



Copperbelt **KATANGA**  
*manono*

# GOLD MINING

## A NEW GAME-CHANGER FOR ZAMBIA

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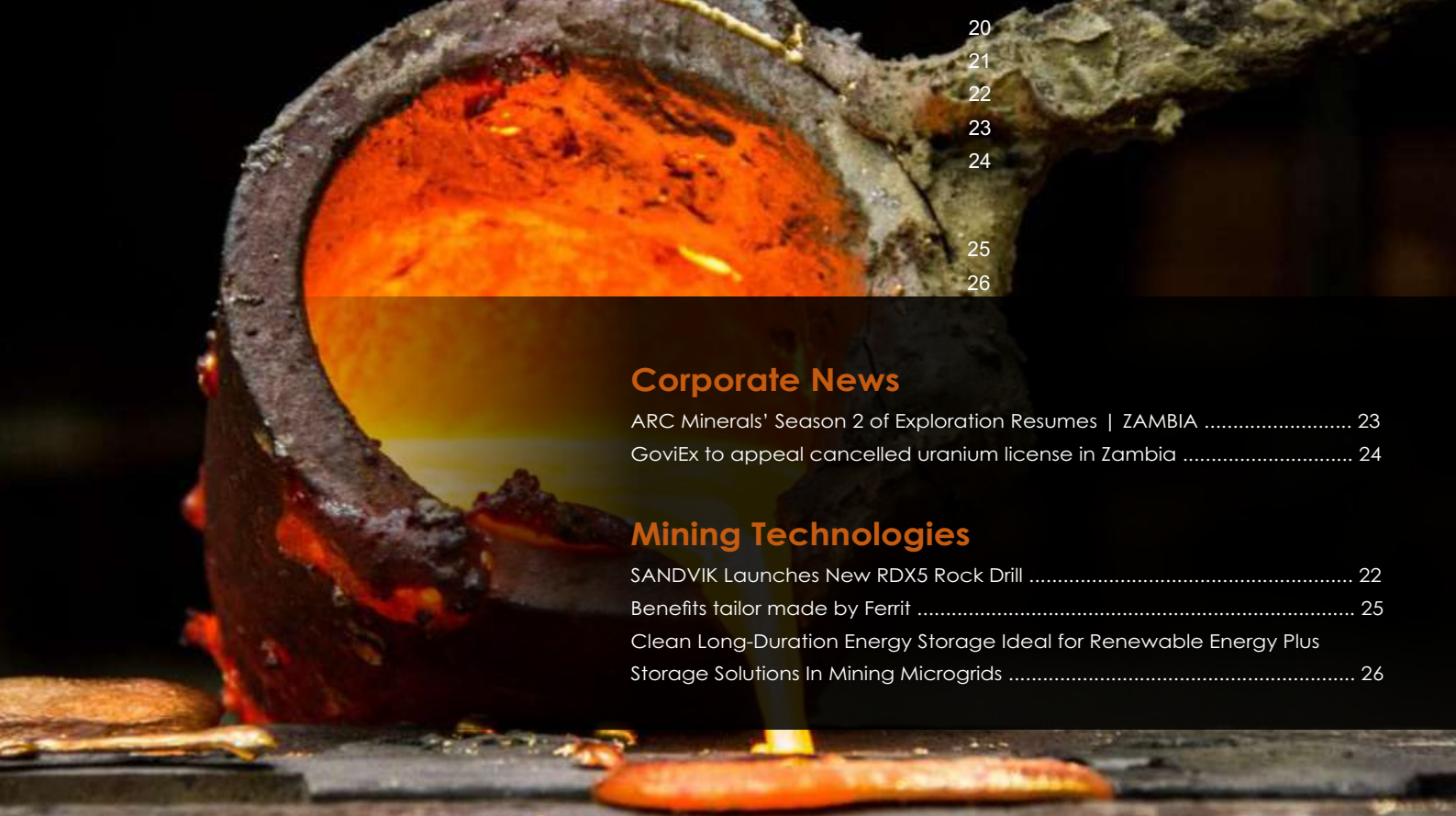
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# CLIMATE CHANGE & ENERGY EFFICIENCY AT THE KAMOA-KAKULA PROJECT – DRC

Ivanhoe Mines accepts the assessment of the United Nations Framework Convention on Climate Change (UNFCCC) regarding climate change science, which findings include that temperatures are gradually rising globally due to human activities and that physical impacts are unavoidable. We believe humanity must pursue the twin objectives of limiting global temperature increase in line with current international agreements, while actively pursuing access to innovative, reliable and affordable energy to support economic development and improved living standards. Both of these objectives are essential to sustainable development.

As indicated by current scientific global climate change analyses, fossil fuels will continue to be a significant source of energy for the foreseeable future, while alternative energy sources gain momentum. Therefore, an accelerated effort is needed to drive energy efficiencies, develop and deploy low-emissions technologies, and adapt to the impacts of climate change.

Ivanhoe Mines' overall strategy is to build a leading, commodity-diversified mining and exploration company through the current development of our principal projects in Africa, all of which will produce metals that are essential for sustainable development. A proactive response to climate change is foundational to achieving our objective to develop our projects in a sustainable, and environmentally and socially responsible manner.

Consequently, responding to climate change is governed at Ivanhoe Mines' Board level through the Sustainability Committee. Executive management has primary responsibility for the design and implementation of an effective position on, and response to, climate change as our projects are being developed and mature into the operational phase. Robust engagement with a variety of stakeholders, including investors, policymakers, peer companies, non-governmental organizations and host communities, informs our climate change strategy and operational objectives.

Ivanhoe Mines' climate change strategy is underpinned by four broad areas: low-emissions technology, portfolio positioning, reporting pathways and stakeholder resilience.

Mwadingusha hydropower plant in the Democratic Republic of Congo that will help supply the Kamoa-Kakula and Kipushi projects with clean, sustainable hydroelectricity.

## Low-Emissions Technology

Ivanhoe Mines is focused on the responsible development and operation of its highly unique mineral deposits in Southern Africa – two of which are internationally acclaimed discoveries made by Ivanhoe Mines geologists using innovative exploration methods. It is with the same spirit of innovation that our mining teams are pursuing new, low-carbon emission technologies to develop and operate our mines. We are focused on powering our mines primarily with electricity generated from clean, renewable energy sources, such as hydropower solar and wind where applicable, to help minimize the company's environmental footprint. Our Kamoa-Kakula and

Kipushi projects in the Democratic Republic of Congo are already using clean, sustainable, hydropower-generated electricity, and we are looking at ways to incorporate solar power to augment grid-supplied power at all our operations. As technology advances, we plan to incorporate electric and where appropriate automated vehicles into our mining fleet, replacing diesel-powered alternatives to further reduce emissions and keep our employees safe.

## Portfolio Positioning

We acknowledge that responsible mining can play a key role in supplying the metals critical to helping humanity meet the challenges caused by climate change. The electrification of the automobile industry expected in the next 20 years, resulting in part from legislated orders to reduce air pollution as a response to international climate change treaties, will be one of the most significant transformations of our time. We are witnessing the dawn of an era of full-electric, hybrid-electric and hydrogen fuel-cell vehicles – cars, trucks, buses, trains and even autonomous aerial vehicles. Ivanhoe Mines plans to be at the forefront of the mining industry's drive to produce some of the key metals – copper, nickel, platinum, palladium and zinc – that are essential for the new generation of environmentally-friendly vehicles.

Climate change mitigation strategies involving clean energy production, such as wind and solar energy, depend largely on the availability of critical resources, such as copper, nickel, platinum, palladium and zinc. Zinc plays a critical role in solar energy. Galvanized steel is the material of choice for the structures that support and align solar panels, while zinc also is a component of high-efficiency solar cells. The very high energy potential of zinc has made it a leading candidate in a range of future fuel cell and battery designs for grid storage and micro-grid generation.

## Reporting Pathways

We are committed to taking a proactive approach in publicly reporting on our climate change-related activities while our principal projects still are in the development phase and as we continue to grow our company as an explorer and mine operator. We believe this approach will assist in maturing our reporting processes in a timely manner, and build a culture of energy efficiency and climate change resilience awareness in our workforce. In this regard, we voluntarily disclose our climate change information on the Carbon Disclosure Project platform.

## Stakeholder Resilience

We acknowledge that climate change-related events potentially impact the people residing in the host communities of our projects and operations as they come on stream. Our projects and operations are situated in emerging economies, and our host communities are vulnerable to the potential impacts of global climate change. We prioritize strengthening the resilience of people and groups in our host communities through a variety of activities aimed at economic diversification, food security, water provision and digital inclusion. A leading example is the agroforestry bee-keeping project we have implemented at our Kamoa-Kakula Project to strengthen food security, alleviate poverty and combat deforestation.

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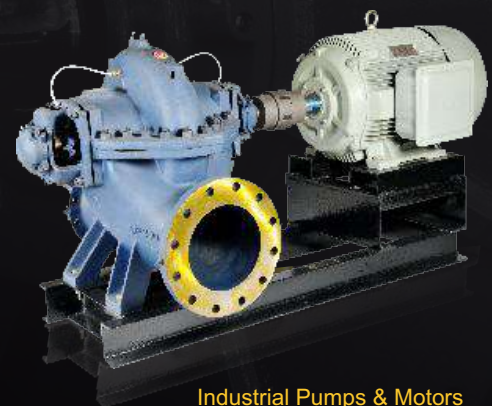
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# AVZ MINERALS ISSUES TENDERS WORTH US\$300M FOR MANONO WORKS | DRC

**A**ustralia-based exploration company AVZ Minerals has issued tenders worth around US\$300 million for pre-mining infrastructure work at its planned Manono lithium and tin project in the Democratic Republic of Congo.

The AVZ Minerals tenders cover infrastructure work including a process plant package, development of the Kabondo Dianda intermodal staging station and for diesel storage facilities and supply, as well as work site buildings and enterprise resource systems.

“We will have final pricings on our various tenders back in July and August and then expect to be in a position to award these contracts, pending COVID-19 travel restrictions being lifted and a financial investment decision being reached,” said Nigel Ferguson, AVZ managing director.

