

## Enterprise Nickel Mine is edging closer to completion, and becoming a global top-10 nickel mine

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### ZAMBIA'S MINES MINISTER WARNS MINES OPERATING WITHOUT LICENCES

Mines and Minerals Development Minister, PAUL KABUSWE says mining firms operating without an Environmental Impact Assessment are operating illegally.

Mr. KABUSWE says no mining licence is issued without a valid Environmental Impact Assessment.

In a telephone interview with ZANIS, Mr. KABUSWE disclosed that his Ministry will upon completion of the audit come up with a structure that will help curb such practices in the future.

Last week Minister of Green Economy and Environment, COLLINS NZOVU ordered the Zambia Environmental Management Agency to take action against mining companies operating without conducting Environmental Impact Assessments.

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## The DRC mining industry produced 572,983 tonnes of copper from January to March 2022

The mining industry in the Democratic Republic of the Congo produced 572,983 tonnes of copper between January and March 2022 compared to 379,755 tonnes of copper in the same period in 2021, an increase in production of 193,228 tonnes, according to Bank data. central Congo in its compendium of statistical information.

During the first three months of this year, Gécamines produced 805 tons of copper, less than 1% (or more exactly 0.14%) of the production volume of the Congolese mining industry.

Recall that for the whole of 2021, the Democratic Republic of the Congo produced 1 million 797,836 tonnes of copper.



## Faced with the reduction in production at the Inga site, SNEL announces a cyclic service program- DRC

The National Electricity Company SNEL SA, has announced the establishment of a cyclic service program to cope with the reduction in the production of electricity from the Inga site.

In a press release dated July 27, 2022, the Kinshasa Distribution Department indicates that this drop in production at the Inga site is due to the drop in the water level at the intake channel due to the severe low water level, experienced by the Congo River.

" To best serve customers with the energy available, a cyclic service program will apply from Thursday July 28, 2022 at 10 p.m. until the situation improves. », Informs this press release from SNEL.

Interruptions in the supply of electrical energy, indicates the same press release, will be observed in almost all the districts of the city of Kinshasa.







## Copperbelt Minister tours Kagem

**L**UFWANYAMA, ZAMBIA – The Copperbelt Province Minister Hon. Elisha Matambo undertook a familiarisation tour of Kagem Mine in Lufwanyama District recently.

The minister, who was accompanied by the Copperbelt Province Permanent Secretary Augustine Kasongo and other officials, was impressed with Gemfields' investment in the emerald mine and applauded its management's professionalism.

Meanwhile, Kagem Mine General Manager Mr. Sanjeev Kumar noted that the mine's CSR expenditure had made a significant difference to the lives of people in the communities around the mine. He added that the company also plans to build a Vocational Training Centre within Lufwanyama District to help local youths acquire skills that would increase their employability not only at the mine but with other companies as well.



## DRC: Diamond export generated USD 140 million in sales revenue in 2021

**T**he Democratic Republic of Congo exported in 2021 a global volume of 12 million 685,779.42 carats of diamonds for a value of 140.259 million US dollars, according to statistics from the Ministry of Mines.

Of this export volume in 2021, there were 10,028,407.54 carats of diamonds from the artisanal sector for a value of 88 million US dollars against 2,150,126.41 carats coming from the industrial sector for a value of 42.112 million US dollars.



## 2.8 million carats of diamond produced in the 1st quarter of 2022

**T**he Democratic Republic of Congo produced 2 million 890,000 carats of diamonds in the first quarter of 2022 compared to 2 million 984,000 carats of diamonds in the same period in 2021, according to data from the Central Bank of Congo (BCC) in its summary of statistical information. from June 2022.

Of this volume produced, there are 1 million 235,000 carats of industrial diamonds and 1 million 655,000 carats of artisanal diamonds.

In 2021, annual diamond production in the Democratic Republic of the Congo was estimated at 13 million 222,000 carats of diamonds, including 7 million 51,000 carats of industrial diamonds and 6 million 170,000 carats of artisanal diamonds.



## In the second quarter of 2022, TFM produced 62,952 tonnes of copper cathodes and 5,357 tonnes of cobalt metal-DRC

**T**enke Fungurume Mining produced, during the second quarter of 2022, approximately 62,952 tons of copper cathodes and 5,357 tons of cobalt metal.

The mining company based in the Democratic Republic of Congo (DRC) has indeed paid a net amount of approximately 365.55 million US dollars (USD) in taxes and other related payments to the Treasury and other services. administrative authorities of the Democratic Republic of Congo (DRC) in the first half of 2022.

During the same period, TFM also funded visible impact community projects amounting to US\$15.56 million.

Since the start of production in 2006, Tenke Fungurume Mining has disbursed US\$252.07 million in direct community investment.

Below is the illustrative table of these data.



# Alphamin achieves record quarterly output, declares dividend

**T**SX-V- and AltX-listed Alphamin Resources achieved record quarterly tin production of 3 180 t from its high-grade operation in the Democratic Republic of Congo (DRC) for the three months ended June 30.

Output was 4% higher than that produced in the quarter ended March 31.

Underground mining and processing plant recoveries were in line with expectations.

Further, year-to-date contained tin production of 6 241 t exceeded the run-rate to achieve market guidance of 12 000 t for the full-year.

Meanwhile, second-quarter earnings before interest, taxes, depreciation and amortisation are estimated at \$66.5-million.

All-in sustaining costs per tonne of tin sold are expected to decrease by 6% to \$14 800 following a 4% increase in production and the

impact of lower tin prices on off-mine costs related to product marketing fees, royalties, export duties and smelter payables.

Alphamin's consolidated net cash position increased by \$8.3-million during the June quarter to \$138.1-million.

An interim dividend of C\$0.03 a share has been declared.

## STRATEGIC REVIEW UPDATE

On November 9, 2021, Alphamin announced the initiation of a strategic review to explore alternatives such as fast-tracking the company's expansion and life-of-mine extension potential, balance sheet restructuring including revenue prepayments and streaming, shareholder distributions or a corporate merger or sale transaction.

Exploration drilling doubled from the fourth quarter of 2021 to a quarterly average of over 12 000 m and delivered an additional 124 700 t

contained tin in inferred resource and 21 400 t contained tin in indicated resource at Mpama South.

In addition, multiple high-grade tin intercepts were reported from drilling at depth at Mpama North.

Mine development of the adjacent Mpama South deposit has started, which is expected to increase contained tin production from the current 12 000 t/y to about 20 000 t/y by the 2024 financial year.

The company is of the opinion that global tin supply is likely to remain constrained for at least the next five years, while demand for tin is expected to increase.

In addition to the development of Mpama South, its vision is to discover more tin deposits on its licence areas with a view to deliver additional mine developments and incrementally increase tin supply into an expected widening market deficit.



# First Quantum keeps cost guidance unchanged despite inflationary pressures

**U**nlike many of its peers, Canada-based miner First Quantum has opted to keep its cost guidance for 2022 unchanged, despite inflationary pressures and lower output from its mines in Zambia.

The company continues to guide cash costs of C\$1.45/lb to C\$1.60/lb for the full year, despite second-quarter cash costs exceeding the upper limit of the yearly guidance.

During the June quarter, First Quantum reported a \$0.13/lb quarter-on-quarter increase in C1 cash costs to \$1.74/lb, as inflation drove up the prices for consumables, including explosives, fuel and steel, and freight charges climbed.

C1 cash costs were also impacted by lower

production in Zambia, where output from the Kansanshi and Sentinel mines continued to be affected by lower grades.

Overall, however, First Quantum's production increased by 6% quarter-on-quarter to 192 668 t, which the miner attributed to record performances at Cobre Panama.

The total copper production guidance of 790 000 t to 855 000 t and total gold production guidance of 285 000 oz to 310 000 oz remains unchanged. Kansanshi and Sentinel are tracking towards the lower end of their respective guidance ranges.

Second-quarter sales volumes were about 5 000 t lower than in the preceding quarter at 187 642 t, owing to global logistical challenges and flooding in parts of South Africa that affected the Port of Durban.

"While the restrictions from the global pandemic have largely eased, the macro environment has become more challenging due to a combination of continued high inflation and the emerging global economic slowdown," commented CEO Tristan Pascall, adding that the group's focus in these uncertain times would be on driving consistent operational performance, successful execution of its brownfield projects and capital investment discipline.

"It is the determination and commitment of our workforce that has enabled us to surmount the unprecedented obstacles that we have faced in recent years, meaning that we can tackle these new challenges with confidence. I thank the team for their continued commitment and efforts."



# ZESCO, CEC ink 13 year new Bulk Supply Agreement

ZESCO Limited is pleased to announce the successful signing of a 13 year Bulk Supply Agreement with the Copperbelt Energy Corporation (CEC) effective 1st April 2022. This Agreement was signed two years after the expiry of the Bulk Supply Agreement between the two institutions that had been in existence from 21st November 1997 to 31st March 2020. The expiry of the old Bulk Supply Agreement was preceded by unsuccessful attempts to negotiate a successor agreement which was followed by a two-year period of trade on disputed terms between the two parties.

In recognition of the unsustainable nature of the relationship, the two parties resumed negotiations in January 2022 with a view of having an agreement in place effective 1st April 2022.

I would like to assure the general public that the newly signed Bulk Supply Agreement between ZESCO and CEC will enable the two parties to transact in a fairer manner.

Some of the major items that have been addressed in the new Bulk Supply Agreement are as follows;

The Tenure of the agreement has been set at 13 years. This term is a delicate balance between having an adequate period of time to cover long term investments and giving the two parties the flexibility to get back to the table and iron out any matters that may arise; within a reasonable period.

The just signed Bulk Supply Agreement contains newly agreed and more cost reflective Energy and Demand charges payable by CEC for its power purchases from ZESCO, and reciprocal tariffs for Transmission Use of the System, Domestic Wheeling and International Wheeling.

In addition, the Bulk Supply Agreement allows and contains clear terms of supply for either party to supply power to customers within the country across each other's networks. The agreement also allows either party to develop power generation, transmission, distribution and supply

infrastructure, in any part of the country. Therefore, this does away with the territorial exclusivity clauses that existed in the previous agreement, and opens up the Zambian Electricity Sector Industry to competition, as envisioned by the ongoing reforms in the energy sector such as the development of the open access framework.

The allowable power and outage hours for both parties were adjusted to 120hrs over five years from 144hrs and 180hrs for ZESCO and CEC respectively. This reflects increasing operating efficiency by both parties. The supply limit in the Bulk Supply Agreement was also adjusted, to reflect CEC's expected level of consumption.

Unlike the old Bulk Supply Agreement, the new agreement contains tariff adjustment provisions that can be used by the two parties to adjust the tariff if necessary, during the term of the agreement. These provisions are in addition to the annual indexation of the tariffs that adjusts them for inflationary effects. Further, this Bulk Supply Agreement also demands the setting up of payment security by the two parties in order to reduce the risk of non-payment for the services rendered.

From the foregoing, it can be appreciated that the two parties have put a lot of work into the new Bulk Supply Agreement in order to remedy the pain points they faced in the previous agreement. The parties have also recognized that no agreement is perfect and that any adjustments necessary to better the agreement, need to be done in an amicable and timely manner.

