

## ZAMBIAN MINING - OPEN FOR RED HOT COPPER BUSINESS AND MUCH MORE

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*Capturing the Zambian Advantage.*



*Nurturing Nickel*



*British firm plans to invest \$100 million in Zambia mine expansion.*



**Moxico Resources starts construction of its leaching project at the Mimbula Mine in Zambia, Copperbelt, close to the Town Chingola having previously reopened the Mimbula Mine.**

July 2021 was the date construction started of the exciting first phase of the Mimbula Leaching Project this which entails a 10kt Leach Pad and Solvent Extraction and an Electrowinning plant, first metal is expected early third quarter 2022. This will be the first of several phases at Mimbula.

Achieved  
**1.0 million LTI**  
free hours on  
construction.

Mimbula has  
started a  
**graduation  
program**  
for geologists.

Moxico Resources  
has employed  
**580 employees** in  
Zambia.

Moxico Resources  
with its subsidiary  
Mimbula Minerals  
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## ZAMBIAN MINING - OPEN FOR RED HOT COPPER BUSINESS AND MUCH MORE

After years of development focus being on diversification away from copper mining, the New Dawn administration of President Hakainde Hichilema has done a full 180-degree policy turn and reset the nation's growth vision by setting the ambitious mining goal of growing to three million tons of copper production within the next ten years. As a first step towards realising this, the Finance Minister Dr Situmbeko Musokotwane's maiden budget 2022 restored the deductibility of mineral royalty for tax purposes and extended the allowable period for interest to ten years from five. The timing of these measures could not have been better as the increase in the total tax take from mining in the first quarter of 2022 reported by the Zambia Revenue Authority has practically demonstrated the power of the current Copper price tailwind to allay fears that making such policy changes would erode government revenues from mining. With this empirical evidence in hand and the Minister of Finance's commitment to optimizing the fiscal regime to make Zambia a more competitive mining investment destination, the Minister of Mines Mr Paul Kabuswe has set his sights on building an attractive and stable mining policy that will attract enough exploration capital and brownfield investment to swiftly convert this revenue growth from a price windfall to a production growth driven one.

All of these harbingers of copper mining growth will still have to rely on exploration to meet and sustain the audacious production goal. The local Geological

community consensus is that the goal is definitely a stretch one that will require sustaining high levels of exploration activity for at least fifteen years to attain and sustain the envisioned level of production. With global Copper discovery costs having averaged two cents per pound and Zambian exploration costs to production averaging two dollars a ton to get to the additional 60 million ton proven reserve levels to support this will consistently require of the order of at least a hundred and fifty million dollars a year over this period. Fortunately, with the local industry returning to overall profitability, the government now has a local target in existing mining firms to incentivize into meeting part of this massive order of magnitude scale increase in exploration works. These works will bring with them much more than red hot copper alone and bit more that will offer a path to high middle-income prosperity for the Zambian economy and success for those who choose to become part of its renaissance early.

The upside to the execution of such an ambitious program will also be the battery minerals of Nickel, Manganese, Cobalt, Lithium and Graphite. The Minister of Mines and his colleague at the Ministry of Trade Commerce and Industry, Mr. Chipoka Mulenga, are espousing growth of all parts of the mining value chain as a driver of industrialization from services to manufacture. The first aim for local content development is to attract investment into segments of the mining input supply value chain where Zambia

has a competitive edge not just for local supply but export as well. The second local content goal is to attract investment into secondary and tertiary value addition on copper and battery minerals for the electric vehicle revolution in a joint strategic effort with the administration of President Tshisekedi of the Democratic Republic of Congo.

Though Copper and green energy minerals are the bird in hand, Zambia has several other long under explored endowments in cement-grade dolomite, gold, fertilizer grade phosphates, iron ore, tungsten, tin and gemstones that each offer means of feeding into complimentary local infrastructure such as increased hydro power generation, roads and rail to

agriculturally based industrialization approaches while building the country's non-traditional export earnings base.

To give a glimpse of what the prospects in Zambia are with new resolve that lie beyond the best red hot copper bull market in history, this edition of highlights exploration, nickel and the industry's global mindset approaches to safety and emergency preparedness benchmarking. Zambian mining is about to dramatically pivot to growth in all areas and the "Zambia advantage" is one best grabbed with both hands and taken hold of now.