AVZ Minerals hold 60% of the Manono project, which covers 188 square kilometres in the southern DRC. It hosts lithium pegmatites with a strike length of over 13km centred on a historical tin mining operation.

The company also advised that it has obtained preliminary membership of the ITRI Tin Supply Chain Initiative (iTSCI), a responsible minerals initiative of governmental authorities, companies and civil society organisations that focuses on “3T” minerals –

tin, tantalum and tungsten.

“Obtaining iTSCI preliminary membership is also a significant milestone for the company as it is viewed favourably by international financiers as part of their overall due diligence process on the Company. The Company will further invest in securing full membership over the coming months,” said Ferguson.

Tenders called for pre-mining infrastructure packages.

- Approx. US\$300 M of pre-mining request for tenders issued
- Contracts to be awarded once a Financial Investment Decision to mine Manono has been made
- AVZ obtains preliminary iTSCI membership

AVZ Minerals Limited is further advancing its plans to develop the Manono Lithium and Tin Project (“Manono Project”) in the Democratic Republic of Congo by advertising tenders for a raft of ‘pre-mining’ infrastructure packages.

The tenders – which will be awarded once AVZ makes a Final Investment Decision to mine the Manono Project – are estimated to be collectively worth about US\$300 million.

The request for tenders includes:

- Process plants EPC package
- Kabondo Dianda intermodal staging station

- Diesel storage facilities and supply package
- Site buildings
- Enterprise resource systems

AVZ also advises it has obtained preliminary iTSCI membership with an application for full membership to be lodged before 30 June 2020. AVZ has been advised it will take about two months for a full iTSCI membership to be awarded.

The iTSCI program is focused on “3T” minerals (tin, tantalum and tungsten) to practically assist upstream companies to implement OECD guidelines, thereby enabling continued access to international markets and economic and social development for miners and communities across large areas of central Africa.

AVZ’s iTSCI membership aligns its practices with OECD guidelines on 3T supply chain responsibilities and the American Dodd Frank Act 1502 for conflict mineral and metals supply chain management.

Tin and Tantalum represent beneficial future by-products of Lithium ore processing at Manono. Joining and being recognised by the iTSCI due diligence and traceability programme and its adherence to the OECD due diligence guidance for Responsible Supply Chains is a key part of AVZ’s focus on local community and Government engagement.



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Discussions with the DRC Government about the Special Economic Zone (“SEZ”) and with potential off take partners for lithium, tin and tantalum products are progressing well.

The Company has signed non-binding Memorandums of Understanding with several entities to allow pricing mechanisms to be refined and agreed prior to the execution of a binding off take agreement, which is expected within months.

AVZ’s Managing Director, Mr Nigel Ferguson, said: “We will have final pricings on our various tenders back in July and August and then expect to be in a position to award these contracts, pending COVID-19 travel restrictions being lifted and a financial investment decision being reached.”

“Obtaining iTSci preliminary membership is also a significant milestone for the company as it is viewed favourably by international financiers as part of their overall due diligence process on the Company. The Company will further invest in securing full membership over the coming months.”

#### **Manono Highlights:**

AVZ holds 60% of the Manono Project with rights to secure additional interests.

Project covers 188km<sup>2</sup> in southern Democratic Republic of Congo (DRC).

Hosts lithium pegmatites with a strike length of 13km+ centred on an historical Tin mining operation.

Outstanding results received from AVZ’s initial drilling program at Manono in 2017, including 235m @ 1.66% Li<sub>2</sub>O, 202.8m @ 1.57% Li<sub>2</sub>O and

250.9m @ 1.48% Li<sub>2</sub>O.

Roche Dure Mineral Resource of 400 million tonnes grading 1.65% Li<sub>2</sub>O, 715ppm Sn, 34ppm Ta is world-class in scale and grade

The Manono Project is owned by AVZ (60%), La Congolaise d’Exploitation Minière SA (30%) (Cominiere, a State-owned enterprise) and Dathomir Mining Resources SARL (10%) (Dathomir, a privately owned company). AVZ is responsible for funding expenditure to completion of a feasibility study and a decision to mine.

AVZ Minerals issues tenders worth US\$300m for Manono works | DRC 1

#### **Tenure, location and infrastructure**

The Manono Project comprises PR13359, which covers 188km<sup>2</sup>. The Manono Project is located 500km due north of Lubumbashi in the south of the Democratic Republic of Congo (DRC) in central Africa. The project area can be accessed from Lubumbashi by a 1.5 hour flight or by road.

Infrastructure in Manono and the surrounding areas is limited. Power is currently generated at the Manono township using diesel generators and a recently commissioned solar power system. Dathomir has agreed to facilitate the rehabilitation of Piana Mwanga hydroelectric power station and the road from Lubumbashi to Manono. The road is subject to a US\$285m upgrade presently being completed.

There is an abundance of good water supply for both local consumption and any potential mining operation at Manono. Other consumables are bought locally and supplemented by goods brought in from Lubumbashi and Kalemie to the North.



# Zest WEG Partners with Panaco for DRC Service Supply

**Zest WEG Africa business development executive Taylor Milan said Panaco will be its value-added reseller (VAR).**

The company is boosting its focus on local equipment and services supply; Panaco, which is locally owned, has existing relationships with most of its clients, it said.

“Panaco has the ability to assist us in growing the comprehensive WEG product portfolio well beyond our traditional low-voltage motor and drive business,” he said. “It has business facilities in Lubumbashi, Kolwezi and Kinshasa – bringing our services and support closer to customers in this fast-growing region,” Milan said.

Zest Weg also appointed AEMI as its accredited repair facility. The company has two full repair facilities in Likasi and Kinshasa, DRC.



# ZCCM-IH has commenced mining manganese in Serenje district, Central Province.

**ZCCM Investments Holdings Plc Limited has started mining manganese in Serenje district, Central Province.**

ZCCM-IH Chief Executive Office Mabvuto Chipata said the company had so far invested about one point five million united state dollars that is to be used in setting up the site Infrastructure.

"The money will be used in weighing the bridge and offices, and also will be used in the resettlement of nine project affected household," Chipata said.

He also added that the Company was repositioning itself

to have more control, and drive growth in developing the mining sector in the country.

Chipata was speaking when Industrial Development Corporation (IDC) Group Chief Executive Officer Mateyo Kaluba toured the mine site in Serenje.

And Kaluba also added experienced his happiness with the commencement and the progress made in developing the project.

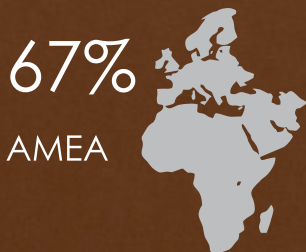
He said it was good that ZCCM-IH was now living to the expectations of its shareholders by developing a wholly owned new mine.



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## DRC Government Suspends VAT Exemption on Imports of Mining Companies

The Deputy Prime Minister in charge of the Budget, Baudoin Mayo Mambeke, on the decision by the government made at the 41st meeting of the Council of Ministers, has ordered “the suspension of the exemption from VAT on the imports of mining companies” within the framework measures to increase government revenue.

In a correspondence dated July 31, 2020 and addressed to his colleague from Finance ministry, the Minister of the Budget wrote: “The Council of Ministers has decided, during its 41st meeting and within the framework of the mobilization of state revenue by the financial authorities, the suspension of the exemption from VAT on the imports by mining companies. To this end, I ask you to proceed with the execution of this measure, without delay, and in accordance with the decision of the Council of Ministers”.

This decision comes as the government

adopted, during its 42nd meeting of the Council of Ministers on July 31, a package of measures to stabilize the Congolese franc, revive the national economy and increase the mobilization of public revenue.

The DRC has shown a weak mobilization of public revenue since the beginning of the year, particularly following the covid-19 health crisis which imposed not only the state of emergency between March 24 and July 21, 2020 but also lockdown in certain units of production.

The Public Treasury shows a revenue gap of more than 2.6 billion USD during the first half of 2020. Indeed, the budget monitoring reports indicate an overall level of expenditure of around 3,350,608,435,571 FC (1.718 billion USD) against the linear forecast of 8,612,624,023,644 FC (4.416 billion USD) in the first half of 2020, i.e. an execution rate of only 38.9%.

More specifically, in internal resources,

government public expenditure amounted to 3,156,764,192,824 FC against linear forecasts of 7,435,923,385,994 FC, i.e. an achievement rate of 42.5%, as of June 30, 2020. This level of spending was dictated by the weakness in public revenue mobilization. This weak mobilization of resources is also observed among the external partners of the Democratic Republic of the Congo who have only contributed to the national budget to the tune of 193 844 242 824 FC (99.407 million USD) on linear forecasts of 1 176 700 637 650 FC (603.436 million USD), i.e. an execution rate of barely 16.5%, by the end of June 2020.

Suffice to say that the government is showing a decline in its financial resources, both internal and external.

The government’s third-quarter 2020 Budget Commitment Plan (PEB) caps public spending at FC 2,157,069,000,000 (USD 1.1 billion).



# Félix Tshisekedi requests for urgent release of 5 million USD for relaunch of MIBA | DRC

The President of the Democratic Republic of Congo, Félix Tshisekedi, during his communication to the 45th meeting of the Council of Ministers on Friday, August 21, echoed the urgency to release 5 million USD to allow the relaunch of MIBA (Minière de Bakwanga), in the application of decisions taken at previous meetings.

Also, the Head of State said he found that

MIBA has never again benefited from the revenues of the Anhui-Congo Mining Investment Company (SACIM) which operates the Tshibwe diamond deposit, in the Miabi territory, within the framework of an equal partnership between the Chinese partner and the Congolese state.

He therefore instructed the Minister of Portfolio to conduct an audit on SACIM.

"The aim of this audit is to clearly identify the rights and obligations of the parties and to organize as soon as possible the transformation of this company into a public limited company as provided for in the Partnership Agreement between the parties, with the aim to endow SACIM with a Board of Directors which will provide guidance on and control social management ", indicates the report of the Council of Ministers.

