsal PVC gumboot to market that was EN20345-accredited. All its gumboots are compliant with all safety standards and regulations, and are manufactured in an ISO 9001 accredited factory to ensure quality. This has allowed the company to compete with international brands and expand its global footprint to over 40 countries.

After 80 years of specialised gumboot manufacturing, innovation and technical achievement, Wayne remains a proudly South African company that supports and services the local economy.

Today, the company is the preferred choice for PVC and PU gumboots in African mining operations. **MRA**



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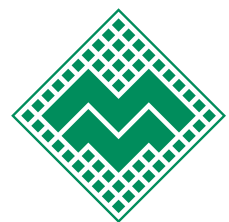


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