### **Editorial**





## CAPTURING THE ZAMBIAN ADVANTAGE

Zambia boasts almost 100 years of copper mining history. This deep-seated institutional knowledge of the copper industry, coupled with its world class resource base and enviable peace and security record in a troubled region, are reasons why Zambia has historically attracted miners from all over the world. These attributes are what Tom Albanese, former CEO of Rio Tinto and then Vedanta Resources, has referred to as 'The Zambian Advantage.'

Fractious and often damaging relations between miners and the government characterised former President Lungu's administration. The momentous election of Hakainde Hichilema "HH" in August 2021 has introduced a much more business friendly administration, with copper producers like First Quantum Minerals (FQM) and Barrick readying themselves to invest in expansion projects, while other global investors have been looking to raise finance for Zambian projects once more. "Lots of people have been coming through to kick the tyres," confirms Sokwani Chilembo, CEO of the Zambia Chamber of Mines. "It's heating up on the exploration front, with fresh rounds of capital raising," he says.

A lot depends on whether the litigious impasse with Vedanta can be resolved and new investment into the Konkola Copper Mines (KCM) deep mine shaft can be found. The government needs to find a deep-pocketed investor to operate and finance the expansion of Mopani Copper Mines also, which was transferred to

ZCCM, the state mining investment firm, by Glencore in return for an offtake agreement last year. These companies are key to attaining 1.5m tonnes per annum of Zambian production milestone. "Dealing with these are critical steps", states Chilembo. The government cannot continue to operate both KCM and Mopani at the scale required for them to be competitive, leading many commentators to believe that a major diversified miner will come into the market in the next twelve months.

Meanwhile HH has been slowly seeking to tackle other legacy issues that have blighted the industry's competitiveness, including revisions to the tax regime. HH nominated Situmbeko Musokotwane – who served as finance minister under former president Rupiah Banda – to return to the treasury. Musokotwane's first budget statement allowed miners to deduct royalties from income taxes – resolving a situation which miners had decried as amounting to double taxation. Musokotwane left royalties unchanged, however, recognising the advantages of Zambia's sliding scale of 5.5% to 10%, depending on the copper price.

"There's more to be done on the fiscal reform front," insists the CEO of the Zambia Chamber of Mines, Sokwani Chilembo, "and we are raising these points and getting a fair hearing from the government." Among these are the duties levied on capital expenditure, which were introduced by

Edgar Lungu's administration. "These need revisiting in order to ramp up production," Chilemba says, "as do the withholding tax provisions for exploration. We simply cannot afford to pay 20% more than other jurisdictions for skills that we need desperately." Meanwhile, the Zambia Revenue Authority's (ZRA) Commissioner-General has been at pains to reassure miners that outstanding VAT receipts will be honoured in the fullness of time - another legacy of the Lungu administration.

Lowering mining energy tariffs would further help restore the competitiveness of Zambia's copper exports also, and the Chamber has been arguing for this. The outcome of debt restructuring with international creditors and negotiations with the IMF may be a factor in determining how confidently the government moves forward in addressing these and fiscal reforms. The omens are good, with this administration enjoying a lot of goodwill from the international community, and the president acknowledged as a pragmatic economic custodian, who has stabilised the currency and restored monetary stability.

HH's ambitious goal of increasing copper output to 2 million tonnes by 2026, and restoring Zambia to the status of largest producer in Africa, will require investment in exploration and expansion at a scale not seen since Queen Elizabeth II visited Chingola in the 1970s. With copper prices strong, and forecast to remain strong, and a government that is listening to industry and committed to stable and predictable policies, you would be foolish to bet against Zambia realising the 'Zambian Advantage'.

**Article by Marcus Courage of Africa Practice**



**His Excellency President Hakainde Hichilema**  
Zambia's Republican President





## NURTURING NICKEL

**D**isruptions to trading in the wake of Russia's invasion of Ukraine have put nickel in the spotlight this month. Mining For Zambia sums up what we ought to know about the critical mineral right now.