## Elsewedy Electric to invest USD 38.8 million, building a high voltage substation in Kasumbalesa

Egyptian electricity giant Elsewedy Electric will build a 220-15 / 6.6 kV substation in Kasumbalesa city, Haut-Katanga province, for an investment cost of USD 38.8 million, reports Agence Ecofin which delivered this information.

The construction of this infrastructure will last 18 months and is intended to improve the country's trade with its neighbors in southern Africa, mainly Zambia, while promoting the economic development of the city and its surroundings.

This project results from a contract signed between Elsewedy Electric and the National Electricity Company (SNEL). Its completion will allow better management of electricity transfers between the DRC and the Southern Africa Power Pool, reports the same source.

Specializing in the electrical industry and the development of renewable energies, Elsewedy Electric operates in five diversified energy sectors: cables and accessories; electrical products; energy measurement and management; transformers; engineering and construction.

Established in 1938 by the eponymous family – and formerly named Elsewedy Cables, Elsewedy Electric has 15,000 employees and 25 production sites. It is present in 14 countries, mainly in the Middle East and Africa.

# Zambian Jerabos eye for shares in Mopani

**A** CONSORTIUM of small-scale miners, commonly known as Jerabos, is interested in buying shares in the giant Mopani Copper

Mines (MCM).

Chapamo Mineral Processing Company, which was recently empowered with a 10 percent share in the slag dump, popularly known as Black Mountain, wants a stake in the mine.

Government and Glencore, the owners of the mine, are in talks following Zambia Consolidated Copper Mines–Investment Holdings (ZCCM-IH)'s interest to increase its shareholding in the mining company.

Currently, ZCCM-IH owns only 10 percent shares in the mine but now

wants to have a controlling stake.

Minister of Mines and Mineral Development Richard Musukwa said Mopani shares can even be floated on the stock exchange for Zambians to tap into.

This has inspired Chapamo Mineral Processing which wants to have representation in the mine.

Company director Kelvin Tembo said in a statement yesterday that Zambians should be given an opportunity to manage the country's mines, which are dominated by foreign investors.

Mr Tembo said the consortium of miners, which comprises seven companies, is also looking at getting loans from financial institutions to buy

shares in Mopani.

He said having shares in the mines is a long-term investment to improve the welfare of youths.

He said the consortium of miners is also looking at getting loans from financial institutions to finance the buying of shares in Mopani.

Mr Tembo said all the seven companies in the consortium are agreeable to own shares in the mines.

He, however, said it would be nice for Government to empower youths by buying them shares in the mines.

"We are seeing Government departments empowering youths. They can also do so by buying them shares in Mopani," he said



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# GOLD MINING

## A NEW GAME-CHANGER FOR ZAMBIA

**I**N TODAY'S contemporary world, gold does not just imply affluence, material wealth and extravagance but it also gives an expression of style and elegance.

The price of the precious metal on the international market has since reached dizzying heights. On the London Metal Exchange, gold is fetching around US\$1,900 per ounce.

Realising that gold mining and export could play significant role in diversifying Zambia's economy, job creation and economic development, Government has declared gold as a strategic mineral.

However, despite Zambia reporting an increase in gold occurrences, the sector is mainly dominated by artisanal and small-scale miners who in most instances, operate illegally. The precious metal is smuggled out of the country mostly by foreigners.

To strategise on a comprehensive mechanism to formalize gold mining and trading in Zambia, Rufunsa district has become a serene ambiance for most of the Government's initiatives aimed at formalising the sector.

Rufunsa's Chintimbwi area councillor Josias Malunga is confident that with Government formalising gold trading in Zambia, the sector will create jobs for the unemployed youths.

"Gold mining is a game-changer. If well managed, it would translate into improved living standards among our people, job

creation and families graduating from thatched homes to bricked houses," Mr Malunga said.

ZCCM-Investments Holdings (IH) chief executive officer Mabvuto Chipata said the formalisation of the sector will ensure activities are undertaken in a sustainable manner that complies with various international standards and which have now reached about K1,000 per gramme in some places but the miners are no longer being exploited as it was before ZCCM-IH went into the market," he explains.

The price of alluvial gold in Zambia has risen to as high as K1,000 per gramme from K600. With the formalised open market, ZCCM-IH has revenue from gold mining and gemstones.

Common Market for Eastern and Southern Africa (COMESA) believes for the region to achieve full potential, the facilitation of a conducive environment for investment in high-value products as well as value addition is important.

Assistant secretary general Kipyego Cheluget said achieve regional objectives, with funding of €111 million from the European Union and a grant of €5.8 million given to Zambia for leather, textiles and clothing value chains reflecting the increased focus on the private sector including women.

Mr Cheluget said dependence on primary commodity production and exportation

exposes the country to commodity shocks, price fluctuations and declining terms of trade.

"As a result, a country's foreign exchange reserves and ability to for gold and gemstone is intandem with the Seventh National Development Plan, which emphasises on diversifying the economy to non-traditional mining of gemstones, gold and industrial minerals to remain buoyant.

Minister of Commerce, Trade and Industry Christopher Yaluma said illegal trading activities in gold mining is resulting in huge revenue losses, environmental

degradation, influx of foreign nationals but with lack of tangible wealth creation for the locals.

It is for this reason that Cabinet, in December 2017, directed the ministries of Commerce, Trade and Industry and Mines and Minerals Development to strategise on a comprehensive mechanism for trading centres in strategic locations.

Further, Government is setting up value addition parks for gold and gemstone lapidary shops in Lusaka, Copperbelt and Livingstone.

Minister of Mines and Minerals Development Richard Musukwa said Government wants to see gold sold and mined safely and emphasized that pick and shovel mining will not enhance the lives of the miners.

Source: Zambia Daily mail

# KANSANSHI MINE TARGETS 130,000 OUNCES OF GOLD

**K**ANSANSHI Mine is this year projected to produce 130,000 ounces of gold and 235,000 tonnes of copper.

The mine has vein deposits, with economic copper and gold mineralisation occurring in three ore-types: primary sulphide, mixed supergene and oxide.

Gold is the most ductile metal and a good conductor of heat and electricity.

It is used in computers, telecommunication, digital technology and space exploration. According to information posted by First Quantum Minerals on its website, the company that started production at Kansanshi in 2005 has installed several expansions, and the operation is now capable of producing 340,000 tonnes of copper and more than 120,000 ounces of gold per year.

"Production in 2020 is expected to be 220,000 to 235,000 tonnes of copper and 120,000 to 130,000 ounces of gold," First Quantum Minerals stated.

Kansanshi Copper Smelter, commissioned in the first half of 2015, has enabled First Quantum Minerals to optimise the value of the copper produced in Zambia and created a further 700 specialist jobs.

The smelter has a nominal capacity of 1.2 million tonnes per annum of concentrate to produce more than 300,000 tonnes of blister copper annually.

"The smelter efficiently traps 100 percent of sulphur dioxide by-product and converts it into sulphuric acid. This recycling produces more than one million tonnes per annum of sulphuric acid, reducing reliance on imported acid for use in the treatment of oxide copper ores. Acid produced by the smelter is neutralised in the leaching circuit," First Quantum Minerals stated.

Kansanshi employs more than 13,000 people, primarily Zambians, and utilises state-of-the-art technology to extract copper and gold from three different ore types, with worldclass efficiency.

Mining is carried out in two open pits, main and Northwest, using conventional open-pit methods employing hydraulic excavators and a fleet of haul trucks with electric trolley assisting on the waste haul.

Ore treatment is flexible to allow for variation in ore type either through an oxide leach circuit, a sulphide flotation circuit or a transitional ore "mixed float" circuit.

Equally, oxide ore is treated via crushing, milling, flotation, leaching process to produce a sulphidic and gold bearing flotation concentrate as well as electro-won cathode copper.

Gold, which has been declared as a strategic mineral by Government, is recovered from all ore types by six gravity concentrators.

Gemini tables treat the gravity concentrates and produce a high-grade concentrate for direct smelting to gold bullion. Currently, Kansanshi is the only mine in Zambia producing gold.

# Metso Outotec buys Davies Wear Plate

**M**etso Outotec has added a fastener and wear plate monitoring technology capability through its acquisition of Australian company Davies Wear Plate for an undisclosed sum.

The acquired technology includes fasteners with a locking mechanism that does not require traditional studs and nuts, making for faster, safer maintenance work.

The fasteners are also set flush with the wear plate, making them less susceptible to wear.

There is also a wear monitoring

technology in the Davies suite that provides a real-time forecast of wear and expected liner change-out timing.

Davies also supplies wear plate.

The monitoring solution can be fitted to any metallic or ceramic liner independent of attachment systems.

The technology is already used by major mining companies Rio Tinto, BHP and Fortescue Metals Group.

Metso Outotec president of consumables Sami Takluoma said the acquisition supported the entire wear lining value chain.

"We are eager to introduce these advanced solutions globally to our customers," he said.

Davies Wear Plate Systems founder Brian Davies said the company had been improving its offering for years and had received good feedback from its customers in Australia.

"Our products are ready to be rolled out to the global mining market," he said.

Davies sales in the 2019-20 financial year were A\$17 million.

It has about 30 employees, an office in Malaga, Perth and an operation facility in Esperance, Western Australia.



# Murray & Roberts contracted in a joint venture to establish underground stoping horizon in Namibia

**V**ancouver-based B2Gold plans to conduct mining of the Wolfshag zone at its Otjikoto mine in Namibia and has appointed Murray & Roberts Cementation in joint venture with Lewcor Mining to establish the underground stoping horizon.

According to Allan Widlake, new business director at Murray & Roberts Cementation, mobilisation on site has begun and the contract will take 28 months. Otjikoto Mine is Namibia's largest gold producer and has been in operation since 2015. The Wolfshag zone at Otjikoto comprises a series of shallow, easterly dipping mineralised shoots that sub-crop below calcrete cover, plunging for a strike length of at least 1,600 metres.