As ZESCO, we are aware of the public interest in our relationship with CEC and are grateful for the support from Government and the general public during the renegotiation process.

We gladly look forward to a mutually beneficial relationship between the two parties.

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# Enterprise Nickel Mine is edging closer to completion, and becoming a global top-10 nickel mine

**T**he 8 May 2022 announcement that Enterprise Nickel Mine would be brought online within 12 months after a final \$100 million cash injection from First Quantum Minerals (FQM) was met with much fanfare, during a buoyant week for Zambia at the Investing in African Mining Indaba. Mining For Zambia takes a look at the progress that has been made in the weeks following the news, and the impact that a large-scale nickel mining operation will have on North-Western Province and Zambia as a whole.

\*\*\*

Fifteen kilometres from First Quantum Minerals' (FQM's) Sentinel Mine, within the Trident mining complex, lies the mining pit from where 35,000 annual tonnes of the nickel concentrate of Zambia's future will soon be produced. The open pits at Sentinel copper mine and Enterprise are joined by an unsurfaced road which was laid back in 2015 when Sentinel was built. "The idea is that we will mine nickel ore using the ore ROM pad at Enterprise itself, re-handle it, and then truck it across to Sentinel to be processed," explains Junior Keyser, General Manager of the soon-to-be operational mine.

Building the two mines within close reach of one another – and jointly constructing two processing plants for each of the two minerals that will be mined – has been key to FQM's goal of running a productive nickel mine since the Trident Project was first conceived. By 2015, the construction of the \$2.1-billion Sentinel copper mine had been completed and an additional \$200 million investment made into Kalumbila, the town that now serves the Trident mining complex and the flourishing community that has sprung up around it.

But falling nickel prices from 2015 onwards, coupled with Zambia's unfavourable mining regime in recent years, halted the prospect of raising the additional investment required to bring Enterprise online, and the completion of Sentinel went ahead without that of its nickel-mining counterpart.

"Back in 2015, we started waste stripping at Enterprise but we never got to the nickel," explains Mr Keyser. "Because of the low nickel price at the time, we put the bulk of the process plant on care and maintenance." Care and maintenance is the term used to describe the situation where one or more aspects of a mining operation are decommissioned, and only essential work to prevent damage to equipment and infrastructure is undertaken. Because the Enterprise plant adjoins Sentinel's own plant, some parts of the former were used to assist in processing a small amount of copper but, for the time being, that was all that it was good for.

"Now the big drive is to finish off the plant's

construction to get it commissioned this year," says Keyser.

Day-to-day at Enterprise

Waste stripping is the task of the day – and it's a task of mammoth proportions. Essentially, millions of tonnes of near-surface level rock (regarded as "waste material") needs to be dug up and transported elsewhere before any of the nickel ore in the pit becomes accessible. "The bulk of the activity at Enterprise is waste stripping – meaning that we move a lot of waste material to get to the production stage. Enterprise is a deposit with a fairly high strip ratio," says Mr Keyser.

'Strip ratio' refers to the proportion of waste material that must be moved for every tonne of nickel ore that can be produced. "Over the life of mine we're talking about something like a 12:1 strip ratio. That's twelve parts waste to one part nickel ore."

If it weren't for the fact that the nickel deposits at Enterprise are of a relatively high (about 0.9%) nickel grade, it wouldn't justify the cost of all the waste mining. What is the lion's share of the \$100 million investment in Enterprise being spent on? Paying contractors to mine waste material, as part of the stripping process.

There is a silver lining to the Enterprise deposit's high strip ratio. Unlike the material that surrounds Sentinel, Enterprise's waste rock is very "competent," explains Mr Keyser. "It can actually be used to build proper haul roads to give our operators a stable mining environment to work in, because of the integrity of the host rock that is being mined."

All roads lead to Sentinel

"We're about 25% done with the pre-stripping," says Mr Keyser. "Once we start mining nickel ore, we will then transport it on a haul road to Sentinel for processing."

But first things first: a haul road. "We've got a rough road which was built as part of the original Enterprise project, and now we need to surface that so we can haul [ore and waste rock] through the wet season and dry season without causing too much dust or mud," says Mr Keyser. "Building a haul road between Sentinel and Enterprise for transportation of the ore is one of the big ticket items, and that is progressing well. It's about 10% complete, and we aim to have it done by Christmas 2022."

"Building a haul road between Sentinel and Enterprise for transportation of the ore is one of the big ticket items, and that is progressing well."

Jobs on the horizon

Once fully operational, Enterprise will create approximately 700 new jobs, and recruitment is well underway. Some low key infrastructure such as diesel tanks and a couple of offices is also still needed at the mine itself.

"We want to have the processing plant recommissioned by around Christmas time so that we can get into a stable [production] ramp-up from February 2023 onwards. We're aiming to mine the first ore in the first half of next year. We're in line with, or slightly ahead of schedule," says Mr Keyser.

In the meantime, it is hoped that His Excellency President Hichilema will attend Enterprise's formal 'ground breaking' ceremony, scheduled to take place towards the end of July 2022.

The dawn of large-scale minerals diversification

The mine is set up to produce in the region of four million tonnes of nickel ore per annum, with the process plant yielding a peak of 35,000 tonnes of nickel concentrate from around 2025. Classified as a critical mineral, nickel has strategic importance in fuelling the economy of the future, in particular as a key battery metal. Enterprise's high-grade nickel sulphide deposits provide precisely the type of nickel that is required to manufacture batteries for Electric Vehicles (EVs). Even as technology for EVs has advanced, nickel has come along for the ride, and most Lithium-ion (Li-ion) batteries today – which are powerful enough to propel any EV – rely on nickel, too. The EV battery sector's demand for high-grade nickel is only picking up speed, with supply deficits that may now become reality even sooner than forecasted.

The Zambian operation will join the world's top-10 nickel mines, making the country Africa's leading nickel producer."

But Enterprise Nickel Mine represents much more than a major foray into a new, untapped mineral. It is a bold step toward mineral diversification in an environment where copper is, and has always been, king. The opening of Enterprise will signal the beginning of the end of Zambia's economic dependence upon the copper mining industry, a goal on which the New Dawn Government has placed great emphasis.

It also means that the Zambian operation will join the world's top-10 nickel mines, making the country Africa's leading nickel producer.

With the sufficient capital and foresight that has characterised the development of Kalumbila, we can expect to see more and more private investment into independent businesses that will ultimately sustain the town beyond the life of the mines for which it was developed. The Multi Facility Economic Zone (MFEZ) which Government has envisaged within Kalumbila will be a critical step towards the fulfilment of the ambitious concept that first inspired Kalumbila Town. It will allow for the development of local supply chains near both Enterprise and the growing Sentinel copper mine.

"We are full steam ahead," says Mr Keyser. And one thing is certain: this drive toward Zambia's next chapter could not come at a better time.



# 'Kibali's over \$4 billion investment has created a thriving regional economy' - Mark Bristow

**W**ith its investment valued at over US\$4 billion, the Kibali mine has created a thriving regional economy. This, through partnerships with local entrepreneurs benefiting from a framework.

These statistics were revealed by Mark Bristow, President and CEO of Barrick, during the 45th press conference held this Tuesday, July 5, 2022 in Kinshasa.

According to Mark Bristow, before the arrival of Kibali in Haut-Uélé, life was dear to Doko but since the installation of this mine in the corners, things have changed.

"A road was built when it was impassable. There was also the construction of stadiums, schools. In short, the money circulates in the city whereas in the past, everything went outside (Entebbe in Uganda). Today, the money stays in the region with the contractors who work with Kibali who employ the locals. A large boulevard was even built because of the economic activities that take place in this region.", he said.

During this press conference, the Chairman and CEO of Barrick also discussed the production of the mine in the second quarter of 2022.

"The mine's reserves have also increased replacing the quantities mined over the past three years and ongoing conversion drilling is expected to continue this trend, despite producing more than 5.7 Moz of gold to date. Ongoing exploration



offers new growth opportunities with the potential to expand the mineral resource base beyond the initial feasibility study.", he explained.

On the same occasion, Mark Bristow returned to the place of women in the Kibali mine.

"Today, Barrick is also promoting the employment of women in the traditionally male-dominated mining industry through targeted recruitment campaigns and development programs designed to prepare them for rewarding careers in all levels

of the organization.", he said.

The 45th Kibali press conference was an opportunity for the mining company Barrick to award scholarships to two students from the University of Kinshasa in the Faculty of Geology. Two Non-Governmental Organizations (NGOs) also benefited from donations: a check (the amount of which was not revealed to the press) was given to these charities and support associations for the poorest. An action that falls within the framework of the Association "Our lives in sharing".



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# Zambia is considering reversing the purchase of 90% stake in Mopani by ZCCM-IH

**T**he Zambian government is considering reversing the Glencore – Mopani deal. The Zambian Mines Minister Hon. Paul Kabuswe said in a statement, that the deal's contract does not seem to favor Zambian interests at all. This is made worse by the fact that this deal was made at a time close to Glencore's recently revealed corruption scandals.

Last year ZCCM-IH got overwhelming support from its shareholders for its acquisition of a 90% stake in Mopani Copper Mines (MCM). Glencore agreed to sell its majority stake in Mopani to ZCCM-IH in a \$1.5 billion deal, the miner and trader said in January 2021.

ZCCM-IH reported in a statement that the extraordinary general meeting vote on the resolution was the last condition towards the completion of the transaction and ZCCM-IH now holds 100% ownership of Mopani Copper Mines. The deal was funded by borrowings from Carlisa Investments Corp – a British Virgin Islands-based company through which Glencore held the 90% stake in Mopani.

Last month the minority shareholders of ZCCM-IH called for investigations into the purchase of the 90% shares of Mopani Copper Mines (MCM) by ZCCM – Investments Holding from Carlisa Investment exorbitantly valued at \$1.5 billion last year.

The minority shareholders of ZCCM-IH wrote to the Chairperson of the Anti-Corruption Commission Board Musa Mwenye and Director General Gilbert Phiri over their proposed investigations into the transaction.

The group further wrote to Attorney General Mulilo Kabesha asking his office to review the detailed sale agreement.

Spokesperson of minority shareholders of ZCCM-IH Thierry Charles said buying Mopani at \$1.5 billion in 2021 was too exorbitant.

"The Mopani \$1.5 billion deal must be investigated in the light of the above-mentioned elements which we question, we ask Chairperson of the Anti Corruption Commission Board Musa Mwenye, Director General Gilbert Phiri and Attorney General Mulilo Kabesha to launch investigations regarding the conditions under which the contract for the purchase of

shares in MCM was negotiated and drafted: to look for any undisclosed adverse clauses that explain the inconsistencies in the figures and to question all those who negotiated the exorbitant \$1.5 billion deal," Charles wrote.

"Contrary to the false claims of former Vice-President Inonge Wina, the acquisition of the 90% stake in MCM was not the best deal of the year but rather appears to be the worst ZCCM-IH deal of all time. We are well aware that other ongoing ACC investigations to track down the looters of the clique are very busy. However, the sums involved in Mopani are colossal, not only for the purchase but also for the financial consequences of the deficits, and therefore deserve a strong mobilisation of ACC and AG services to investigate this deal which seems to us to be leonine," Mr. Charles stated.