### **1. Nurturing the mining of a variety of minerals – including nickel – is an important step in Zambia's economic diversification.**

Zambia's fortunes have always been inextricably linked to the health of the copper mining industry, and that remains as true today as at any point in our modern past. However, Zambia has a wealth of other natural resources on which it has yet to capitalise. If policy frameworks that encourage investment in a range of minerals – gold, manganese, iron, nickel, and copper too – are put in place, Zambia's economic landscape might look very different in ten years' time, once new mines are online and the country starts to reap the direct and indirect economic effects of a burgeoning industry, somewhat less reliant on the red metal alone.

### **2. Nickel is as volatile as it is valuable.**

Nickel has been on quite the rollercoaster ride over the last couple of weeks. In January 2022, nickel hovered at around US\$ 22,355 a tonne, with a forecasted supply deficit by the end of the year helping to keep prices high. But that was before Russia – the metal's third-largest producer which exports 17% of the world's top-grade nickel – invaded Ukraine.

When prices reached a record high of US\$101,365 a tonne on Tuesday 8 March, the London Metal Exchange (LME) saw no option but to halt trading. It's "the biggest crisis to hit the 145-year-old exchange" in several decades. Supply chain disruptions, regional instability, and moves by the West to sanction Russia all sent the metal skyrocketing. Added to this was the fact that Chinese billionaire Xiang Guangda, owner of Tsingshan Holding Group, a nickel and steel titan, was forced to recoup on a massive short position it had been building since 2021, when it wagered that

prices would drop.

Nickel is now trading at a more sensible US\$ 33,100 per tonne but, until the murky and complex issues surrounding Tsingshan's big shorts are resolved, experts predict that it won't be smooth sailing for the LME for some time.

But, setting this short-term volatility to one side, nickel undoubtably has a place in fuelling the economy of the future.

### **3. Nickel is a key battery metal.**

From the rechargeable nickel metal hydride (NiMH) batteries in early digital cameras, to those that powered the first Toyota Prius hybrid cars in the 1990s, nickel has always been at the forefront of battery technology.

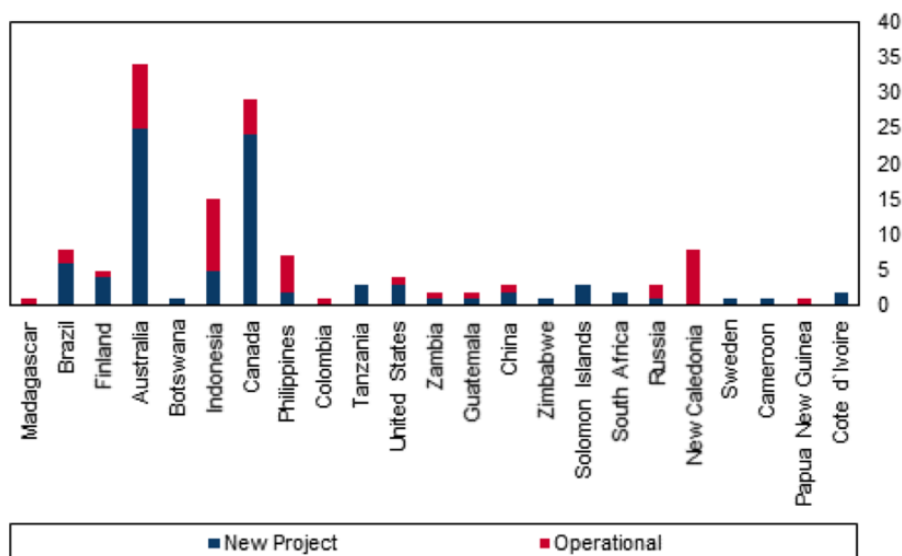
Nickel is an essential component in several types of batteries because the metal offers higher energy density and more storage capacity at a lower cost than a metal like cobalt.

### **4. Nickel has come along for the ride as technology for electric vehicles (EVs) has advanced, and today most Lithium-ion (Li-on) batteries – which are powerful enough to propel any EV – rely on nickel, too.**

Experts predict that, with or without the trading whirlwind that sent markets into disarray at the beginning of the month, the EV battery sector's demand for high-grade nickel is only picking up speed. Nickel's value to leading EV manufacturers also stems from the fact that using the silvery-white metal allows producers to rely less on cobalt, which is more expensive and has a less transparent supply chain. CEO of Tesla Motors, Elon Musk, has spent the last couple of years pleading with miners to produce more nickel to prevent exactly the kind of supply deficits that may now become reality even sooner than forecasted.