The contract will see a decline of 5 metres wide by 5,5 metres high being driven to the orebody from a portal in one of Otjikoto's depleted open pits. There will also be two 4 metre diameter ventilation shafts created using raiseboring methods. One will measure 200 metres in depth, and the other 80 metres.

"We will be conducting this project in a strategic partnership with a highly professional local Namibian opencast mining and earthmoving contractor, Lewcor Mining," says Widlake. "Lewcor is an existing service provider at Otjikoto and is well-regarded by the client and the industry."

He says the operation will be highly mechanised and efficient, with equipment including drill rigs, dump trucks, load-haul-dumpers and utility vehicles, as well as shotcreting and ancillary equipment. About 150 employees will be active on the project, including a highly experienced crew from a recent contract in Zambia. Most of those involved will be Namibians, who will be trained as part of a special counterpart training programme to transfer skills to local workers.

Widlake says he is excited by the project and the prospect of Namibia offering strategic opportunities in the mining sector, as other mines consider evolving from opencast to underground.

He highlights that Murray & Roberts Cementation is one of very few companies worldwide with the experience and capability to conduct both development work and raiseboring as part of a single package.

"This gives us as the contractor much closer control of our projects, allowing us to reduce our subcontract-related risk," Widlake concludes.



# DRC PRESIDENT TSHISEKEDI HAS MADE ENERGY SECURITY AND INVESTMENT HIS TOP PRIORITY

**T**he administration of President Félix Antoine Tshisekedi has made energy security and investment its top priority, seeking to get massive hydropower projects off the ground.

Surrounded by major African oil & gas producers Republic of Congo and Angola, the Democratic Republic of Congo (DRC) has so far remained relatively absent of Africa's league of hydrocarbons producers. In 2019, only French independent Perenco produced from the DRC, at an average rate of 25,000 boepd from 11 onshore fields.

In this context, the administration of President Félix Antoine Tshisekedi has made energy security and investment its top priority, seeking to get massive hydropower projects off the ground but also to diversify the country's energy basket and create jobs in the process.

In yet another decision supporting the development of the DRC's hydrocarbons industry, President Félix Antoine Tshisekedi requested its Minister of Hydrocarbons, Hydraulic Resources and Power and its Minister of Finance to fast-track legal processes and permits pertaining to the valorization of the natural gas produced onshore by Perenco. The decision was taken at the latest Council of Ministers last week in Kinshasa.

The move is expected to result in the monetization of natural gas through power generation, especially to address the DRC's energy deficit and provide stable supply of power to its booming mining industry.

"We are extremely optimistic about the future of oil & gas in the DRC given current political support for the industry. While market-driven policies are needed to ensure investments in gas

monetization, an enabling environment is key to unleashing the massive potential of the DRC and the energy industry is open to supporting the DRC," stated NJ Ayuk, Executive Chairman at the African Energy Chamber.

"The DRC also offers 100GW of hydropower potential, and its upcoming hydroelectric stations are expected to require billions of dollars. It is a chance for investor and local players to participate and support the ambitious growth plans of President Felix Tshisekedi fighting energy poverty and boosting energy for industrial development that will create jobs and transform the economy with a post covid-19 recovery strategy," concluded Ayuk.

The African Energy Chamber is encouraged by the governments decision as we believe locally available natural gas offers the perfect opportunity to build power capacity in the short-





# CHINA MOLY BOOSTS Q3 COBALT OUTPUT BY 21%

**C**hina Molybdenum Co lifted its July-September cobalt output by 21.2% from the previous quarter, data released on Wednesday showed, putting the company back on course to hit its full-year production target for the battery metal.

China Moly, which operates the Tenke Fungurume mine in the Democratic Republic of Congo (DRC), one of the world's biggest copper-cobalt deposits, said it produced 10,507 tonnes of cobalt metal in the first nine months of 2020, which was down 16.7% year-on-year, although sales were up 15% at 12,794 tonnes.

The nine-month production number implies third-quarter output of 3,964 tonnes, up from 3,299 tonnes in the second quarter and roughly flat versus 3,997 tonnes a year earlier.

A China Moly spokesman said the quarter-on-quarter rise was due to a change in transit and sales methods instigated by the

company's trading arm, IXM.

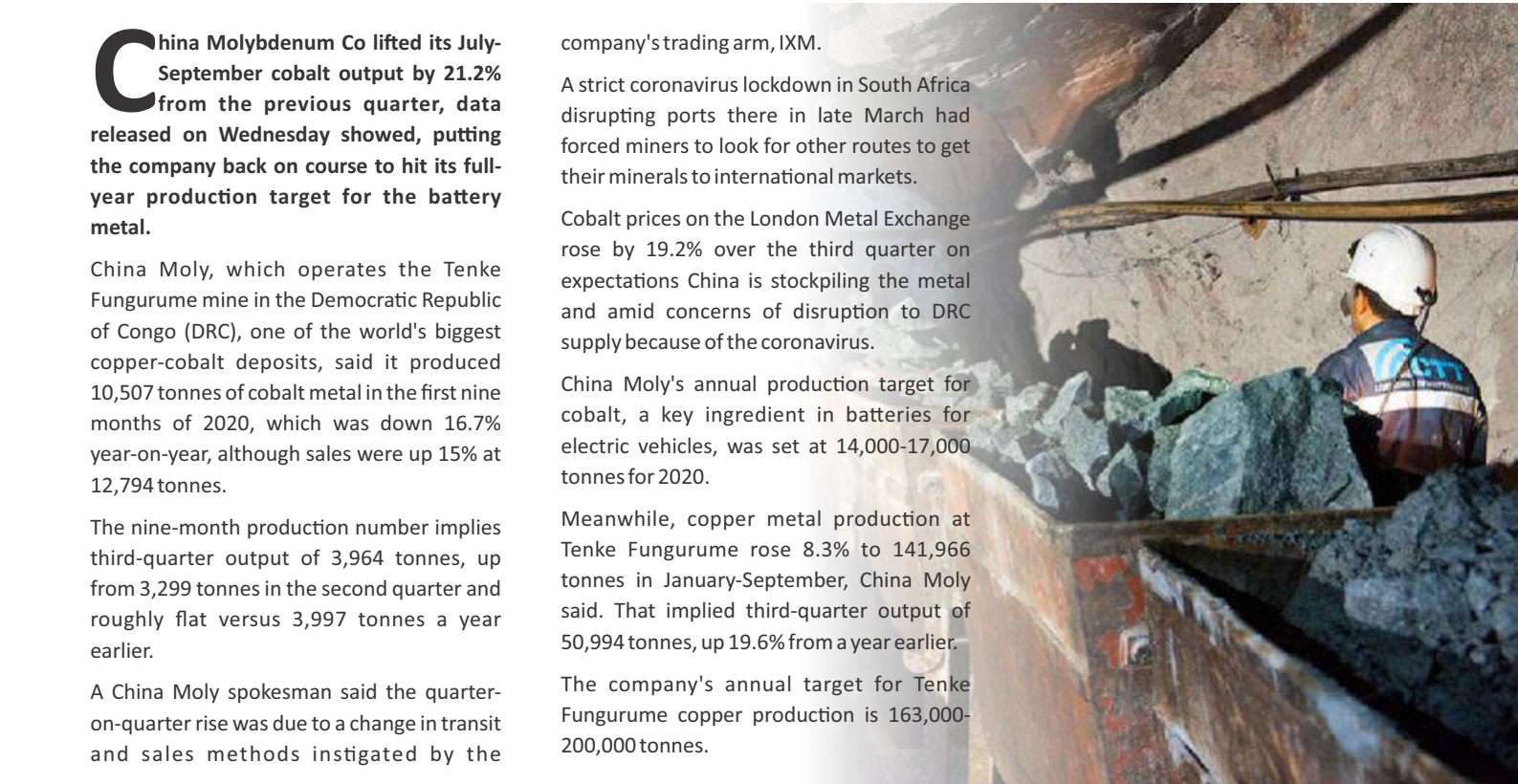
A strict coronavirus lockdown in South Africa disrupting ports there in late March had forced miners to look for other routes to get their minerals to international markets.

Cobalt prices on the London Metal Exchange rose by 19.2% over the third quarter on expectations China is stockpiling the metal and amid concerns of disruption to DRC supply because of the coronavirus.

China Moly's annual production target for cobalt, a key ingredient in batteries for electric vehicles, was set at 14,000-17,000 tonnes for 2020.

Meanwhile, copper metal production at Tenke Fungurume rose 8.3% to 141,966 tonnes in January-September, China Moly said. That implied third-quarter output of 50,994 tonnes, up 19.6% from a year earlier.

The company's annual target for Tenke Fungurume copper production is 163,000-200,000 tonnes.



# Ivanhoe and China's CNMC are set to examine exploration opportunities in Africa

**C**anadian mining company Ivanhoe Mines has signed an agreement with China Nonferrous Metal Mining (CNMC), to jointly explore, develop or acquire mining projects in Africa.

The strategic partnership would also see the two companies being active in the Democratic Republic of Congo (DRC), exploring production, smelting, and logistics opportunities.

Ivanhoe Mines co-chairmen Robert Friedland said: "Our long-standing relationship with CNMC goes back decades to when Wu Jianchang was the general manager of China National Nonferrous Metals Industry Corporation – a pioneer industrial group specialising in the mining and metallurgy sector.

"Our good friends at CNMC are aware of the enormous challenges of discovering and building a new world-scale copper, nickel, zinc, or platinum-group metals mine."

Ivanhoe is developing the Kamo-a-Kakula copper project in the DRC and the Platreef project in South Africa.

CNMC's assets in Africa comprise the Chambishi copper mine in Zambia, the Deziwa copper and cobalt mine in the DRC.

The Lualaba copper smelter in DRC is also one of the CNMC's core assets. It is about 45km from Kamo-a-Kakula.

CNMC chairman Wang Tongzhou said: "This year, the Covid-19 pandemic has engulfed the world and greatly impacted mining companies.

"In these challenging times, the need to work together is more pressing than ever. Building on the opportunities created by this agreement and championing the mutually beneficial alliance, I believe that the core projects of each of our companies will soon be realised."