He continued: "The Mopani \$1.5 billion deal must be investigated. In a letter dated 6 June 2022 to Chairperson of the Anti-Corruption Commission Board Musa Mwenye and Director General Gilbert Phiri, our shareholder group wished to express our questions and concerns regarding the purchase of the 90% shares of Mopani Copper Mines (MCM) by ZCCM – Investments Holding from Carlisa Investment Corporation. In a letter dated 8 June 2022 we also asked Attorney General Mulilo Kabesha to review the detailed sale agreement. 1. Background On 31 March 2021, ZCCM-IH acquired 90% of the shares in Mopani Copper Mines (MCM) from Carlisa Investment Corporation, owned by Glencore and First Quantum Minerals, following approval by ZCCM-IH shareholders at an Extraordinary General Meeting. The amount negotiated was \$1.5 billion to be repaid annually over a period of 10 to 17 years."

Mr. Charles expressed the misgivings of minority shareholders of ZCCM-IH in the deal.

"An appalling sale price Carlisa intended to put MCM into care and maintenance, so the \$1.5 billion price for a company that had been making losses for many, many years was totally unjustified. The minority shareholders were in favour of ZCCM-IH finally becoming a full-fledged mining operator, and the takeover of Mopani seemed a good opportunity given the

figures and information presented in the Circular to Shareholders issued on 9 March 2021. Opaque sales contract The detailed sale agreement was not disclosed to the minority Shareholders of ZCCM-IH, but we were given information in the Circular to shareholders. MCM's copper production would be sold to Glencore at LME prices. Catastrophic and inconsistent figures. Visibly biased data and arguments put forward in the Circular to shareholders it was stated: Assuming current copper prices are maintained, it is forecast that the company will generate sufficient cash inflows to finance capital expenditure internally," he said.

"The average expected Copper price average was US\$ 7,000 yet, when copper prices are around US\$ 9,500, the Management of ZCCM-IH indicated that the company is currently not generating free cash flows owing to the fact that the company requires capital investments in order to increase productivity during the Virtual Shareholder Open day on 27 April 2022. There have even been Press reports about MCM's inability to pay suppliers on time, while the largest repayments to Carlisa have not even begun. Inconsistency of figures while copper production is in line with or above expectations and copper prices are very high, EBITDA is completely at odds with the figures presented in the Circular. The problem is not technical, copper production is indeed satisfactory."

"The problem is elsewhere and the detailed contract seems to be the cause. Questionable verification of the sale contract by former Attorney General Likando Kalaluka Like any contract involving a parastatal company, the contract for the sale of the 90% stake in MCM had to be supervised by the Attorney General for compliance and to ensure that the interests of the Zambian people were safeguarded. However, former Attorney General Likando Kalaluka validated an illegal deal between Milingo Lungu and ZCCM-IH for the suspicious bonding of a loan to KCM just before the 2021 presidential elections. Likando Kalaluka's competence and seriousness therefore raise questions about the quality of the audit and the legality of the contract signed with Carlisa in early 2021."



# FQM's Enterprise Nickel Mine to provide transparent supplier opportunities for goods and services

Following the commissioning of the Enterprise Nickel Mine which will position Zambia among the top 10 producers of nickel in the world, and the number one producer of the metal on the continent, FQM Trident Ltd will employ 700 direct employees and provide supplier opportunities for goods and services to be undertaken through transparent contract offers.

FQM Trident Ltd has since identified one such project which is to construct a bridge along the main road leading to the Enterprise Nickel Mine. The bridge is meant to protect pipes that have already been laid along the road from damage by vehicles. To this effect, the Mine opened the tender to the public by floating it on Musele Chamber of Commerce and North-Western Chambers for local

suppliers to participate.

42 companies from around the country that expressed interest to participate in the tender were invited for a site visit to

appreciate the details of the project and have since been invited to send through their bids for the tender to construct the bridge.



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## Ivanhoe Mines achieves operating profits of around USD 253 million in DRC and SA

The Canadian mining firm Ivanhoe Mines recorded, in the second quarter of 2022, a record profit of around 351.5 million US dollars from the mining projects carried out in the Democratic Republic of Congo (DRC) and in the Republic of South Africa.

According to the related report, 253.1 million USD were made in the Democratic Republic of Congo (DRC) as profits.

For Kamao-Kakula alone, a mining complex operated in the DRC by the Kamao Copper company, Ivanhoe Mines announced the sale to a volume of 85,794 tons of copper bringing in revenues of 494.1 million USD, with an operating profit of 253.1 million US dollars and an EBITDA (Earnings before interest, taxes, depreciation and amortization) of 286.3 million USD.

During the period under review, the report says, Kamao Copper mined 1.66 million tonnes of ore grading 5.57% copper, of which 0.78 million tonnes grading 6.74% copper came from the high-grade center. at the Kakula mine.

Note that in the first half of 2022, Kamao Copper crushed approximately three million tonnes of ore at an average copper content of 5.59%. It produced 142,916 tonnes of copper in concentrate.

And after the end of the second quarter, Kamao Copper set another new monthly production record, with 32,877 tonnes of copper produced in July alone, equivalent to an annualized production rate of 387,100 tonnes.

It should also be noted that Kamao Copper's debottlenecking program is progressing as planned. The said program will increase the combined design processing capacity of the Stage 1 and Stage 2 concentrators to approximately 9.2 million tonnes of ore per annum.

As for the copper production from the first two phases of Kamao-Kakula, it is expected to reach approximately 450,000 tons per year by the second quarter of 2023.



# MAAMBA'S FOOTPRINT: BEYOND MINING AND BASELOAD ELECTRICITY

**SINAZONGWE, ZAMBIA** - Nestled in the heart of the Gwembe Valley, Maamba Collieries Limited (MCL) is spread over an expanse of over 8,000 hectares that, at first glance, looks like just another coal mine with an integrated mine-mouth thermal power plant - abuzz with the industrial hubbub of complex engineering and heavy earth-moving machinery.

But this industrial giant, unique in Zambia in that its operations cover mining and generation of baseload power for the nation, is undertaking numerous activities beyond its operational mandate.

For more than a decade since privatisation in 2010 and commencing supplying power to the national grid six years ago in August 2016, MCL has consistently displayed a strong and sustained commitment to uplifting the lives of the people of the community that hosts its operations. The company's corporate social investment contract is extremely active and focussed on four pillars: Education, Health, Infrastructure and Sport.

Through the Maamba Development Trust, MCL runs numerous initiatives to ensure social and economic development for the community in Maamba as well as the surrounding areas of Sinazongwe, including the more remote areas around Lake Kariba.

## Bridging the Present and the Future

Through Maamba Private School, MCL has supported quality primary and secondary school education since 1974. Hailed by former pupils and teachers alike as the best school in Sinazongwe District, Maamba Private currently offers schooling to over 700 students.

The company-sponsored institution - which today boasts modern infrastructure, including well stocked library, fully functional IT facilities and well-equipped science laboratories - has long been the school of choice for the children of the community.

By hosting local art and essay writing competitions as well as organising student-led initiatives like tree-planting drives and town clean-up exercises, Maamba Private School provides an opportunity for pupils to participate in extra-curricular activities and ensure all-round development, to better their lives today and in the future, and help the children grow into responsible young citizens.

The Maamba Development Trust also runs a Skills Training Centre. Here, men and women as well as local youth from the community are primed to turn knowledge and talent into career-developing opportunities and livelihood sustaining ventures.

Through a variety of courses, MCL enables locals to explore the many avenues through which they can sustain and improve their livelihoods and the livelihoods of their families.

## Bringing Sight to the Blind

According to Operation Eyesight Universal, an international development organisation working to prevent blindness and restore sight, 90% of vision loss is preventable or treatable. However, people in low- and middle-income countries or in remote inaccessible regions often have no access to facilities that are able to give this sight-restoring care.

To address this problem in Sinazongwe, MCL has partnered with the Ministry of Health and Operation Eyesight to build and set up a state-of-the-art eye-care centre at Maamba General Hospital in a bid to help the people of the community. The eye centre has a modern and fully equipped operation theatre that is poised to be the best eye care facility in Southern Province.

With the help of highly trained staff, blindness caused by common eye

ailments such as trachoma and cataracts are a thing of the past for patients in Sinazongwe District and its surrounding areas. Notably, MCL sponsors in 2012 had donated US\$500,000 for helping construction of the Eye Clinic at the University Teaching Hospital in Lusaka.

The company's medical support goes beyond eye care. Through MDT, MCL also conducts periodic medical outreach programmes to bring healthcare to people who live in far-flung regions of the province and has built a clinic near remote Lake Kariba, which is manned by medical personnel from the Ministry of Health and provides medical facilities to some 8000 members of the communities around the lake, people who otherwise had to travel long distances to Maamba General Hospital to access healthcare.

MCL's continuing partnership with Maamba General Hospital has ensured that distance and finance are no longer obstacles to receiving quality medical attention and specialised care for the men, women, and children in its locality. Meanwhile, during the COVID pandemic - the company donated a ventilator to the Ministry of Health and assisted District Health Authorities in setting up the COVID centre at Sinazongwe and procuring materials as well critically required oxygen cylinders.

## All Roads Lead to Maamba

For four decades, the roads of Maamba lay in a state of disrepair or dilapidation. MCL took the initiative to reconstruct the township roads by buying road building equipment and revamped the roads in-house, ensuring a sustainable solution for future maintenance.

The improved transport network makes Maamba and its neighbouring townships more accessible, easing business and movement for locals.

Meanwhile, the company has built and maintains bridges, drainage and even dams for helping nearby villagers maintain their livestock.

## Keeping the Ball Rolling

It is a well-known fact that sport is a great unifier. Able to transcend socio-economic barriers, status, religion and race - sport is an age-old way for people to inculcate better habits, live healthier lives, drive societal change, and bring about a deeper sense of association.

To promote this, Maamba Development Trust sponsors the Maamba Energy Stars Football Club, while providing funds for running golf, badminton, squash and tennis clubs, for use by employees and members of the community.

In partnership with the Ministry of Education, the trust also sponsors major tournaments at the school, district and provincial levels.

## Environment Friendly Ethos

Even as the mine and plant operations remain compliant and are monitored for environmental emissions and practices by ZEMA and the World Bank, MCL runs a 'Green Maamba' campaign to ensure its operational areas and the township remain pristine and green. To achieve this the company has set up a fully functional nursery that maintains indigenous flowering and fruit bearing trees, and with the community has set a target of planting 7,000 trees every year.

In keeping with the company vision and mission, Maamba Collieries is determined to ensure upliftment of the lives of the people of Sinazongwe and create long-term opportunities continue. In partnership with the government and other stakeholders, MCL remains committed to help develop the men and women within its host community in its tireless efforts towards ... Making a Difference!



# Galileo starts drilling on Luansobe copper project in Zambia

**L**ondon-listed Galileo Resources has commenced a 3 000 m core drilling programme on their Luansobe copper project, in Zambia.