## North America, Australia, And Indonesia To Benefit From New Nickel Projects

Number of Projects by Status



Source: Fitch Solutions Global Mining Database

### 5. Zambia has plenty of untapped nickel reserves, yet only one operation is currently mining the mineral.

Since Southern Province's Munali Nickel Mine recommenced mining operations in April 2019 – after \$50 million of investment by Consolidated Nickel Mines brought it out of an extended period of care and maintenance – it has been slowly and somewhat steadily ramping up production to around 300 tonnes of nickel per month. The miner hopes to increase production to 350 tonnes a month in 2022, and to add a separate copper and platinum group metal circuit, thanks in part to the sophisticated separation technology being utilised in its Dense Media Separator. According to Consolidated Nickel Mines CEO, Anton Mauve, "the nickel produced at Munali is a high-grade sulphide that attracts a premium, and is ideally suited to the EV market."

### 6. But...

There is the enticing prospect of First Quantum Minerals' Enterprise Nickel Production Project finally coming to fruition. Here, high-grade nickel sulphide is also expected to be suitable for tapping into the battery metals supply chain. Located 15 kilometres from FQM's Sentinel Mine, Enterprise's four million tonne-per-year process plant was completed in 2016, but to date it has been used to process copper ore from the Sentinel copper mine. Once fully operational, Enterprise could produce approximately 2,300 tonnes of nickel concentrate per month (28,000 tonnes per year) over an estimated 11-year mine life.

Enterprise has long been conceptualised, but has not yet been developed, thanks to a combination of lower prices from 2015 and a mining regime in recent years

that ended all prospects of investment. Now that demand and nickel prices appear to be favourable, it remains to be seen whether a new mining regime could bring Enterprise to life. Enterprise would be the largest mining project undertaken in Zambia since the commissioning of Sentinel mine in 2015, and the largest ever non-copper mining project. It would be a major coup – and a signal to the mining world – if the Government and First Quantum could bring this off.

### The tip of the iceberg.

Every newly-built mine creates an immense array of economic opportunities, often altogether unrelated to mining. With sufficient capital and foresight, mining operations can be supported by well-planned towns such as Kalumbila, which encourage private investment into independent businesses that will ultimately sustain the town beyond the life of the mine for which it was developed.

Nickel's recent price spikes amid heightened geopolitical tensions will very likely create a bigger appetite for mining and refining operations in countries that are perceived to be "safe", with minimal risk of sanctions, and more stable regulatory and trade regimes. With sufficient and timely investment into new and upcoming nickel projects – and a healthy exploration pipeline to ensure that the next nickel mine comes online in the not-too-distant future – Zambia will be in an enviable position to capitalise on the growing market for battery metals, and see nickel mining join copper mining as a flywheel for economic diversification.

**Article by Mining for Zambia**



## CHAMBER SAFETY COMMITTEE TOURS NFCA MINE, AS IT HOLDS ITS SCHEDULED MEETING.

**T**he Zambia Chamber of Mines Safety, Health and Environment (SHE) Committee held its first quarterly meeting on Friday, March 11th 2022 at Non-Ferrous Corporation Africa Mining (NFCA) in Chambishi.

The meeting was attended by SHE members from member mines including NFCA, Mopani Copper Mines, Kansanshi Mining PLC, First Quantum Mining Operations (FQMO), FQM Trident, Chibuluma, CLM Luanshya, Lubambe, Copperbelt Energy Corporation (CEC), Chambishi Copper Smelter (CCS), the Occupational Health and Safety Institute (OHSI) and Mines Safety Department (MSD). A total of 18 SHE members attended the meeting.