Last month, Ivanhoe Mines said it is holding strategic talks for its Western Forelands project in the DRC and its Platreef project in South Africa's Bushveld Complex.

In May last year, CNMC and an undisclosed Turkish company planned to acquire a stake in Konkola Copper Mines (KCM), a copper mining and smelting company in Zambia.



# BME – supply security in SADC with Covid-19 pandemic

## Securing mining supply chains under lockdown

**C**ovid-19 lockdown restrictions around Southern Africa have thrown the spotlight on mines' supply security, especially key inputs like explosives and specialised blasting services.

According to Albie Visser, General Manager at blasting specialist BME, mines have relied heavily on the flexibility and ingenuity of service providers to keep the supply chain functioning.

"The first weeks of the lockdown were challenging, especially regarding the logistics of moving our emulsion product across national borders from South Africa into other southern African countries," said Visser. "Different countries – and even different border posts – applied different rules, making it difficult to know what the exact compliance requirements were."

He noted that the pandemic had caught most authorities unaware, leading to regulations being hurriedly developed and enforced.

"In some cases, the regulatory requirements were not practical," he said. "At one border, for instance, drivers were required to have a Covid-19 test not older than three days – but in South Africa it took nine days to get results from a test through normal channels."

This meant that innovative thinking was called for, and BME worked closely with its own suppliers and the mines themselves. While some deliveries were initially delayed by border issues, the company's responsiveness and agility kept up its deliveries to site. National lockdowns in the region affected the mining sectors differently from country to country.

"South Africa's lockdown saw demand for emulsion drop sharply at first, but this has almost returned to normal as mines ramped up to full production where possible," he said. "While mining in Botswana has slowed, Namibia's mining industry has been more resilient and our supplies to Zambia are almost unaffected."

In South Africa, BME is working on many mine sites, with an average of three teams per site. By conducting risk assessments and adapting its existing safety systems, BME quickly developed its own Covid-19 protocols in line with national safety regulations – even before some of the mines finalised their own systems. Among the measures BME has applied is to divide staff into small groups to keep closer control of movements and restrict infections. For example, each group will stay together for transport purposes, and will use only one specified bus.

"Each bus, which has a thermometer for daily testing, will collect staff from their homes," said

Visser. "We know exactly who they live with, for purposes of future contact tracing."

It does mean more buses arriving at the work site, but any infection picked up can then be controlled and traced within that group. There is also another screening test at the mine site when staff arrive, and the necessary social distancing is observed.

"To date our measures have been very effective, with no Covid-19 infections at any of our operations," he said.

From the manufacturing perspective, BME's facilities are also well positioned to keep feeding the supply chain even under lockdown conditions, according to Ralf Hennecke, BME's General Manager: Technology and Marketing.

"Most of our production plant processes are highly automated, so we can readily apply the necessary social distancing and minimise staff without affecting production," said Hennecke. "This applies to our explosives facilities as well as our factories for non-electric and electronic detonators."

Even the company's remote bulk emulsion plants – often located on customer's mine sites – can be operated with minimal staff. He highlighted that BME's technology, including planning and reporting platforms like BLASTMAP™ and XPLOG™, also assist mines to reduce opportunities for Covid-19 transmission.

"Our technological innovations allow data to be digitally captured, stored and transferred to the mine's operational and administrative systems," he said. "This can be done safely with only a few human touchpoints, and also in real time for greater efficiency."

He said mines are more than ever looking for solutions that will deliver more output with fewer resources, and BME is supporting this drive with its constantly innovating technologies.

### About BME

*BME, together with Protea Mining Chemicals forms the mining division within the Omnia Group, a JSE listed diversified provider of specialised chemical products and services used in the mining, agriculture and chemicals sectors.*

*Formed in 1984 on the strength of a new cold emulsion technology that has since become an industry standard, BME now offers cutting-edge products and services at every stage in the explosives supply chain and is a leading global manufacturer and supplier of explosives, related accessories and blasting services to the mining, quarrying and construction industries.*

*BME's footprint covers 17 African counties including South Africa, Namibia, Botswana, Zimbabwe, Zambia, Swaziland, Angola, Malawi, Mozambique, DRC, Sierra Leone, Mali, Burkina Faso, Mauritania, Senegal and Eritrea. The company also has legal entities in Australia, Canada, Indonesia and the USA.*

*For further information visit [www.bme.co.za](http://www.bme.co.za)*



Albie Visser, BME General Manager



Ralf Hennecke, BME General Manager: Technology and Marketing



From left to right:  
Moward Musutu, Business Controller for Sandvik Central Africa,  
handing one of the spray pumps to the  
Kitwe City Mayor, Christopher Kang'ombe.

## SANDVIK ZAMBIA STEPS UP TO ASSIST IN COVID-19 RELIEF EFFORTS

**S**andvik Mining and Rock Technology believes that as a responsible and engaged global corporate citizen, it is critically important to contribute to and have a positive influence in the communities where they are active. The ongoing COVID-19 pandemic poses unique challenges to communities, which is why Sandvik in Zambia have opted to work together with the Zambian authorities to fight the ongoing pandemic.

Known for their ongoing community development and support, Sandvik is an active member of the Kitwe Community. Daniel Banister, Vice President Sales for Sandvik Mining and Rock Technology Central Africa says “Corporate Social Responsibility initiatives can be harsh when limited to legal requirements but when a company is truly committed to the community they operate in, and see the positive benefits thereof, they become an integral part of the community. Their role becomes vital and responsive to the needs of the people they serve. We believe that being active members in our community is our responsibility and our long term success is tied to the development of a healthy and thriving community.”

The world has been affected by the rapid spread of COVID-19 and the

challenges posed by the virus are unprecedented requiring extraordinary intervention from both the public and private sectors. Taking proactive steps in preparation for cases, Sandvik in Zambia has partnered with the Kitwe Major's office to raise awareness and establish an effective response to the pandemic.

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

In an effort to assist local authorities in raising awareness and educating the community about the pandemic, Sandvik has donated health care material and protective gear listed as requirements from the Mayor's office. These include disinfecting equipment such as Hudson and hand spraying pumps to assist in disinfecting local markets before traders commerce their day to day actives, vehicle radio systems to raise awareness in the local community, disinfectants, water tanks, white lab coats, gloves, mutton clothes, heavy duty gloves, mouth masks and gum boots.

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

# TRIUMPH THROUGH COVID-19

## - Fibreglass Grating

**W**e would like to take this opportunity in thanking Copperbelt Katanga Mining for thinking about us during the challenges we are all encountering in this COVID period. It is an honour for us to share our journey with you.

Fibreglass Grating is based in Gauteng, South Africa that supplies Grating and hand Railing and FRP Structures for numerous applications.

The marketplace has been impacted massively with a huge declining revenue and erosion of profit margins with the declining rand and other unplanned costs. This could spell disaster for a small business and its sustainability. We had no alternative but to respond quickly by cutting costs in the form of overheads and diversify our product range to expand our place in the market.

Cutting costs translated into reducing fixed overhead costs such as rental and salaries. This was extremely tough and sad for us as we were attached to all of our employees who are like family to us as well as leave our familiar surroundings that we had come so accustomed to. It was heart breaking when we were forced to retrench some of our permanent staff members and three temporary staff members.

Furthermore, we cut our out-sourcing by 90% by assuming all deliveries and marketing activities in-house.

It is with great pride that our staff members eagerly assumed new expanded roles and responsibilities.

Business transactions have not been BAU with extreme delays of containers in transit due to quarantining of crew and vessels and delays in quay and port landside operations amounting to additional unplanned costs and frustration and anxiety for employees and customers. Needless to say, many sleepless nights attempting to expedite deliveries for urgent materials. Fortunately, we were able to mitigate many unplanned costs through proactive and repetitive liaison and follow up with customers and transit companies.

Just when we thought we were making progress and able to withstand the blows, we were further hit by another blow namely massively volatile exchange rates and devaluing ZAR. Fortunately, this was buffered by obtaining some TERS relief funds from government.