The programme has been designed to infill gaps in historic drilling and twin selected holes, with a particular focus on shallow up-dip projections of the deposit.

The company has relogged historical drill core data dating from the 1950s and 1960s, with core from five holes being split for assaying of possible copper-bearing zones not previously recognised or considered of interest by earlier operators.

In this, assay results have returned 16 m grading 1.20% copper from 58 m, and 14 m grading 0.99% copper from 70 m.

The new data will be added to the drilling database.

Galileo aims to publish a mineral resource estimate and use it as a basis for openpit mine planning.

## Galileo CEO Colin Bird.

"We are very pleased with our overall desktop review of the historic drill data for Luansobe and independent overview by Addison Mining Services. Re-examination of the old drill core found previously unrecognised copper-bearing zones of significant length. The work undertaken adds value to the modelling of a potential open pit and the new drill programme will define the extent and copper content, if any, of pre-strip for such a pit. We will aim to put a development contract out to tender early in Q4, 2022.

In essence, we are very pleased that our original prognosis regarding the open pit potential at Luansobe has been more than confirmed to date and our fast-track efforts have been fruitful." Galileo CEO Colin Bird said.

## Highlights

- Contract signed for a programme of approximately 3,000m of core drilling on potentially open pit copper deposit at Luansobe; drilling to commence imminently
- Hole layout planned with input from Addison Mining Services of the UK, designed

to infill gaps in historic drilling and twin selected holes, with a particular focus on shallow up-dip projections of the Luansobe deposit

- The aim will be to complete mineral resource estimates reported in accordance with JORC (2012) which will be used as the basis for potential open pit mine planning

- Re-logging of historic drill core dating from the 1950s and 1960s was completed, with core from five vertical holes being split for assaying of possible copper-bearing zones not previously recognised or considered of interest by earlier operators.

- Selected assay results received are shown in the table below and include:

- o 16m @ 1.20% Cu from 58m in hole L0071
- o 14m @ 0.99% Cu from 70m in hole L0069

- This new data will be added to the drilling database and have the potential to improve open pit economics by extending the intervals of known copper mineralisation

## Historic Core Re-logging/Assaying

Re-logging of core from 30 historic drill holes was carried out for Galileo, comprising:

- Pre-cursor core search, retrieval and remedial work
- Geotechnical logging
- Core photography
- Summary geological logging
- Noting of key / significant or obvious structural features
- pXRF screening of drill core
- Core cutting and re-sampling of drill core

Holes examined included both those within the conceptual open pit area, as well as holes along strike and down-dip which might be of value to an eventual underground mining operation on deeper mineralisation.

Based on first pass pXRF analytical measurements, intervals from five shallow holes, totalling 96 samples were selected for assay checking at the SGS Laboratory in Kalulushi on the Zambian Copperbelt. Of particular interest was an intermittently mineralised shale unit overlying the main

stratigraphic target at Luansobe which had not been checked during the historic drilling. The more significant assay intervals are tabulated below:

## Luansobe Historic Core Assaying – Selected Intervals

Hole No.	Depth from (m)	Depth to (m)	Interval (m)	Cu%
L0066	70	84	14	0.99
L0071	58	74	16	1.20
Incl.	61	74	13	1.42
L0040A	124	127	3	0.55

The new data highlights the need to test this shallower zone in future holes and a positive outcome could improve the open pit project economics in future modelling.

## Drill Planning

A programme of approximately 3,000m of core drilling is planned at Luansobe in up to 30 holes within, and marginal to, the conceptual open pit as currently modelled by Addison Mining Services of the UK. Planned holes will cover areas where re-modelling of the deposit shows that shallow copper potential was not adequately tested, where no assay data is available in the historic records or where previous holes appear not to have fully tested the main mineral horizons. Several holes will also be 'twinned' to confirm the historic data. When drilling and assaying is completed, mineral resource estimate will be prepared and reported in accordance with JORC (2012), which will then be utilised in open pit evaluation and planning.

## Project Background

The Luansobe area is situated some 15km to the northwest of the Mufulira Mine in the Zambian Copperbelt which produced well over 9Mt of copper metal during its operation. It forms part of the northwestern limb of the northwest – southeast trending Mufulira syncline and is essentially a strike continuation of Mufulira, with copper mineralisation hosted in the same stratigraphic horizons. At the Luansobe prospect mineralisation occurs over two contiguous zones, dipping at 20-30 degrees to the northeast, over a strike length of about 3km and to a vertical depth of at least 1,250m.



# Jubilee commissions cobalt refining circuit in Zambia

**J**ubilee Metals Group PLC, a leader in metals processing with operations in Africa (AIM: JLP/AltX: JBL), is pleased to announce an update at its Zambian operations where the integration of the Sable Copper and Cobalt refinery with the newly constructed copper concentrator, Project Roan, continues as part of Jubilee's Southern Refining Strategy.

## Highlights

- Cobalt refining circuit at the Sable Refinery entered the commissioning phase during June 2022 in line with original timing expectations, with first trial cobalt product produced per the expected commissioning and ramp up schedule:

- o Commercial production is targeted to commence during August 2022

- o The cobalt refining circuit at Sable is able to produce up to 1 200 tonnes of cobalt a year depending on the feed grade

- Commissioning and ramp up is progressing at the Project Roan concentrator reaching 65% of designed capacity with first filtered copper concentrate produced for refining at Sable as part of commissioning and ramp-up activities:

- o Ramp-up of the concentrator is expected to reach design capacities by the end of July 2022

- o At capacity, targets the processing of 830 tonnes of copper in concentrate per month for refining at Sable

- o Part of overall Southern Refining Strategy to reach 12 000 tonnes per annum of copper production capacity

- o Significant employment opportunities created, and local suppliers prioritised, to create a locally sustainable support infrastructure

Leon Coetzer, CEO, commented: "Reaching these significant milestones announced today put us in great stead for the financial year ahead, and beyond. It is testament to all the hard work by the Jubilee team that over the past 12 months have delivered on a bold

implementation plan across both the PGM and chrome operations in South Africa and the copper and cobalt operations in Zambia.

"During this period in South Africa we delivered a new and upgraded Inyoni PGM facility to reach 45 000 PGM ounces per annum which includes a newly constructed and fully integrated 80 000 tonnes per month chrome beneficiation circuit. The circuit was further complimented with the inclusion of Jubilee's renowned ultra-fine chrome circuit earlier this year.

"In Zambia we have reached a key deliverable in the implementation of our copper and cobalt strategy as we announce the commissioning of the cobalt refining circuit at the Sable Refinery while ensuring that it is operationally ready to refine the copper concentrate from our newly commissioned Roan copper concentrator. The Roan concentrator, with the ability to produce an additional 10 000 tonnes of copper units annually for refining at Sable, continues to ramp-up its throughput in line with the commissioning schedule, reaching 65% of its design capacity to date and is expected to reach its full design capacity during July 2022.

"The Roan copper concentrator completes the implementation of Jubilee's Southern Refining Strategy targeted to deliver up to 12 000 tonnes of copper units per annum. This progress of the Southern Refining Strategy paves the way for the acceleration of our Northern Refining Strategy as we continue our expansion in Zambia and I look forward to reporting in future on the potential step-up in Jubilee's earnings on the back of this, and other, successful projects."

## Further Details

Jubilee's copper strategy in Zambia includes, as its first phase, the implementation of its Southern Refining Strategy which targets to produce up to 12 000 tonnes of copper units per annum including a cobalt by-product from certain cobalt containing feed streams.

The strategy integrates the upgraded Sable

Refinery with Project Roan, a new copper concentrator processing both Run-Of-Mine copper ore as well as tailings to produce copper concentrates for refining at Sable (10 000 tonnes per annum), which complements the existing supply of third-party feed to Sable refinery (2 000 tonnes per annum). The integrated Southern Refining Strategy's capital allocation is c. £ 19 million (ZAR 378 million).

Jubilee's project execution team broke ground for the construction of the new copper concentrator, Project Roan, in June 2021 and despite the challenges caused by the COVID 19 pandemic and its effect on supply chains the team was able to commence testing of certain equipment within seven months and completed all construction activity within 11 months which remains a remarkable achievement. Project Roan has reached a production throughput level of 65% of design capacity and is expected to complete the ramp-up of the operation, which targets 830 tonnes of copper per month, during July 2022.

In addition to the copper refining capacity at Sable, Jubilee approved the implementation of a cobalt refining circuit at Sable able to produce up to 1 200 tonnes of cobalt per annum depending on the feed grade to the circuit. The new cobalt circuit commenced commissioning during June 2022 with the first test product produced as part of the commission of the circuit targeting to commence commercial production during August 2022.

Crucially, and in line with Jubilee's goals to promote sustained, inclusive economic growth, the Southern Refining Strategy has resulted in significant job creation, with total jobs filled in Zambia reaching over 700 during the last 12 months. Jubilee has prioritised sourcing of skills and services from its local communities and has in many instances partnered with local firms to assist in their growth and development to offer a sustained service to its projects.



# 17 trucks illegally transporting mining products worth 3.5 million USD seized in Lualaba, DRC

The Agency for the Prevention and Fight against Corruption (APLC) in the Democratic Republic of Congo (DRC) announced to the press, on Thursday July 7, 2022, that it had intercepted 33 trucks illegally transporting mining products in the province of Lualaba.

Sixteen (16) out of the thirty-three (33) trucks were required to pay fines in the order of several hundred US dollars for having violated the rules enacted in this regard.

In addition, 17 other trucks were seized with goods estimated at nearly 3.5 million USD by teams from the Agency for the Prevention and Fight against Corruption in the DRC.

"We had a seizure of 33 trucks full of raw materials including copper and cobalt, 16 of which concern low-grade uranium. ", indicated the Deputy Coordinator of the APLC in charge of complaints, inquiries and investigations.

Regarding the other investigations that have been carried out, the APLC says it expects the payment of 30 million USD in mining royalties and fines.

It should be noted that during this confrontation with press professionals, the Deputy Coordinator of the APLC in charge of complaints, inquiries and investigations reaffirmed the determination of his structure

to fight against all forms of corruption in the DRC.

For his part, the Coordinator of the APLC, Thierry Mbulamoko, indicated that by 2026, the APLC plans to reduce to 60% the facts assimilated to corruption in the Democratic Republic of Congo.

To do this, Thierry Mbulamoko is counting on the mobilization of the entire Congolese population as a whole to defeat this scourge which is impoverishing the country.

To this end, the APLC is launching a digital platform where whistleblowers, journalists and Congolese citizens can report acts of corruption throughout the national territory.

# Child labor in the mining industry in the DRC at the heart of the debates at the Tom Santos Committee

The Tom Lantos Commission on Human Rights, a coalition of the United States House of Representatives, reserved a special session this Thursday on "child labor and human rights violations in the mining industry in the DRC".

This session will examine human rights violations in the mining sector in the DRC, including child and forced labor, disregard for worker safety and environmental degradation. It will also discuss the role played by outside actors, including Chinese and Russian companies, the corruption of government regulatory regimes in the DRC, and the impact on the global supply chain of certain minerals.