NFCA used the occasion to showcase their Safety Culture Training Center which is equipped with the state-of-the-art induction and training facilities. Sections visited within the Safety Culture Training Centre included: The Safety Culture Room which explains the context of the mining organisation, history and safety; The First Aid Training Centre with

16 manikins used for first aid training; The Safety Experience Center equipped with practical tools to demonstrate reasons for wearing a hard hat, seat belt, steel toe capped boots, safety harness, electrical isolation, among others; The Virtual Reality Centre which gives three-dimensional (3D) motion images and environment and makes one interact with them in a seemingly real or physical way during an accident; The Simulation Center which helps mobile equipment operators to virtually operate mobile equipment and improve their skills.

SHE members praised NFCA for the investment made to ensure mining becomes safer for miners and the improvements made to make the working environment safer.

The SHE Committee discussed mine accidents statistics, the OHSI report from 2015 to 2021 and decided on the theme for the 6th Occupational Health, Safety and Environment (HSE) Conference which will take place on the 3rd to 4th November 2022 at Protea Hotel in Ndola, among other issues.

The meeting concluded with a call to fill up the structure of the SHE committee. The Secretary to the SHE committee and Safety Sub-Committee Chairperson and Secretary were successfully elected as follows:

- Chairperson - Mr. Dean Mwelwa (NFCA Mining - continues),
- Secretary – Mr. Teza Kasengele (Kansanshi Mining PLC),

### Sub-committees

- **Safety** – Chairperson, Mr. Roy Mwamba (Mopani Copper Mines), Secretary – Mr. Justin Mpesa (FQMO),
- **Health** – Chairperson, Dr. Mieke Mulenga (Occupational Health and Safety Institute),
- **Environment** – Mr. Victor Sichamba (Mopani Copper Mines - continues).

*Article by Yewa Kumwenda*

## IN PICTURES



**Some members of the SHE Committee in the Virtual Reality Room.**



**Minister of Commerce, Trade and Industry Hon. Chipoka Mulenga, MP operating mobile equipment in the Simulation Centre.**



**NFCA Safety, Health and Environment Manager Mr. Dean Mwelwa (right) in the Virtual Reality Centre with Commerce, Trade and Industry Minister, Hon. Chipoka Mulenga, MP.**



**Minister of Mines and Minerals Development, Hon. Paul Kabuswe, MP, (front centre) being shown around the Safety Culture Room, which explains the context of the mining organisation, history and safety at NFCA.**



## KAGEM PAYS \$1.5 MILLION IN DIVIDEND

**K**agem Mining has delivered a **USD 1.5 million** dividend to the Zambian Government's Industrial Development Corporation (IDC).

The dividend, the first since 2016, is in addition to the **USD 5.6 million** mineral royalty tax paid on the sale of emeralds at auction during 2021 and the **USD 11.9 million** corporation tax payable for the year ended 31 December 2021.

Kagem Board Chair, Dr. Sixtus Mulenga said Kagem is pleased to deliver this dividend, which speaks to values of transparency, legitimacy and integrity.

Dr. Sixtus Mulenga said this is a clear demonstration of the successful model partnership between Kagem and the Government through the IDC. He said the dividend also demonstrates that Kagem has weathered the challenges of COVID-19 to deliver a record performance for 2021. Kagem was significantly affected, with a suspension on operations in place for a year from March 2020. Yet the mine protected the jobs of every employee by paying salaries to the employees and sheltering them from redundancy despite negligible revenue and zero productivity, thanks to the support from Kagem's parent company and main shareholder – Gemfields. Kagem underwent

a phased resumption of operations from March 2021, with operations reaching normal capacity by the end of May 2021.

IDC Acting Group CEO Henry Sakala said the onset of the Covid-19 pandemic had an adverse impact on both the global and local economies across all sectors. The newly introduced "multi-city viewing with online bidding" auction format has provided greater flexibility in the ever-changing market circumstances, explained Gemfields, which owns 75% of Kagem in partnership with the IDC.

During 2021, Gem-fields invested **USD 2.3 million** on upgrading mining and ancillary equipment and infrastructure improvements to ensure the mine is COVID-19 compliant.

"We extend sincere thanks to our 2,500 team members worldwide, to our host governments, to our business partners, our customers and our shareholders for their ongoing support. We look forward immensely to harnessing the opportunities and navigating the challenges in the year ahead," said Gemfields Chief Executive Officer, Sean Gilbertson.