Despite all these tumultuous busines times we

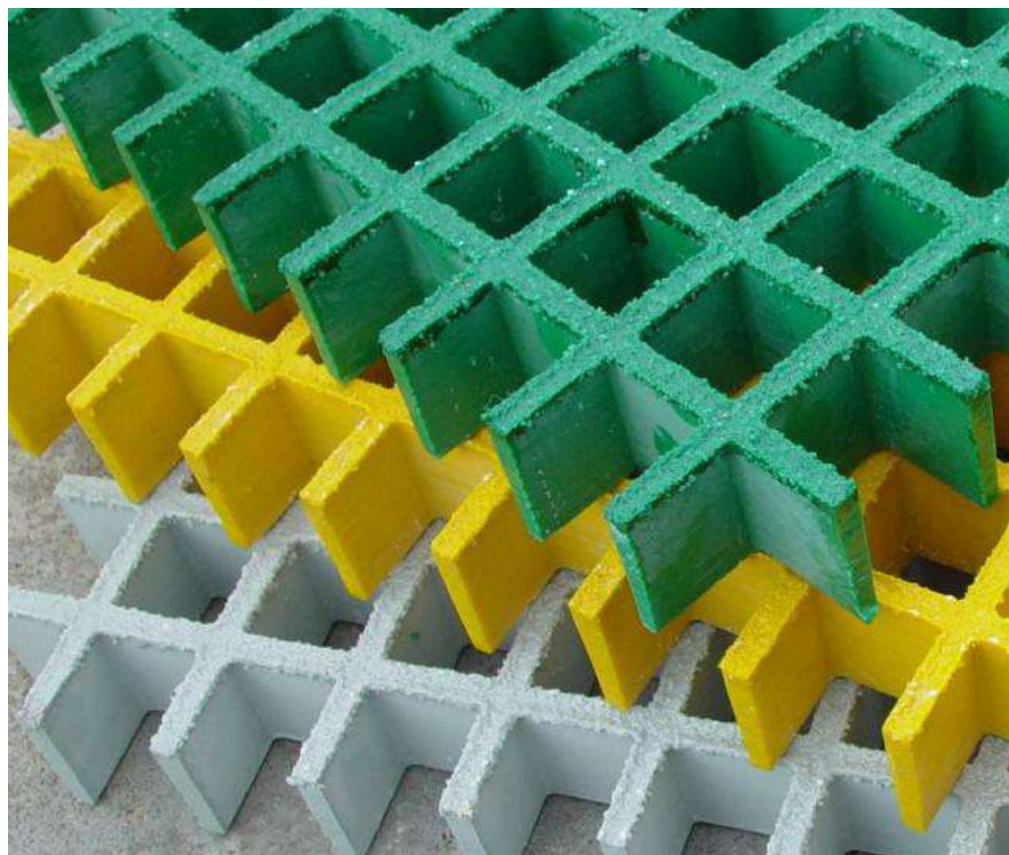
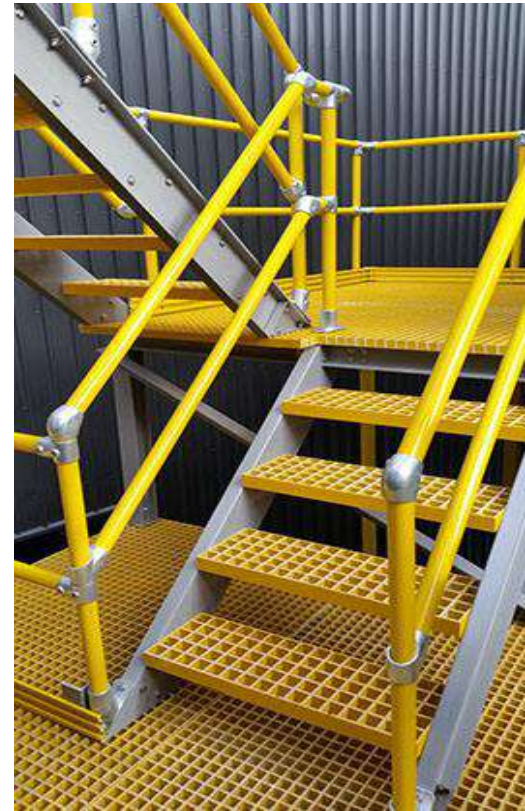
are living in, we are extremely excited and proud to launch an addition to our product range namely, Roof Sheeting. Keen interest has been shown in the early days within the marketplace and we are very excited about the potential and growth opportunities with this additional product.

Finally, we have solid business and financial plan for the remainder of this year and we are extremely grateful to our existing valued customers who continue to support us and their commitment to timely payments without which, we would be unable to weather this unfortunate economic storm. We look forward to continuous and long-term valued relationships with our existing and future customers.

We have created a mutually supportive atmosphere for our employees and customers that has kept our hopes and dreams alive. We trust that we will grow and become more resilient to whatever life deals us.

*"Success is not final; failure is not fatal: it is the courage to continue that counts."*

- Winston Churchill.



# SANDVIK LAUNCHES NEW RDX5 ROCK DRILL

**F**ollowing the virtual grand opening of its Rock Drill Innovation Centre, in Finland, Swedish mining gear and metal-cutting tools maker Sandvik launched its RDX5 rock drill on September 30.

The rock drill builds on the success of "the most dependable rock drill in the market", the HLX5, and continues to provide improved reliability, reduces operating costs and has "exceptional" productivity, says Sandvik.

The RDX5 comes with a substantially increased service interval and keeps a minimal amount of moving parts as the basic design principle, but also has new features like pressurised seams to increase durability.

The new RDX5 is completely interchangeable with the current HLX5 rock drills, meaning that there is no requirement for additional installation kits to any equipment that houses the HLX5 rock drill.

The RDX5 can also work in all equipment and applications currently working with the HLX5 and enhances the HLX5's qualities through improvements in design and materials.

Major functional groups are upgraded and redesigned to improve the reliability and service life, Sandvik business unit (BU) rock drills product line manager Jukka Siltanen and BU rock drills research and technology development manager Jukka Ahola said during the virtual Sandvik-hosted Innovation in Mining conference.

The company will also soon introduce a new XL rock drill for large-top hammer drilling, which will allow operators to expand the hole size. Mining contractors will also have the option to choose a version of the rock drill equipped for high-altitude operations.

This, Siltanen and Ahola said, would mean "excellent efficiency, less fuel consumption,

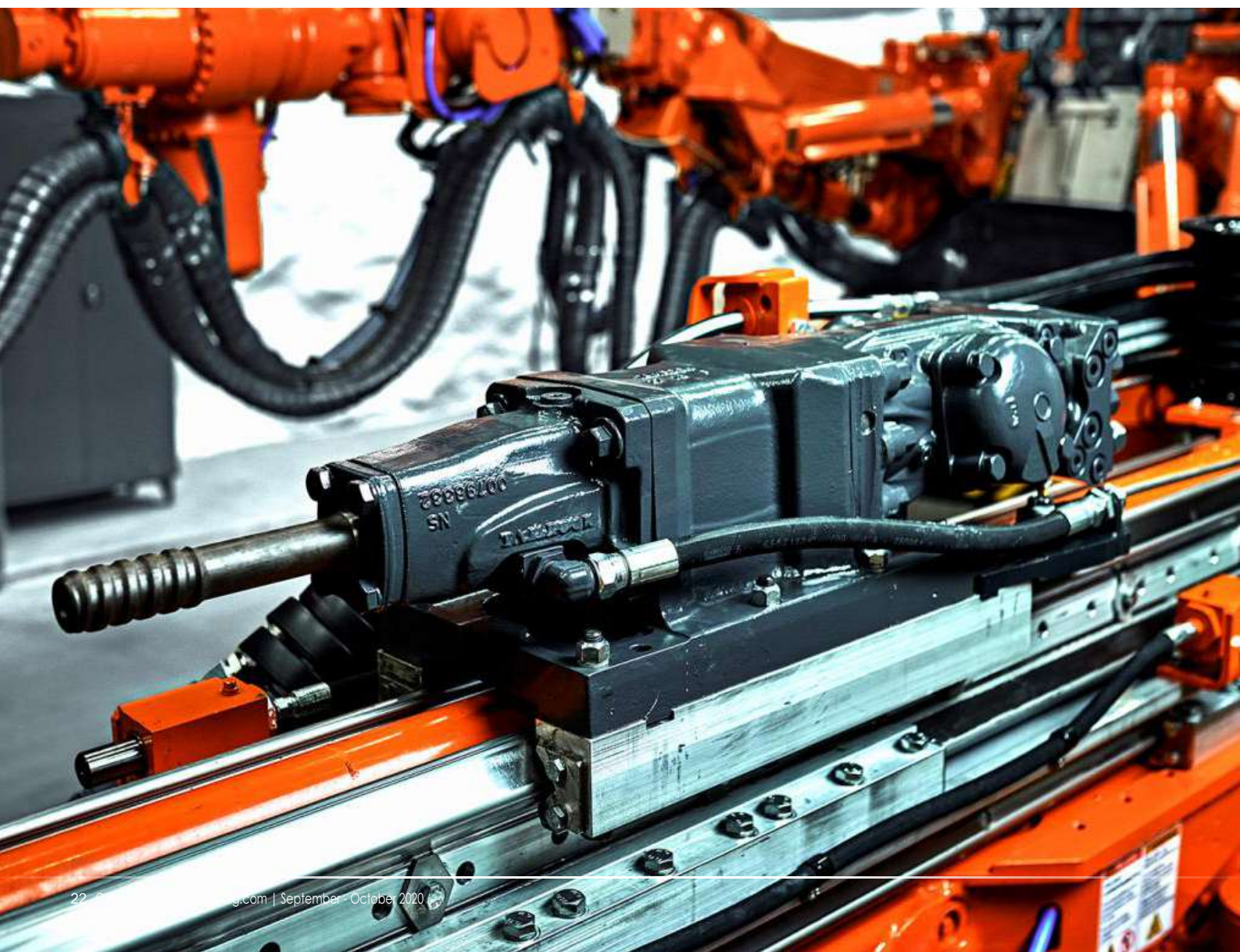
reducing costs and providing increased penetration in large drilling operations".

The new XL rock drill forms parts of an existing range of rock drill development, where Sandvik continues to implement continuous development, new re-models of drills, equipment and features, while simultaneously assisting with service and training.

This is made possible through Sandvik's Rock Drill Innovation Centre, which hosts a field tester laboratory that can "confirm the quality of the rock drill service provided by Sandvik".

The laboratory provides automated test reports, general condition data, as well as data on internal components.

The test laboratory is built into a purpose-built container, making it moveable and applicable for locations either indoor or outdoor.



# ARC MINERALS' SEASON 2 OF EXPLORATION RESUMES | ZAMBIA

**A**rc Minerals has resumed its second season of exploration activities at its Zamsort and Zaco licence areas in north-western Zambia.

Diamond drilling activities will resume over the Fwiji target, where the company already defined the target area through previous exploratory works.

Follow-up work at a number of the other target areas, including Cheyeza East and Muswema, is also underway.

Arc Minerals' Season 2 of Exploration Resumes | Zambia 1

The total diamond drilling programme for the year is budgeted for an initial 8 000 m, with hole depths to between 100 m and 250 m below surface.

Diamond drilling is initially intended to confirm the interpreted anticlinal structure and mineralisation associated with the hinge component to this anticline. This will then be followed to test the mineralisation in the down-plunge hinge component to the anticline.

The Fwiji target area has been confirmed by both the soil sampling and airborne geophysical programmes and the current interpretation for Fwiji postulates that the copper mineralization is hosted in the hinge of plunging south-westerly anticline.

Near-surface oxide mineralisation is expected to be intersected with the primary sulphide mineralisation down plunge.

## About Arc Minerals

Arc Minerals through its subsidiaries in Zambia has a controlling interest in several licenses in the North-Western province in Zambia located in the Domes region of the Zambian copperbelt near world-class mines such as First Quantum Minerals' Sentinel and

Kansanshi copper mines and Barrick's Lumwana mine. Zamsort Limited, where Arc has a 66% interest, has 407 km<sup>2</sup> of exploration ground under license, whilst Zaco Investments Limited, where Arc has 42.5% interest, has 465 km<sup>2</sup> of exploration ground under license. In total these licence areas cover 872 km<sup>2</sup> and include the advanced Kalaba copper-cobalt project.