Activist Hervé Diakiese Kyungu will be among the panelists. There will also be Eric Schultz, former US Ambassador to Zambia, Rigobert Minani Bihuzo, SJ, PhD., Head of Research Department (CEPAS) and Sasha Lezhnev, Policy Consultant (The Sentry).

"The corruption of public officials responsible for licensing and selling assets is a significant problem. Civil society organizations and the Catholic Church are among those seeking to

redress and ameliorate abuses," notes the Tom Lantos Human Rights Commission.

Congo-Kinshasa is a country rich in resources but poor in governance, notes the commission. Its population lives on average on \$1.25 a day.

The many mineral riches of the DRC are exported in their raw state. The country has a reserve of 400 million tons of lithium and 25 million tons of cobalt. The sector is dominated by Chinese investments.

According to several NGOs, around 40,000 children work in artisanal mines and in dangerous conditions in the DRC.

Members of Congress and other participants will attend in person or remotely.

The main thing is to respect the commitments made.

The respect to be owed to this country is, in the name of the sacred principle of continuity of the State, to let it assume its responsibilities.

Anthony Blinken is bound by this duty if he comes to Kinshasa more as a partner than as a giver of injunctions...

Lantos Human Rights Commission.

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# Congo plans border post expansion as mining trucks endure up to 60 km queues

**D**emocratic Republic of Congo plans to expand its main border post with Zambia, a source close to its government said, to ease truck queues of up to 60 km that copper miners have faced this year due to increased production and inadequate infrastructure.

The backlog of trucks at Kasumbalesa, a border town and the main exit point for metals exports from Congo, is an example of supply chain disruption that will make it harder to meet future demand for copper, essential for electric vehicles.

"A construction project for a second Lubumbashi – Kasumbalesa road is in the process of being signed," the source told Reuters, adding that it would take at least 18 months to complete from the date the project is approved.

The source did not give an expected timeline for the approval.

"The turnaround time of trucks has increased substantially... it takes an extra 45 to 60 days for the products to reach consumption centres in Asia,

Europe or North America," said a source at a company with operations in the central African country.

This compares to around 15 days in 2019.

Africa's biggest copper producer, Congo accounted for 1.8 million tonnes of mined production of the metal last year, about 8.5% of the global total, according to the US Geological Survey.

The long queues of trucks are due in part to increased traffic, according to Michel Kibonge Nyekuma, chief of staff for the Minister of Mines.

The largest miners in Congo include Glencore, Canada-listed Ivanhoe Mines, China's CMOG and Kazakh firm Eurasian Resources Group. Some have increased copper production this year.

Ivanhoe, operator of the Kamoakakula mine in Congo, transports its products by truck to the South African port of Durban.

It referred to a June 6 update on production, costs and timelines, saying it expects to reach the upper

end of its 2022 guidance of between 290,000 tonnes and 340,000 tonnes of copper concentrate, from 105,884 tonnes in 2021. It projects further rises for 2023.

Congo is also the world's top producer of cobalt used to make the rechargeable batteries that power electric vehicles.

Glencore, which produces most of its cobalt in Congo, saw its global output rise 46% in the first quarter of 2022 compared to the same period last year.

Miners with operations in Congo say they have been calling on the government to invest in infrastructure and switch from paper to electronic systems, arguing that projected copper shortages in future are likely to be exacerbated by transportation bottlenecks.

More border posts would add "a significant amount of processing capacity, create competition between the different provinces (and) all those customs clearing revenues would improve efficiencies," one official at a mining company said.

# A summit on the industrialization of southern Africa held in the DRC

**A** dozen Heads of State of the Economic Community of Southern African States (SADC) held a summit on Wednesday in Kinshasa on the industrialization of the sixteen member countries of the sub-region, called upon to develop their own "value chains", noted an AFP team.

The theme chosen was: "Promoting industrialization through agro-processing, mineral beneficiation and the development of regional value chains with a view to achieving inclusive economic growth".

"There is no one outside of Africa who will come and build Africa the way we want it to be built," outgoing SADC chairperson Lazarus Chakwera from Malawi said at the outset, noting that Americans, Europeans and Asians spend only "a few million dollars" on building infrastructure on the continent.

"For this reason, we need to create our own development resource pools. We already have the natural and mineral resources, which should be

more than enough to fund any project we need across Africa," he said. he adds.

"The plunder we allowed the West to carry out in the Democratic Republic of Congo is a sin we must repent of," he said. The time has come to show and tell "to the world with one voice that Africa is open for business but Africa is not for sale".

Succeeding him in the rotating presidency of the SADC, the Congolese President Félix Tshisekedi made in his speech the commitment to invest himself, with all the Member States of the SADC, in the construction of infrastructures with a view to industrialization. fast in the sub-region.

Member States must "accelerate the implementation of relevant and related projects" with a view to achieving this objective, making use of new information and communication technologies considered as "instruments and catalysts for industrialization"., he said.

All this is only possible in an environment of peace, pleaded Mr. Tshisekedi who, taking his peers to witness, again accused Rwanda of actively supporting a rebellion (the "M23") in the east of his country.

"This summit is being held at a time when our country is the victim of cowardly and barbaric aggression by its neighbor Rwanda," he said.

In a recent report, UN experts claimed that Rwandan troops have been intervening militarily inside the DRC since November 2021. But Kigali continues to deny any support for the M23 rebels.

In its final declaration of the Kinshasa summit read out in the evening live on Congolese television, SADC "expressed its concern and solidarity about the recent security-related events in the eastern part of the DRC" and decided "to inform the Secretary General of the United Nations next September on the sidelines of the General Assembly of the United Nations".



# Kamoa Copper reports record quarterly production of 87,314 tonnes of copper in Q2 2022

**K**OLWEZI, DEMOCRATIC REPUBLIC OF CONGO – Ivanhoe Mines (TSX: IVN; OTCQX: IVPAF) Co-Chairs Robert Friedland and Yufeng "Miles" Sun are pleased to announce that the Kamoa-Kakula Mining Complex in the Democratic Republic of Congo has set a new quarterly production record in the second quarter of 2022, with 87,314 tonnes of copper in concentrate produced.

Kamoa-Kakula's Phase 1 and Phase 2 3.8-million-tonne-per-annum concentrator plants produced 30,379 tonnes of copper in concentrate during June 2022. This performance marks the third consecutive month that Kamoa-Kakula has surpassed its throughput design capacity of 7.6 million tonnes per annum, following the commissioning of Phase 2.

Kamoa Copper milled approximately 1.95 million ore tonnes during the second quarter at an average feed grade of 5.44% copper. Copper recoveries were averaging more than 86% during June 2022, with feed grades averaging approximately 5.5% copper.

Ongoing mining optimization work at the Kakula Mine is targeting improved head grade during the second half of 2022 towards 6% copper. Kamoa Copper is also evaluating additional material handling capacity at Kakula to increase mining rates to feed the de-bottlenecked Phase 1 and 2 processing capacity of 9.2 million tonnes per year, which will be incorporated into the Phase 3 expansion Pre-Feasibility Study scheduled for release in the second half of 2022.

The Phase 1 and Phase 2 concentrator plants are approaching a combined annualized production rate of approximately 400,000 tonnes of copper in concentrate. The de-bottlenecking program is on track to boost Kamoa Copper's annual production to approximately 450,000 tonnes of copper in concentrate per year by the second quarter of 2023.

Management anticipates that the early commissioning of the Phase 2 concentrator plant in March 2022, approximately four months ahead of schedule, will enable Kamoa Copper to deliver in the upper range of its 2022 production guidance of 290,000 to 340,000 tonnes of copper in concentrate.

Kamoa-Kakula's Phase 1 and Phase 2 concentrator plants produced a record 30,379 tonnes of copper in June 2022. Kamoa Copper is approaching a copper production rate of 400,000 tonnes per year.

Mr. Friedland commented: "Kamoa Copper continues to deliver industry-leading operational performance with the rapid advancement of Kamoa-Kakula's Phase 1 and Phase 2 concentrator plants, which now are approaching a production rate of 400,000 tonnes copper per year. We will continue this track record of excellence as we realize the vast potential across the Kamoa-Kakula Mining Complex, which will be operating in the Democratic Republic of Congo for generations.

"Kamoa-Kakula is on pace to be the world's third-largest copper mining complex by the end of 2024, with the Phase 3 expansion expected to boost total copper production to approximately 600,000 tonnes per annum. We are already among the ranks of the world's major copper producers ... a metal the world vitally requires for conventional energy and industry, as well as the long-term shift to green energy and electrification. We are at an inflection point for the copper industry ... one where we must meet substantial demand growth over the coming decades, even as discovering and building new mines

has become more challenging and more complex.

"The supply-demand landscape for the copper market remains extremely clear despite any short-term market fluctuations and policy-driven demand destruction. Kamoa-Kakula will be an integral part of the supply solution, but we will need astronomically higher global copper production to solve the ongoing energy crisis and complete the vital transition to green energy."

Watch Mr. Friedland's June 2022 exclusive, long-form keynote discussion at the Bank of America's Commodity Conference: <https://bit.ly/3AnJbrw>

The Phase 1 and Phase 2 plants milled 1.95 million ore tonnes during the second quarter at an average feed grade of 5.44% copper.

Construction to increase concentrate thickener capacity is ongoing as part of the Phase 1 and Phase 2 debottlenecking program.

Figure 1: Monthly Kakula cumulative copper production – total production of approximately 250,000 tonnes copper from May 2021 to June 30, 2022.

Kamoa-Kakula reports record quarterly production of 87,314 tonnes copper following achievement of Phase 2 steady-state operations

In late March 2022, Ivanhoe Mines announced that Kamoa-Kakula's Phase 2 concentrator plant began hot commissioning significantly ahead of schedule. First ore was introduced into the Phase 2 milling circuit on March 21, 2022, and first copper concentrate produced approximately four months ahead of the originally announced development schedule. Commercial production from the Phase 2 concentrator was declared on April 7, 2022, while steady state production was achieved at the end of May 2022.

Kamoa-Kakula has milled approximately three million tonnes of ore at an average feed grade of 5.74% copper year-to-date, and produced approximately 143,000 tonnes of copper in concentrate over the first half of 2022.

Kamoa Copper's previously announced de-bottlenecking program also is progressing on schedule to increase the combined design processing capacity of the Phase 1 and Phase 2 concentrator plants to approximately 9.2 million tonnes per annum.

After successfully operating the Phase 1 concentrator, the Kamoa-Kakula team identified several relatively minor modifications that are expected to increase ore throughput from the current design of 475 tonnes per hour to approximately 580 tonnes per hour. These modifications include increasing the diameter of several pipes, replacing a number of motors and pumps with larger ones and installing additional flotation, concentrate-thickening, concentrate-filtration and tailings-disposal capacity.

Once completed in the second quarter of 2023, the de-bottlenecking program will enable the copper production from Kamoa-Kakula's first two phases to reach approximately 450,000 tonnes per year, positioning Kamoa Copper as the world's fourth largest copper producer.