**Article by the Independent Observer**

# A LOOK INTO THE CHAMBER OF MINES ZAMBIA COUNCIL FOR FIRST-AID

**T**he Chamber of Mines of Zambia Council for First Aid (CMZCFA) operates under the auspices of the Zambia Chamber of Mines and is presently the only society recognised by the Chief Inspector of Mines to supervise First Aid Training activities in the

mining industry and issue certificates of competence to deserving candidates. The Council also conducts mining inspections at all mines that are affiliated to the Chamber.



**BARRICK Lumwana first aiders carrying out cardiopulmonary resuscitation (CPR) demonstration**

These inspection visits are aimed at checking on compliance to acceptable standard First Aid practice and statutory First Aid requirements as prescribed by the Mining Regulations – MR 1201-1210 as well as MR 213 and 214.

Mining First Aid in Zambia has been practised in the mining industry since the 1930s under the auspices of the South Africa Red Cross until the end of 1962 by which time the Northern Rhodesia branch of the British Red Cross had developed sufficiently to assume the responsibility of running First Aid programmes as one of the important aspects of the Red Cross.

During the era of the Zambia Consolidated Copper Mines (ZCCM), the Zambia Red Cross Council for Mining First Aid (ZRCCFMFA) was managed by the Secretariat at the Industrial Relations Bureau (IRB-

CISB). However, after the privatisation of the mines, the ZRCCFMFA collapsed. In 2007, the Chamber of Mines reconstituted the organisation under the name Chamber of Mines of Zambia Council for First Aid (CMZCFA) and the organisation was to be identified with a green cross in the map of Zambia.

The CMZCFA has continued to successfully conduct First Aid Examinations and Mine Inspections at all mines affiliated to the Chamber and has also continued to successfully conduct annual Inter-Company First Aid Competitions at various venues across the mining industry to ensure international best practice in First Aid. The 2022 Inter-Company First Aid Competition will be hosted by Non-Ferrous Corporation Africa Mining (NFCA) on Saturday, 29th October 2022.

**Article by CMZCFA**



***Only by taking to the skies can Zambia find the next generation of mines below the surface.***

## MAPPING THE MINERALS

**Z**ambia's new Government has big plans for the mining sector, with President Hichilema hoping to see the country add some 1.2 million tonnes to annual copper production within a matter of years.

While current operations have potential to increase production by around 400,000 extra tonnes a year – subject to investments in the sector of an estimated \$4.3 billion – there's a finite limit to that which can be achieved through existing mines. Improving Zambia's mining exploration pipeline in order to find the next generation of mines has therefore never been more urgent. "Quite simply, we're mining more than we're exploring," says Zambia-based geologist Alex Matthews, Country Manager at KoBold Metals, a new type of exploration company that uses statistical modelling and big data aggregation to locate mineral deposits.

Attracting new exploration interest is the key to discovering new mines, which we must do if we are to double, or even treble current levels of production. Conducting a new national survey of Zambia, with the purpose of capturing up-to-date airborne geophysical data of the country, is the missing piece in the puzzle.

### **What is "airborne geophysical data" and why is it a powerful tool?**

Airborne geophysical data is, essentially, a detailed and multi-layered collection of scientific information about the physical properties of a particular part of the planet. The information is gathered via sensors that are attached to aircraft that follow pre-programmed flight lines typically at altitudes of between 40m to 100m above the ground. The data captured from the various sensors is then processed and 'stitched together' – in a manner of speaking – with existing data, until a database providing a comprehensive picture of Zambia's geological architecture gradually forms.