Arc Minerals through its subsidiaries in Zambia has a controlling interest in several licenses in the North-Western province, located in the Domes region of the Zambian copperbelt near world-class mines such as First Quantum Minerals' Sentinel and Kansanshi copper mines and Barrick's Lumwana mine. The license areas are located approximately 900 km from Lusaka, in Mwinilunga, North Western Province, and is well within the trending arm of the major geological structure known as the Lufilian Arc (Copperbelt), on the western flank of the Kabompo Dome. The Copperbelt is home to all the major copper mines in Zambia and these licenses represent one of the last dome-related areas in Zambia yet to be explored in any detail.

Over the last thirteen years, three new major copper mines have been discovered and constructed to exploit the mineral resources in the new western part of the Zambian Copperbelt. This region now accounts for a substantial part of Zambian copper production and the Kalaba project and the surrounding ZamCo exploration licenses are in close proximity to large operations such as First Quantum Minerals' Sentinel and Kansanshi mines and Barrick Gold's Lumwana mine.

The Kalaba Development Project consists of two licences – a 4 km<sup>2</sup> Small-Scale Mining License ("SML") and immediately adjacent and to the west and north, a 4 km<sup>2</sup> Small-Scale Exploration License ("SEL"). The

ZamCo exploration licenses enclose these development licenses and covers a combined area of 864.50 km<sup>2</sup>. The licenses were previously explored by Equinox Minerals Limited ("Equinox") and Anglo American Prospecting Services ("AAPS") by way of the Zambezi Joint Venture ("JV") through AAPS's affiliate Zamanglo Prospecting Ltd ("Anglo American") during the late 1990s as part of the Kabompo Project.

The current ZamCo licenses encompass 9 of 30 exploration targets that were ranked in the late-90's by the JV over the Kabompo Project, which include the top seven ranked targets. First Quantum Minerals' Kalumbila property, better known as the Trident Project, developed to become the Sentinel copper mine and is forecast to produce approximately 220,000 tonnes of copper in 2018. Its Enterprise Nickel project, is, like Kalaba, also located at the flanks of the Kabompo dome and approximately 40 km to the east of ZamCo's licenses.

At the time of the JV, Kalumbila was originally ranked number 22 out of JV's top 30 Kabompo Project targets with an original exploration target size of six million tonnes of ore; eventually a copper Resource in excess of 1 billion tonnes of ore (one of the largest in Zambia) was demonstrated – during this same period the initial Anglo-American exploration target for Kalaba exploration target was 150 million tonnes of ore.

Previous limited exploration work at Kalaba has resulted in the delineation of a non-code compliant in-house copper-cobalt Resource estimate of 16.59Mt @ 0.94% Cu Eq. Arc Minerals has commenced with an exploration drilling campaign and firmly believes that the Kalaba Project and along with the exploration targets in the ZamCo Licenses offer significant potential for proving a major tier-one copper-cobalt discovery.

# GoviEx to appeal cancelled uranium license in Zambia

**C**anada's GoviEx Uranium Inc. (TSX-V: GXU) said on Wednesday it would appeal Zambia's decision to terminate its Chirundu mining license.

The company acquired the permit in late 2017 from African Energy Resources, and it included the Njame and Gwabe deposits. Both assets, GoviEx said, were subsequently included in the preliminary economic assessment (PEA) for the company's Mutanga uranium project.

Due to the smaller scale and higher cost nature of the two deposits, they were scheduled to be mined in the later stages of the PEA and were not included in the mine plan, GoviEx said.

The Vancouver-based uranium explorer said Njame and Gwabe's exclusion is expected to have low to no impact on the project economics.

GoviEx to appeal cancelled uranium license in Zambia 1

Revoked license included the Njame and Gwabe deposits, part of the Mutanga uranium project, pictured here. (Image courtesy of GoviEx Uranium.)

## UNFAIR DECISION

Since acquiring the Chirundu mining permit, GoviEx said it had "ensured all statutory reports and payments" were made. It also noted it had expanded its community and social responsibility programs to cover the villages within the Chirundu licenses, including the reconstruction of a school and the commencement of an adult education program.

"We are disappointed by the decision made by the Mining Cadastre with regards the Chirundu license and do not believe this decision is fair or in the interests of our Zambian stakeholders," chief executive Daniel Major said in the statement.

Under the Zambian Mines and Minerals Development Act of 2015, GoviEx has thirty days to

appeal the government's decision.

The news comes only a day after the miner highlighted significant gold anomalies identified near its Falea uranium-copper-silver project in Mali.

The find, the company said, shows the potential extensions of the Sirabaya West and the Sirabaya-Bambadinka gold trends through, and possibly intersecting within the Falea project.

## GOVIX PROVIDES ZAMBIA UPDATE ON CHIRUNDU LICENSE (PRESS RELEASE)

Vancouver, British Columbia—(Newsfile Corp. – July 7, 2020) – GoviEx Uranium Inc. (TSXV: GXU) (OTCQB: GVXXF) ("GoviEx" or "Company"), has received a letter from the Mining Cadastre Department of Zambia notifying the company that it has terminated the Chirundu Mining License (12634-HQ-LML). Under the Zambian Mines and Minerals Development Act of 2015, GoviEx is provided thirty days to appeal this decision, which the Company has every intention to do.

The Chirundu Mining License was acquired from African Energy Resources Ltd. in October 2017 and includes the Njame and Gwabe mineral deposits. These deposits were subsequently included in the technical report titled, "NI 43-101 Technical Report on a Preliminary Economic Assessment of the Mutanga Uranium Project in Zambia", dated November 30, 2017, prepared by SRK Consulting (UK) Limited for the Company (the "PEA"). The PEA reported a Net Present Value ("NPV") at long-term uranium price of US\$58/lb U3O8 and a 9% mining royalty rate, an after-tax NPV of US\$112 million (at 8% discount rate) with an internal rate of return (IRR) of 25%.

The PEA is preliminary in nature, it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and

there is no certainty that the PEA will be realized.

Due to the smaller scale and higher cost nature of the Gwabe and Njame deposits, they were scheduled to be mined in the later stages of the PEA. As a result, the exclusion of these deposits from the mine plan is believed to have a low to no impact on project economics.

Since acquiring the Chirundu Mining Permit, GoviEx has ensured all statutory reports and payments have been made, and, in addition, has expanded its Community and Social Responsibility programs to cover the villages within the Chirundu Mining Licenses, including the reconstruction of a school and the commencement of an adult education program.

"We are disappointed by the decision made by the Mining Cadastre with regards the Chirundu license and do not believe this decision is fair or in the interests of our Zambian stakeholders. We will appeal the decision within the allotted time frame and hope to rectify any misunderstandings we believe were included in making this decision. Zambia has indicated its strategy diversify its heavy weighting towards copper, and with Zambia considering nuclear energy long term and with the uranium price showing signs of recovery we will stress that the decision should be reconsidered," stated CEO Daniel Major.

## About GoviEx Uranium

*GoviEx is a mineral resource company focused on the exploration and development of uranium properties in Africa. GoviEx's principal objective is to become a significant uranium producer through the continued exploration and development of its flagship mine-permitted Madaouela Project in Niger, its mine-permitted Mutanga Project in Zambia, and its other uranium properties elsewhere in Africa.*





# Benefits tailor made by Ferrit

**F**errit is the Czech company, which is on the worldwide market, more than 27 years. During this period, we have installed more than 5 000 products worldwide. Among of our main territories belongs Russia, Poland and China, but we are targeting also to other continents like Africa, Australia etc.

Ferrit's portfolio covers all types of mining transport which is suspended monorail, railbound and wheel transport. To ensure the transport of people, material and ore, or coal in the conditions of ore mines and coal mines, with the risk of gas explosion, or in underground construction during the construction of tunnels or underground collectors.

The key factor for successful mine operation is transport of people and material. The most used transporting equipment around the world is wheeled and monorail transport.

All mining managers know, that it's not easy to keep the mine in operation all the time. Every mine during the

extension can have a problems. It can be problems with traffic density, number of transporting units, air pollution, noise and higher risk of injures in the mine. Then is logical that total operating costs is rising up!

Thanks to our know-how, and also our specialists and their innovative approach, we bring our customers new modern solutions and technologies that go hand in hand with high-quality processing of our products.

Ferrit have solution where we can bring our costumer savings around 1 mil. dollars per year. But how to reduce costs? How it can be possible? Because of transport systems and projects Made by Ferrit, where you can get Optimization of mining transport systems directly tailored made for you. Ask yourself for a main question, why to use 40 transporting units when 20 is enough?