Kamoa-Kakula's Phase 1 and Phase 2 plants are undergoing a debottlenecking program to boost combined ore throughput to 9.2 million tonnes per annum by Q2 2023. Excavation is in progress to

upgrade scavenger cleaner flotation capacity.

Kamoa 1 and Kamoa 2 box cut and decline ramp nearing completion, Phase 3 twin decline excavation progressing well

The Pre-Feasibility Study for the Phase 3 expansion is expected to be announced during the fourth quarter of this year. Kamoa-Kakula's Phase 3 will consist of two new mines known as Kamoa 1 and Kamoa 2, as well as the initial decline development at Kakula West. A new, 5-million-tonne-per-annum concentrator plant will also be established adjacent to the two new mines at Kamoa. The associated power and surface infrastructure for Phase 3 will be designed to support future expansions.

Construction is nearing completion on the Phase 3 box cut and decline ramp at the Kamoa 1 and Kamoa 2 mines, while excavation of the twin declines to access Phase 3 mining areas also is advancing well. Construction works for the ramp, cut-off drains, and water-collection sumps are well advanced.

Basic engineering design for the Phase 3, 5-million-tonne-per-annum concentrator plant is nearing completion with procurement activities underway. During June, orders were placed for the following long-lead items: ball mills, concentrate filters, cone crushers and flotation cells. The earthworks contract is scheduled to be issued imminently.

Upon commencement of Phase 3 production, Kamoa Copper will have a total processing capacity of greater than 14 million tonnes per annum. Phase 3 is expected to increase copper production capacity to approximately 600,000 tonnes per year, with commissioning expected by the fourth quarter of 2024. This production rate will position Kamoa Copper as the world's third-largest copper mining complex, and the largest copper mining complex on the African continent.

Construction works for the ramp, cut-off drains, and water-collection sumps is well advanced at the Kamoa 1 and Kamoa 2 box cut.

Excavation of twin declines at the Kamoa 1 and Kamoa 2 mines will provide access to the main Phase 3 mining areas.

Gracia Maseka, General Worker; Kamin Hortense, Dump Truck Operator; standing at the portal entrance to the twin Kamoa 1 and 2 declines.

Basic engineering complete and initial long-lead equipment ordered for Kamoa Copper's direct-to-blister flash smelter

Kamoa-Kakula's Phase 3 expansion includes a 500,000-tonne-per-annum, direct-to-blister flash smelter to produce approximately 99% copper metal, and the replacement of Turbine #5 at the Inga 2 hydroelectric power station. The turbine replacement will supply an additional 178-megawatts of clean hydroelectric power to the national grid.

Earthworks excavation is progressing well at the smelter site, adjacent to Kamoa-Kakula's Phase 1 and Phase 2 concentrator plants, with bush clearing and top-soil stripping well advanced.

In June, Kamoa Copper placed purchase orders for the smelter's slag cleaning furnace, anode refining furnaces and electrostatic precipitators, while basic engineering on the smelter design has been completed.

The Kamoa-Kakula smelter is designed to use technology supplied by Metso Outotec of Espoo,



## ...Kamoa Copper reports record quarterly production of 87,314 tonnes of copper in Q2 2022

Finland, and to meet the International Finance Corporation's (IFC) emissions standards. The smelter has been sized to process most of the copper concentrate forecast to be produced by Kamoa-Kakula's Phase 1, Phase 2 and Phase 3 concentrators.

Construction and earthworks at the smelter site, adjacent to Kamoa-Kakula's Phase 1 and Phase 2 concentrator plants.

Kamoa-Kakula's smelter (3-D rendering below) uses technology supplied by Metso Outotec, with a production capacity of 500,000 tonnes per annum of approximately 99%-pure blister copper.

In late 2021, Kamoa Copper awarded China Nerin Engineering Co., Ltd. (Nerin) of Jiangxi, China, with the basic engineering contract for the planned, direct-to-blister flash smelter. Nerin is an international engineering company with more than 60 years of experience in smelter engineering and construction projects globally. Nerin actively promotes the advancement of smelting technology through its own research and development, and by establishing various partnerships with global industry peers, including Metso Outotec.

Ivanhoe Mines joins United Nations Global Compact, the largest corporate sustainability initiative in the world

Ivanhoe Mines is pleased to join the United Nations

Global Compact (UNGC) initiative — a voluntary leadership platform for the development, implementation, and disclosure of responsible business practices.

Launched in 2000, the UN Global Compact is the largest corporate sustainability initiative in the world, with more than 14,000 companies in over 160 countries participating, the UNGC holds signatories and participants to the highest sustainability standards.

The multi-year strategy of the UN Global Compact is to drive business awareness and action in support of achieving the UN's Sustainable Development Goals by 2030.

Ivanhoe Mines founded the Sustainable Livelihoods Program in 2010 to strengthen food security and farming capacity in the host communities near KamoaKakula by establishing an agricultural demonstration garden to support farmers at community level.

Today, approximately 900 community farmers are benefiting from the Sustainable Livelihoods Program, producing high-quality food for their families and local communities. The program commenced with maize and vegetable production, and now produces many high-value crops, including fruit, aquaculture, poultry and honey.

The construction of 100 new fishponds was completed in 2021, bringing the total number of fishponds to 138. The project will significantly contribute to local entrepreneurship and enhanced regional food security.

Fabrice Mazeze (centre), Kamoa-Kakula Sustainable Livelihoods Agronomist, assists community farmers with the corn harvest.

The construction of 100 new fishponds was completed in 2021, bringing the total number of fishponds at Kamoa-Kakula to 138.

Ivanhoe Mines to issue Q2 2022 financial results and host conference call for investors on August 15

Ivanhoe Mines will report its Q2 2022 financial results, and a detailed update on its operations, before market open on Monday, August 15, 2022.

The company will hold an investor conference call to discuss the Q2 2022 financial results at 10:30 a.m. Eastern time / 7:30 a.m. Pacific time on the same day. The conference call dial-in is +1-647-484-0258 or toll free 1-800-289-0720, quote "Ivanhoe Mines Q2 2022 Financial Results" if requested. Media are invited to attend on a listen-only basis.

## Zambia seeks out-of-court resolution to Vedanta dispute

Zambia's mines minister Paul Kabuswe has told state mining investment company ZCCM-IH to engage with Vedanta Resources in an effort to find an out-of-court resolution to their long-running dispute over Konkola Copper Mines (KCM), he said on Tuesday.

"We must sit around the table and begin to discuss. We cannot solve these matters in court," Kabuswe said at a press briefing streamed live on Facebook.

"I have since given an instruction to ZCCM-IH to quickly tell their lawyers to reach out to Vedanta's

lawyers."

Vedanta spokesperson Masuzyo Ndhlovu said the mines minister's comments are a "welcome development" and that the company has always been open to finding an "amicable solution" over its KCM asset.

Zambia in May 2019 handed control of KCM to a state-appointed provisional liquidator, triggering a protracted legal battle with owner Vedanta, with an international arbitration hearing now set for January next year.

KCM is one of Zambia's key copper mining and smelting assets and Kabuswe said the country could not afford to wait for a lengthy arbitration process to be concluded.

"We are not going to mine in court," Kabuswe said





## Lower feed grades affect Kansanshi Mine

**F**irst Quantum Minerals has recorded a **2,180 decrease in its copper production at its Kansanshi Mine in Solwezi for the second quarter of 2022.**

Kansanshi's copper production was 39,719 tonnes, while the company's copper production at its Sentinel mine in Kalumbila of 52,447 tonnes was on target. Combined production from the two mines was lower than the previous quarter.

FQM's Chief Executive Officer, Tristan Pascall has explained that the results at the company's Kansanshi mine were affected by lower feed grades caused by current mining conditions, and that after an extended rainy season, higher than anticipated water levels restricted mining deployment, which required supplementary plant feed from a low grade stockpiles.

"Water from this area is expected to be removed by the end of the third quarter of 2022, which will provide access to the scheduled oxide and mixed or," he said.

FQM's Sentinel's mine in Kalumbila production of ore and waste remained behind the planned schedule in the second quarter of 2022, although progress had been

made on preparing the pit for an improved second half of the year. Low truck availability and a backlog of truck maintenance continued from the first quarter. This was a direct impact of labour restrictions and resources during the COVID-19 pandemic, which is now subsiding, he continued.

Extensive work has been conducted on a new geological approach to narrower and lower mineralised veins that comprise around 20 percent of the sulphide ores at Kansanshi, which is expected to improve optimisation of the mine plan in the near term. Kansanshi is tracking towards the lower end of the guidance range of 175,000 to 195,000 tonnes.

Grades at Sentinel are expected to return to planned levels over the coming months with an improved grade profile in the second half of 2022 compared to the first six months, resulting in improved production levels over the course of the year. Full year production at Sentinel is tracking towards the lower end of the guidance range of 250,000 to 265,000 tonnes of copper.

"While the restrictions from the global pandemic have largely eased, the macro

environment has become more challenging due to a combination of continued high inflation and the emerging global economic slowdown.

Our debt reduction over the last several years has placed our balance sheet in a better position for this turn of events. In order to build further resilience through these uncertain times, our focus will be on driving consistent operational performance, successful execution of our brownfield projects and discipline with our capital investments," said Pascall.

"It is the determination and commitment of our workforce that has enabled us to surmount the unprecedented obstacles that we have faced in recent years and means that we can tackle these new challenges with confidence. I thank the team for their continued commitment and efforts."

During the second quarter, the company reached an agreement with the Government of Zambia for repayment of the outstanding VAT claims based on offsets against future corporate income tax and mineral royalty tax payments, which commenced July 1, 2022.

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# Tesla signs \$5bn nickel products supply contracts with Indonesian firms

Indonesia has been looking to attract investments from Tesla and boost domestic development of electric vehicles and batteries.

US-based Tesla has reached contracts, valued at nearly \$5bn, to purchase battery materials from Indonesian nickel processing companies, reported Reuters citing a senior cabinet minister as saying to CNBC Indonesia.

Claiming to hold major nickel reserves, Indonesia has been looking to attract investments from US electric vehicle maker Tesla.

Indonesian Coordinating Minister for Maritime and Investment Affairs Luhut Pandjaitan was cited by the news agency as saying in an interview broadcast: "We are still in constant negotiation with Tesla...but they have started buying two excellent products from Indonesia."

AI has the potential to transform healthcare in the Middle East and Africa, but the region faces unique challenges and opportunities to fully harnessing its power.

For the Middle East and African healthcare sector, the experience of the last two years has changed priorities, attitudes and urgency when it comes to embracing digital transformation. For many providers the conversation has changed from talking about AI

implementation, to taking concrete steps for making it happen.

More organisations are beginning to realise the potential of AI when it comes to improving healthcare efficiency; from harnessing genetic data for ground-breaking genomic research, to optimising workflows, to improving frontline support and assisting in the diagnosis of rare and complex diseases.

Pandjaitan said a five-year contract has been signed by Tesla with nickel processing companies operating out of Morowali in Sulawesi island.

Tesla uses nickel materials for the production of lithium batteries, which are required for electric vehicles.

Indonesia had suspended nickel ore exports to ensure supply for investors and is looking to support the domestic development of electric vehicles and batteries industries.