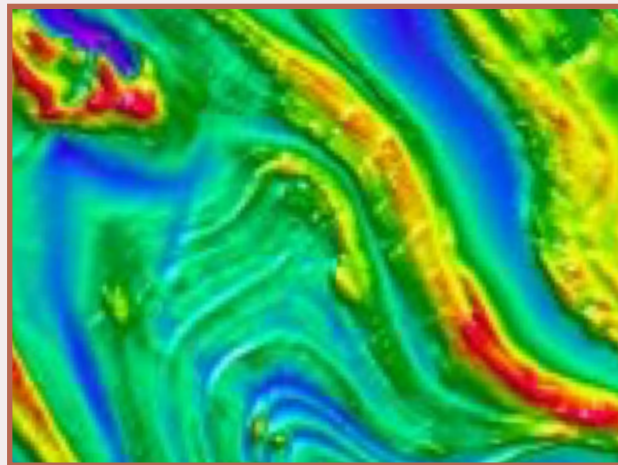
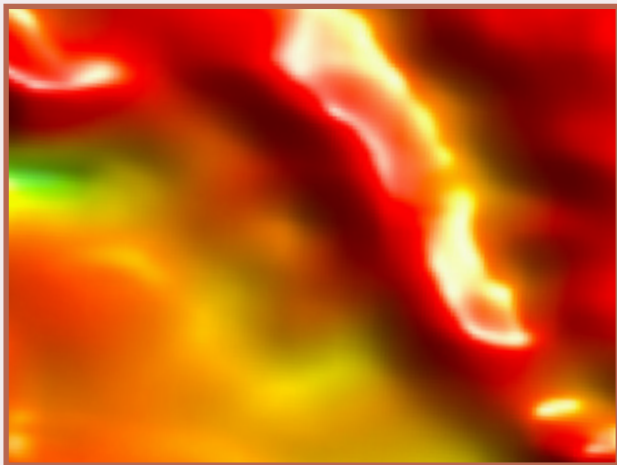
A wide range of data can be captured using airborne platforms – magnetics, radiometrics, electromagnetics, gravity – but generally, it's the combination of magnetics and radiometrics that help to discriminate between different rock types. "We need to improve our understanding of the country's prospectivity as a whole," says Chief Geologist at FQM Zambia, Hugh Carruthers. "We also need to better understand the Copperbelt's underlying geology in

order to find new mines. The only way to do that is with regional coverage, by working from the known to the unknown, and extrapolating what's there based on magnetics and radiometrics."

### Why do we need new surveys?

Zambia was, in fact, the first country on the continent to obtain airborne geophysical coverage on a national scale, but the dataset acquired in the early 1970's is extremely low resolution and in analogue format. In

recent years the analogue data has been digitised to produce an image of Zambia's gross geological architecture but, while the data is helpful at this scale, as one zooms in to progressively smaller areas this is no longer the case, and it cannot provide the level of detail that modern exploration teams need. Without this, they are unable to interpret the underlying geology which is key to identifying regional targets for exploration.



**Low resolution historical government data (above left) beside modern high resolution magnetic data (above right), showing the same area in Zambia. Both datasets have undergone the same processing without further enhancement. Unlike the old data, the new data could be processed further to improve resolution and yield a wide range of information and approaches to interpretation**

"In order to find the next greenfields projects [in previously unexplored areas or areas where minerals have not yet been discovered] you need airborne geophysical coverage as a first step," says Mr Carruthers. "If we want to expand Zambia's exploration footprint, regional geophysics is the only way we'll have any idea how to identify targets."

### The good old days are behind us.

When Zambia's last national airborne geophysical survey was conducted in the early '70's, the data set was acquired at what's called a line spacing of 800-1200m. This means that aircraft flew along preset routes (or 'lines') that were spaced between 800 and 1200 metres apart. Despite leaving a space of a few hundred metres between flight lines unsurveyed – and conducting these surveys in cumbersome planes that had to fly far higher above the ground than is possible or safe today – Zambia's data set was state of the art at the time, and the exercise was invaluable for regional mapping and exploration. But when advances in technology and digital data processing arrived in the mid-1980's, this data became increasingly redundant.

Mineralisation was also relatively easy to locate in the past, because copper deposits at Zambia's existing mines – with the exception of the Chambishi Southeast

ore body – all 'outcropped' (meaning the deposits existed within rocks that are exposed at surface level), making them easily visible to the trained eye. "If we are to find the next generation of mines, they more than likely won't outcrop," explains Mr Carruthers. "So if you don't use geophysics you have absolutely no idea what you're walking over. Geochemistry and geophysics have the potential to see the blind deposits beneath the surface that don't outcrop, and those are the ones we've got to find if we're going to succeed in boosting copper production."