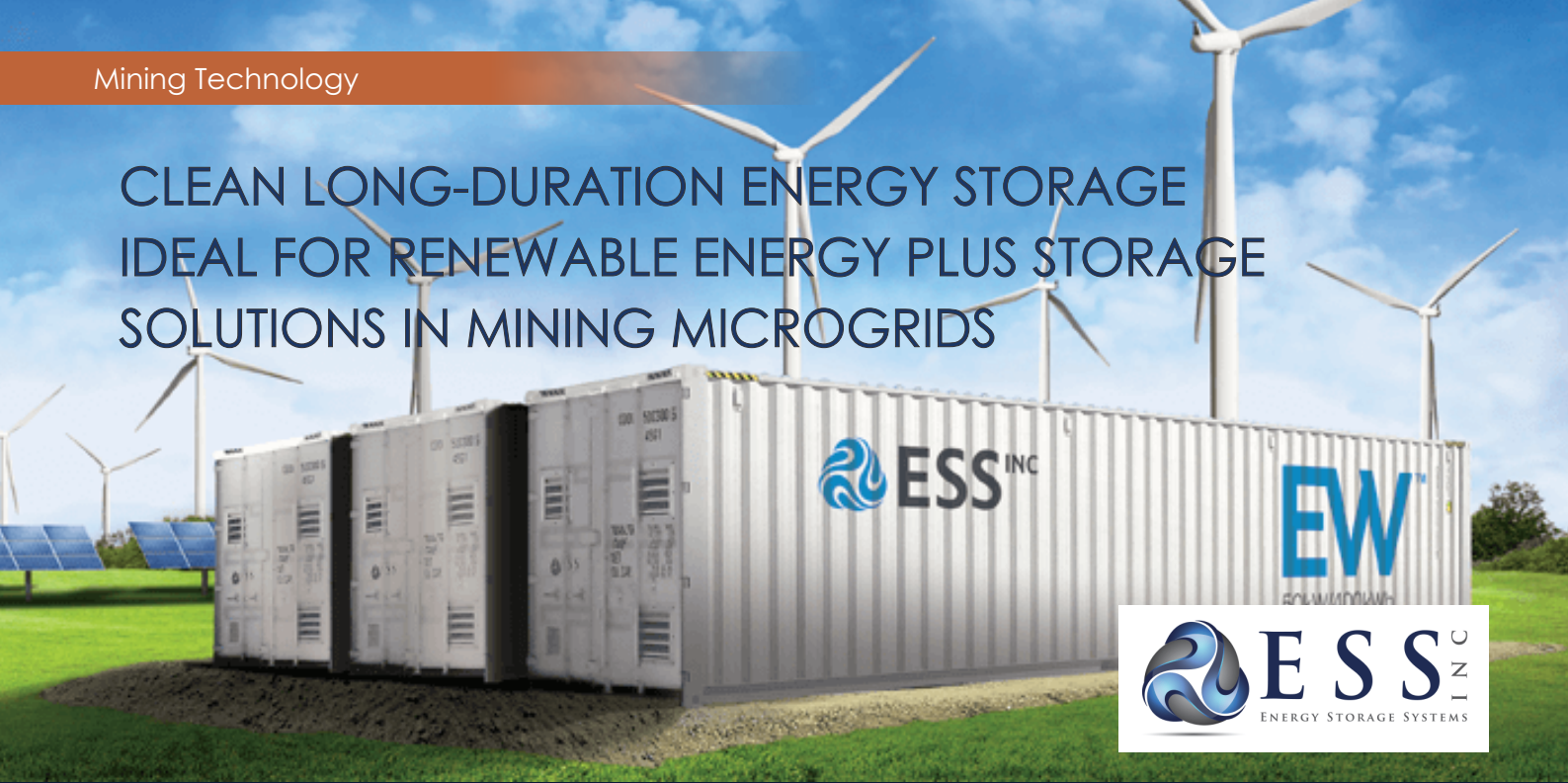
How, we are doing it? We will ask you, about first input data and based on it we prepare preliminary project and preliminary calculation of savings for

you. If is all ok and you are happy with it then we will visit your mine. After visit maybe we can ask you for some more questions and then we prepare final project with final savings. After all of it, the project starts to be alive.

As part of the solution of projects for the optimization of mining transport systems, we process projects that are always tailored to specific mining conditions and customer requirements. Thanks to the experience of our specialists, we bring our customers highly efficient transport systems that ensure fast and reliable supply of all mining sites, while we can minimize operating costs, increase work safety and ensure minimum mine air pollution.

So what you can get? Annual savings 1 or more mil dollars per year, more efficiency operation underground and also on surface, higher safety in the mine, innovative technologies and last but no least New transport system in your mine and satisfied miners. So, why don't try it?

# CLEAN LONG-DURATION ENERGY STORAGE IDEAL FOR RENEWABLE ENERGY PLUS STORAGE SOLUTIONS IN MINING MICROGRIDS



**R**eliable, cost-effective energy supply 24x7 is an essential resource for successful mining operations, whether grid-connected or off-grid. In Africa, reliability of utility-sourced electricity is becoming more and more of a challenge, while off-grid diesel generation and the cost and logistics of fuel supply is increasingly problematic. And in both scenarios, the CO2 footprint and increasing carbon tax needs to be considered. The mining industry is therefore exploring the option of solar energy to partially substitute energy from current sources; however, solar energy on its own cannot be utilised 24x7 in line with an optimal mining operation, and therefore is not complete without long-duration energy storage.

Clean Long-duration Energy Storage ideal for Renewable Energy Plus Storage Solutions in Mining Microgrids 1Africa Energy Storage Solutions (AESS) has a focus on clean energy storage solutions in Southern and East Africa. We believe that clean energy requires clean batteries.

Clean Long-duration Energy Storage ideal for Renewable Energy Plus Storage Solutions in Mining Microgrids 2

AESS represents ESSINC, manufacturers of the Iron Flow Battery, in this region and is primarily responsible for business development, while working with established EPC organisations with a track record in delivering large renewable energy projects at a national and international level. AESS has also developed a methodology to optimally size the combined solar, wind, battery and backup-generator mix of components in hybrid energy systems.

In this role, AESS has been instrumental in both the selection of the ESSINC Iron Flow Battery as the storage technology of choice by a Southern Africa energy company working in SADC regions, and the first concept design of a 10MW/40MWh battery for delivering solar power 24x7 at various

locations. Currently AESS is involved in the exploration of several off-grid mining applications from 10MW to 80MW with very large MWh energy capacities.

Clean Long-duration Energy Storage ideal for Renewable Energy Plus Storage Solutions in Mining Microgrids 3ESSINC is an established flow battery manufacturing company based in the USA, and has commercialised the ESSINC Iron Flow Battery in 2015. There are two product configurations using the same Iron Flow Redox electrolyte and power modules:

Energy Warehouse, a containerised turn-key solution, providing 50, 75 or 100kW ratings and 400kWh storage capacity. These may be stacked to several MW/MWh capacity.

Clean Long-duration Energy Storage ideal for Renewable Energy Plus Storage Solutions in Mining Microgrids 4Energy Centre, a "battery in a building" concept for multiple MW/MWh applications, using the exact same technology as the Energy Warehouse, but configured in multiple skid configurations according to requirements up to 100MW and more. This concept allows for the independent specification of power output (MW) and energy capacity (MWh), utilising the ability of flow battery technology to determine the energy capacity by the size of the electrolyte tank.

A summary of the features and benefits, according to ESSINC, are:

**Unlimited Cycling** – The ESSINC Iron Flow Battery can be fully cycled continuously without limitation, as validated by extensive DOE ARPA-E testing.

**Zero Degradation** – Iron Flow batteries do not degrade with use and do not require "augmentation", even when cycled continuously.

**Wide Range of Operating Temperatures** – Iron Flow batteries run without need for air conditioning or supplemental heating in ambient temperatures from -5C to 50C.

**Lowest Cost of Service** – Iron Flow batteries have the lowest overall cost of service for long duration or multi-cycling requirements, especially so in "workhorse", heavy use applications.

**Long Life Asset** – The ESSINC containerized storage system has a design life of 25 years. We conducted advanced cycle testing for the U.S. Department of Energy simulating over 4 decades of use with no degradation in performance. ESSINC have yet to see any performance degradation at any level and have had no product failures since introducing our first commercial units in 2015.

**No hazardous Materials** – Iron Flow batteries use no hazardous materials, which means no hazmat training, no hazmat suits, no hazardous chemicals disposal plan, and easy permitting. It also makes it easy to localize routine maintenance. The ESSINC Iron flow Battery offers the safest operation as it contains no toxic elements and carries no risk of fire and explosives, while the electrolyte is non-corrosive, using only iron, potassium chloride and water.

**Export–Import Credit Finance Instruments** – United States Ex-Im Bank financing is available for up to 85% of the project cost for qualifying customers to purchase our energy storage platforms. Coupled with our industry-first performance and business continuity coverage backed by Munich Re, our products are now among the world's most bankable energy storage platforms.

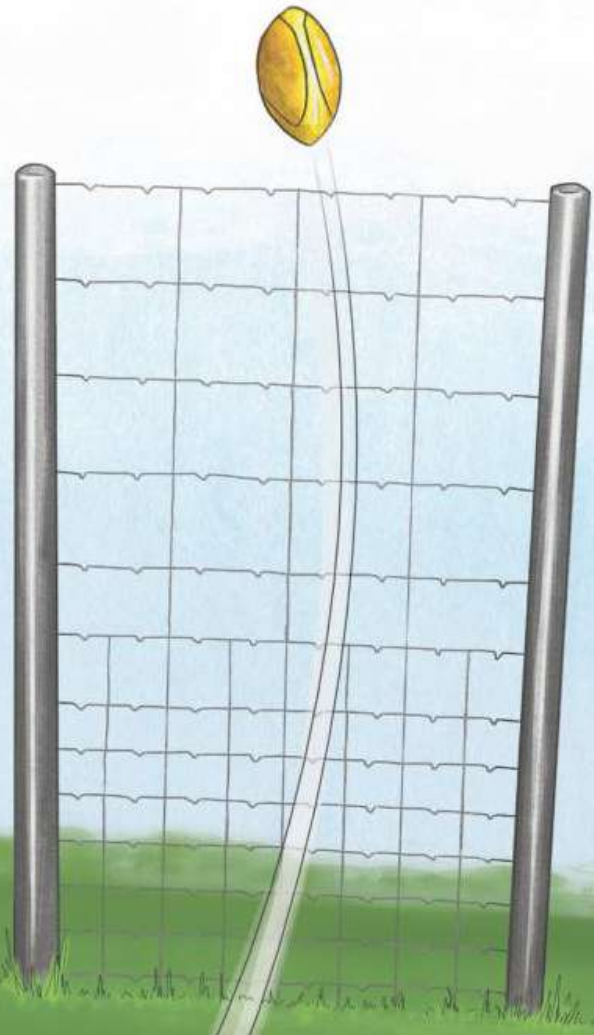
Clean Long-duration Energy Storage ideal for Renewable Energy Plus Storage Solutions in Mining Microgrids 5

More information may be found at [www.essinc.com](http://www.essinc.com), and by contacting **Chris Joubert** at +27 (0)82 883 2240 or [chris@afrienergystorage.net](mailto:chris@afrienergystorage.net)





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