The country attracted investments from steel giants from China and South Korean companies, including Hyundai and LG.

In June, Reuters reported that Korean battery manufacturer LG Energy Solution commenced building two nickel processing plants in Indonesia as part of its wider \$9.8bn investment plan to produce electric vehicle batteries in the country.

# Angola awards \$333m to Trafigura consortium to improve Congo rail link

Angola's ministry of transport has awarded a tender to a Trafigura consortium to operate and expand rail infrastructure to speed up commodity imports from the Democratic Republic of Congo.

Congo, Africa's biggest copper producer, exports copper, cobalt, and other metals in trucks via Tanzania or South Africa, which takes several weeks because of congestion and customs delays.

As part of a 30-year concession agreement, the consortium has agreed to invest \$256 million in infrastructure, \$73 million in rolling stock and \$4.3 million in other activities, Angola's transport ministry said, to improve the Lobito corridor.

Begun by Angola's former colonial ruler Portugal in 1899, the corridor links Angola's seaport of Lobito with Luau in eastern Angola, near the border with

Congo.

The Angolan transport ministry said in its statement the improved rail corridor could contribute between \$1.6 and \$3.4 billion to Angola's GDP, and generate revenues for the government of around \$2.03 billion in total over 30 years.

It said it would also increase competition in the logistics space by offering a viable alternative to road transportation, and could lead to lower freight transport tariffs.

Trafigura said the renewed corridor would use existing rail infrastructure, remove trucks from the roads and offer "considerable cost and time savings for miners in the Copperbelt to export to international markets".

The improved rail link is expected to carry, annually, 1.7 million tonnes of cargo by its fifth year of operation, 3 million tonnes by the 10th year and 5 million tonnes by the 20th year, Trafigura said. It expects the 30-year concession agreement to be signed in the coming weeks.

The concession can be extended by 20 years if the consortium decides to build a rail link between Luacano in Angola and the Zambian border town of Jimbe.

Geneva-based commodities trader Trafigura and global construction firm Mota-Engil Engenharia e Construção Africa each hold a 49.5% stake in the consortium, with rail operator Vecturis holding the remaining 1%.

Congo plans border post expansion as mining trucks endure up to 60 km queues.





## DRONE USE RISING IN MINES, WITH SURVEYING AND MAPPING THE MOST COMMON APPLICATION

**T**he use of drones is increasing across the mining sector, driven by benefits such as improved productivity, safety, and reduced costs, with a wide variety of uses. These include surveying and mapping; monitoring and inspection; site safety management; tailings dam management; blasting assessment and haul road optimisation.

Surveys of mine sites, both surface and underground, over the last four years by GlobalData have shown that the share of mines that have invested to some extent in drones has increased from 44% in 2018 to 65% in 2022, with 32% in the 2022 survey stating they had either fully invested in drones or made a considerable investment. Mines in Australasia were the furthest advanced, with 75% of respondents stating that they had either fully invested or made a considerable investment in drone technology.

From the 2022 survey, the leading use for drones was identified as surveying and mapping, with 83% of respondents using them for this purpose. There are major savings to be made through drone use. Normally, the surveying and mapping of mineral landscapes is a time-consuming process. By employing drones and a drone pilot instead of a piloted plane, a mine can save around 90% of the cost per hour and collect unlimited aerial data, including fine measurements, by simultaneously capturing high-end orthoimages.

### Sponsored Article

Amid increased pressure and urgency around climate change, how can energy operators in the Middle East better measure emissions and help lead the decarbonisation agenda?

Given the scale of global greenhouse emissions and the intractability of fossil fuel use from industry performance, businesses within the oil and gas sector must collate and pinpoint exact areas for improvement, building a bridge between intention and action.

The oil and gas industry is responsible for approximately 10% of direct and 40% of indirect global greenhouse gas emissions, according to a report from McKinsey & Company. At COP26, more than 450 businesses from across the finance sector, collectively worth \$130trn, committed to pledge funds to reach net-zero carbon emissions by 2050, putting increased pressure on the energy sector to improve performance, as investors increasingly seek to divest from fossil fuel assets

Monitoring and inspection ranked second – cited by 68% of respondents that used drones – followed by site safety (44%), with both uses not just making on-site activities safer, but also more productive. Meanwhile, managing stockpiles, cited by 42%, can be challenging due to their extreme height and area, which tends to change frequently. Drones enable mining companies to generate aerial terrain models of the inventory.

Tailings dam monitoring ranked fifth, with drones being used for this purpose by 21% of respondents. The utilisation of drones to measure tailings dams can eliminate the risk of manual surveying. There is no need for manual interference within the proximity of the dump when drones are used and by analysing the captured data on a digital platform, mining companies can maintain the structural integrity of the tailings dam, design expansion, and avoid failure.



## John Deere brings redesigned ADT to South African shores

**H**heavy equipment manufacturer John Deere's South African branch, having been in the country for 140 years, launched its redesigned 41.8 t, 460 series articulated dump truck (ADT) to the domestic market on July 26.

Aimed primarily at the mining industry, the 460E-II series has been redesigned to incorporate a wider dump body, improved electrical and hydraulic systems, and new drive modes to help operators get the job done in various conditions.

"John Deere can proudly say that this machine is built for the long haul," the company states.

The redesigned dump body has a lowered and levelled rail height to improve material retention and enable it to be easily loaded, while the bin rail features an angled top, helping to reduce material spillage while travelling.

The 460E-II model is also available with a new ejector body solution, enabling operators to spread a load over a specific area, such as those with overhead powerline concerns or where the risk of rollover is high as a result of steep gradient unloading.

With a payload volume of 25.2 m<sup>3</sup> and a maximum speed of 55 km/h, the 460E-II has an eight forward speed gearbox with four reverse gears, managed through three drive modes to assist operators in tackling challenging and different types of terrain and driving skills levels.

For everyday operation, normal drive mode reduces fuel consumption by up to 7% compared with existing models, while eco mode conserves fuel by managing engine power delivery and enhancing transmission response for applicable conditions. Eco mode serves to improve fuel consumption by up to 12% compared with normal mode.

Traction mode makes use of the 460E-II's differential locks to increase traction in soft and slippery ground conditions.

In addition, new wheel-speed sensors also provide a more accurate reading than

the ground-speed radar to confirm the traction-boosting auto-differential lock engages when needed.

Other improvements on the 460E-II include new heavier-duty axles, which are lubricated, filtered and cooled to extend their service life, while the spring-applied, hydraulic-released park brake improves reliability.

The inboard wet-disc brakes improve cooling, operate cleaner and are unexposed to the elements, while the braked axles are each force-cooled and filtered separately to prevent cross-contamination.

In terms of reliability, John Deere has simplified hose and wire routing on the 460E-II to reduce rubbing and improve reliability, while the factory-installed automatic lubricator further boosts uptime and reliability.

According to John Deere, the 460E-II's redesigned electrical and hydraulic systems improve uptime with a 10% reduction of electric and hydraulic routings, further reducing leak points and improving reliability.

Servicing and maintenance of the 460E-II can be performed at ground level, thereby enabling service personnel easier, quicker and safer access to the engine and equipment bay.

The 460E-II also comes with safety features such as remote park-brake release, rollover protection and an automatic horn. With rollover protection, operators can set limits for the rear-chassis level when unloading.

If the limit is exceeded, the dump body will not raise and an alert message will appear on the monitor.

John Deere has also worked on improving operator comfort, introducing what it calls a single-switch solution, reducing the number of switches by 25% compared with previous models, while the quieter, pressurised cabin features a new easy-to-read monitor and rear-camera display, along with options such as premium heated/ventilated seat and automatic temperature control system.



# Gemfields reports record 12-month auction revenue

**G**emfields has reported record auction revenue of \$330.3-million for the 12 months ended June 30.

In a report on the company's operating results and financial position for the period, released on July 27, Gemfields also reported \$181.2-million in total auction revenues for the six months ended June 30, with all three auctions held in the period breaking previous records, the company said.

At the end of the period, the company's cash balance was \$111.4-million, which excluded auction receivables of a further \$81.1-million, while its gross debt balance was at \$29.7-million.

The figures were produced on a monthly basis for Gemfields' 75%-owned Kagem emerald mine, in Zambia; its 75%-owned Montepuez ruby mine, in Mozambique; and Gemfields' wholly-owned iconic luxury brand Fabergé.

Fabergé reported a zero cash draw from Gemfields in the six months to June 30. However, for the whole year ending June 30, Fabergé's cash draw was \$1.5-million.

Overall, Gemfields reported a cash capital expenditure for the six months ending June 30 of \$14.1-million.

The company will publish its results for the six months ended June 30 on September 22.

# Sandvik chooses Cat HVO engines to cut emissions

**C**aterpillar's long-standing commitment to sustainability and support for customers during the energy transition to a lower-carbon future means its industrial engines have for many years been capable of running on a range of renewable and alternative fuels. The Cat C Series engines supplied to Sandvik mobile crushers and screens to power its mining and construction equipment can run on renewable and alternative fuels including hydrotreated vegetable oil (HVO) certified to EN15940 or ASTM D975.

Sandvik has successfully completed testing on its range of machines to confirm that they can operate with HVO without modifications to either the engines or the fuel tanks. This helps Sandvik and their customers to reduce the net carbon dioxide (CO<sub>2</sub>) emissions by up to 90% compared with conventional diesel.

HVO is a form of renewable synthetic diesel, produced from certified waste fats and oils through hydro-processing. Its performance is similar to regular diesel, but it reduces the carbon footprint associated with operating the engine and can lower nitrogen oxide (NO<sub>x</sub>) and particulate matter (PM) under certain conditions. Its chemical similarity to diesel means that the machine's power output and uptime are not compromised when introducing HVO as an alternative, and it can also be blended with diesel.

"We are focused on developing our products and services to help our customers transition to a low-carbon economy and fulfill our company's purpose to help build and power a better and more sustainable world," commented Steve Ferguson, VP of Caterpillar industrial power systems. "Our Cat C Series engines give customers the flexibility to use HVO as both a replacement and addition to their conventional diesel fuel, depending on their requirements."

Jesper Persson, VP of life cycle services at Sandvik Mobiles, added, "We are

committed to using engineering and innovation through all our operations to make the shift towards more sustainable business. With a host of innovations in the pipeline, including electrification of our offering, we are excited to be pioneers in the industry and invest in renewable fuel sources and sustainable rock processing solutions. Working alongside Finning to performance engineer the feasibility of HVO, means we can data collect and monitor any impact on the performance and output of both new and existing machinery. It's an exciting step in our contribution to sustainability and we will work together with our customers and suppliers for more productive, safer, and innovative solutions."







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# Tesla's battery metals bill balloons to \$100 billion

**E**lon Musk had plenty of advice for the mining and metals industry at the company's Battery Day event in September 2020, where the road map to a \$25,000 Tesla was laid out.

A couple of days after the event Musk confirmed in a tweet that Tesla will reach production of 20 million vehicles per year "probably before 2030."

Tesla has been ramping up output at an impressive pace despite lockdowns and power problems in China and a late start in Germany, but the scale of the task is put into perspective by Musk's proud announcement earlier this month that the Texas-based company has now reached the 3 million vehicle-mark – since its first production model launched in 2008. Tesla is expected to deliver 1.4–1.5 million vehicles in 2022.

Not only did Tesla stop working on a cheap and cheerful Model 2, crucial to achieving those lofty goals, now new data compiled by MINING.COM show the run up in metal prices would make a mass market Tesla at that price point almost impossible to build and the bill of materials for 20 million vehicles a year hard to swallow even for a company that is showered with cheap capital.

Combining data from Benchmark Mineral Intelligence, a London-headquartered price reporting agency, and battery supply chain consulting firm, Toronto-based Adamas Intelligence, which tracks demand for EV batteries by chemistry, cell supplier and capacity in over 100 countries, shows just how much has changed since that September 2020 tweet.

Extrapolating the current numbers for Tesla's sales-weighted end-use of metals from the Adamas database and accounting for trends in the carmaker's battery deployment, including greater use of lithium iron phosphate batteries and future model releases, Adamas calculated the raw materials needed to produce 20m cars and trucks (fingers crossed for the cybertruck before 2030 everyone!) per year.

At today's price Tesla is on the hook for a bit over \$100 billion for the 11.1 million tonnes of raw materials it needs to build 20m cars.\*

That's up from \$44.8 billion for the metals entering the battery and electric motor supply chain at the time the production goal was announced.

The jump is mostly on the back of an astonishing 8-fold rise in the price of lithium over the period, which in July averaged more than \$60,000 per tonne. In July, lithium made up 46% of the total cost while in

September 2020 it was only 11.6%. The persistent high price of lithium is also playing havoc with the economics of LFP batteries – which most EV-makers want for entry-level runabouts.

Nickel made up 25% of the overall bill of materials two years ago, now that portion is 15.7% despite a 40% increase in the price of the metal since then.

In March-April when battery metals were hitting multi-year and all-time highs that total was \$131 billion.

Bar lithium, prices have pulled back sharply since March (cobalt is down from a peak of \$92,000 to under \$50,000) but through to the end of the decade most, if not all these commodities will likely become more expensive as supply struggles to keep up with demand.

As automakers (and the renewable energy sector) scramble for lithium, nickel, cobalt, graphite, rare earths, aluminium, manganese and copper securing supply may ultimately be a bigger issue than costs.

To produce 20m vehicles Tesla alone needs more than the total volume of lithium and natural graphite produced last year, almost a third of the magnet rare earths, 36% of the cobalt, and so on.

No single enterprise consumes 1.8m tonnes of copper per year, not even China's state grid, and laying your hands on a quarter of the world's nickel may prove impossible, no matter how many times you meet with the Indonesian president.

\$100 billion is a nice round number for mining companies hoping to supply the raw materials for the world's number one electric carmaker.

So is \$1 trillion when every automaker is an electric one.

\*To better reflect the market opportunity for the mining industry, the chart represents upstream prices where relevant. For instance, synthetic graphite costs much more than mined flake and downstream value added products like CSPG (coated spherical purified graphite) used in battery manufacture are many times more expensive still.

Also keep in mind the kilograms that end up in every newly sold Tesla are fractions of what would have been procured upstream — a factor that is sometimes omitted from estimates of metal requirements is low yields in the conversion and manufacturing process, with a not insignificant portion ending up on battery factory floors as so-called black mass.



# Zambia to be a champion of nickel production in Africa-HH

**Z**ambia officially began its journey to becoming a key player in the new global electric vehicle (EV) ecosystem this week as President Hakainde Hichilema launched the Enterprise nickel mine in Kalumbila.

Once up and running, First Quantum Minerals' mine will be the largest producer of the strategic metal in Africa. Nickel, like lithium, cobalt, and copper, is an essential component in the batteries essential for the new era of 'green' vehicles.

Designed to process 4 million tonnes of ore and produce around 28,000 tonnes of nickel per year, Enterprise will provide an estimated 700 permanent jobs while making Zambia the largest nickel producer on the continent and the 10th largest producer of the highly sought-after mineral in the world.

"I would like to thank First Quantum for the decision to invest \$1.35bn in the expansion of Kansanshi...and to raise additional capital for Enterprise," said President Hichilema at the ground breaking ceremony for the mine.

"This investment, \$1.3bn, will deliver direct and indirect jobs, somewhere in the region of 18,000; and in this country, colleagues, one job supports 10 other members of the family in the house or extended. So if you do your numbers correctly, 18,000 by 10, it's 180,000 people benefitting. That is where the value sits. So thank you First Quantum," he added.

"This project will contribute to raising treasury income that we as a prudent government, part of which income we will use to buy a desk for a child who is sitting on the floor today, munokumwa mwane?"

"This [nickel] is the future of our country, to a large

extent. This is where this country must go and they must explore these resources sustainably and deliver value for our people," he said.

"And we are fortunate as a country to host a fair share of these minerals. But if they stay in the ground, we don't arrange projects like these, we don't unlock projects like these we will not be able to play our part in keeping our world cleaner and reduce the environmental damage whose consequences we know very well," he continued.

It was less than three months ago that FQM announced the company's US\$100 million investment into the project at this year's Mining Indaba, where President Hichilema welcomed the investment and reaffirmed his desire to see more partnerships like this that would turn Zambia into a hub for development and secure the country's place in the electric vehicle (EV) battery ecosystem.

The nickel processing plant, which was completed in 2016 and given environmental approval, has sat on care and maintenance awaiting favourable market conditions since then.

Now, with the global push for a green energy transition, rising demand for metals like nickel that are integral to the shift, and a new, favourable mining regime, the timing is just right for the nickel operation to finally be fired up.

Speaking at the groundbreaking ceremony, FQM CEO Tristan Pascall said: "If the last few years have taught us anything, it is that stability is paramount. As key players in an industry where geopolitical security is so important, the hard work that Zambia has put into protecting that peace and stability does not go unnoticed. Zambia certainly is a prime investment destination for us.

"With over a quarter century of experience under

our belt, we appreciate the importance of working hand-in-hand with stakeholders and aligning with government mandates. Soon to become our third operation here, Enterprise project is in our books, a vote of confidence from – and for – the Zambian government and the Zambian people. It is a vote of confidence in our continued transparency, responsibility, and operational excellence."

"We have been ready to make such an investment for a long time but have been waiting for the conditions to be right, both in terms of the country's mining policy and the global mineral market."

President Hichilema, who on multiple occasions has referred to himself as the country's Chief Marketing Officer, has made leveraging Zambia's advantageous business environment to grow and diversify the mining industry a number one priority.

"The new administration's assurance of a more stable, transparent investment environment that will be intolerant to corruption and governed by environmental, social and governance best practices was the nudge of encouragement we needed for this new project," said FQM Zambia Country Manager General Kingsley Chinkuli.

With the opening of this new operation, the President has secured more jobs, more income, and more opportunities for locals to benefit from local procurement spend and corporate social investment.

This leap to secure Zambia's stake in the EV battery market will not only shift the country's economic dependence from copper but will also unlock fresh opportunities for business and innovation in the nickel value chain.

## Congo orders China's CMOC to stop exports from Tenke Fungurume cobalt mine

**A** temporary administrator appointed by a Congolese court to run the world's second-largest cobalt mine ordered majority owner CMOC to suspend marketing and export of its production, letters seen by Reuters showed.

CMOC, which has previously said that Tenke Fungurume Mining (TFM) remains under its management, did not immediately reply to a request for comment on the letters dated June 29 and July 1.

The order is the latest escalation in a dispute between CMOC, which owns 80% of TFM, and Democratic Republic of Congo's state mining company Gecamines, which holds the remaining 20%.

Congo's government says it suspects CMOC understated reserve levels to reduce the amount of royalties it pays to Gecamines. CMOC, which was previously known as China Molybdenum, denies having done so.

Gecamines and Congo's mines ministry were not immediately reachable for comment. It was not immediately clear whether TFM's exports were still being let through the border.

In the June 29 letter, addressed to CMOC's board, the provisional administrator wrote that the terms for the marketing of TFM's production in 2022 had not been met, and ordered CMOC to share all the information purporting to its marketing and exports since January 1 within 24 hours.

The letter ordered CMOC to stop marketing and exporting product from TFM in the interim.

In the July 1 letter, the provisional administrator ordered Congo's customs authority to implement the suspension of TFM's exports.

In an interview with the China Global South Project's French-language publication on Monday, China's ambassador to Congo said the Chinese government is closely following the dispute between Gecamines and CMOC and "making sure the rights of Chinese companies are respected".

"We must encourage the two companies to maintain a dialogue... without using the apparatus of the state or resorting to brutal methods," Ambassador Zhu Jing said.

TFM produced 18 501 tonnes of cobalt and 209 120 tonnes of copper in 2021.



# Tenke Fungurume produced 125,387 tonnes of copper and 10,465 tonnes of cobalt in the first half of 2022

**C**hina Molybdenum Co (CMOC) announced on Monday, August 22, 2022, its financial results for the first half of 2022, which met the objectives, according to the Chinese firm which has activities in Brazil, Australia, China and the Republic Democratic Republic of the Congo through Tenke Fungurume.

As for its mining operations in Katanga, particularly in Lualaba, in the first half of 2022, Tenke Fungurume produced a volume of 125,387 tonnes of copper and 10,465 tonnes of cobalt, recording a 24.4% increase in copper production, 49.3% for cobalt compared to the same period in 2021.

For Mr. Sun Ruiwen, CEO of CMOC, the current context is a growth opportunity for his firm. "In the face of climate change, the world is looking for solutions to achieve carbon neutrality, which is driving sustained demand for new energy metals such as copper, cobalt, lithium and nickel, reinforcing the strength of demand in the long term," said Sun Ruiwen on the sidelines of the publication of these statistics.

CMOC intends to strengthen its investments to confirm the place of the DRC on the podium of world producers of cobalt and copper, while continuing to collaborate with the communities of the TFM concession to guarantee the project a sustainable dimension. "TFM's mixed ore project and KFM's development are

progressing as planned and will begin production in 2023, which will bring TFM an additional annual production of 200,000 tonnes of copper and 17,000 tonnes of cobalt. The Kisanfu mine is expected to produce an average of 90,000 tonnes of copper and 30,000 tonnes of cobalt," CMOC notes.

Globally, in the first half of 2022, CMOC generated worldwide revenue of \$14.02 billion, up 8% year-on-year, net profit attributable to parent 643.22 million USD, up 72% and an EBITDA of 1.72 billion USD, up 59%.

Tenke Fungurume Mining produced, during the second quarter of 2022, approximately 62,952 tons of copper cathodes and 5,357 tons of cobalt metal.

The mining company based in the Democratic Republic of Congo (DRC) has indeed paid a net amount of approximately 365.55 million US dollars (USD) in taxes and other related payments to the Treasury and other services. administrative authorities of the Democratic Republic of Congo (DRC) in the first half of 2022.

During the same period, TFM also funded visible impact community projects amounting to US\$15.56 million. Since the start of production in 2006, Tenke Fungurume Mining has disbursed US\$252.07 million in direct community investment.





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