***"If you don't use geophysics you have absolutely no idea what you're walking over. Geochemistry and geophysics have the potential to see the blind deposits beneath the surface."***

### A game of risk

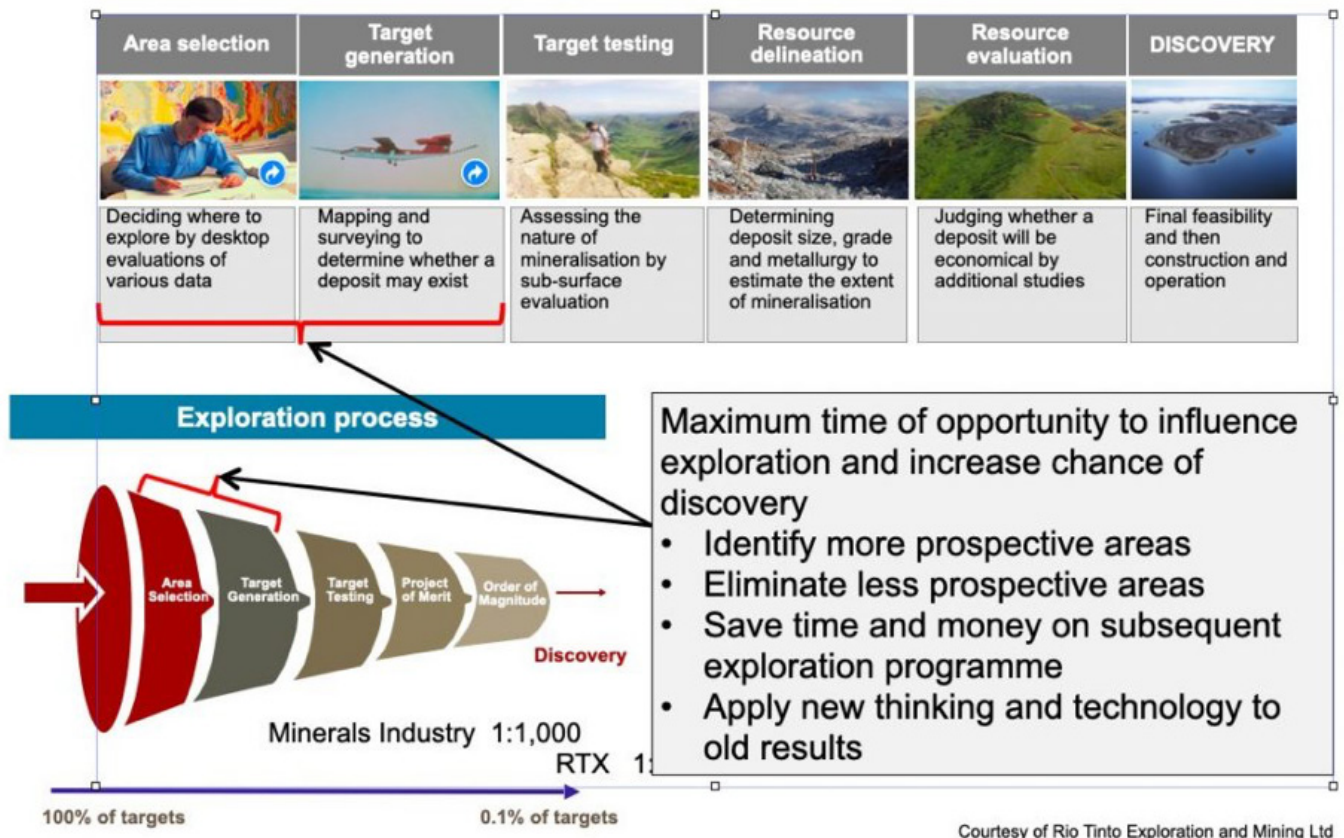
Without access to up-to-date airborne geophysical coverage of Zambia, very few investors will be willing to take the enormous financial risk that comes with acquiring the data themselves. With absolutely no guarantee that mineral deposits lie beneath the earth's surface in quantities that could justify setting up the infrastructure to mine them, for the vast majority of companies, the risk is simply too great.

Even when the risk of sunk costs is less of a barrier

to investment, Zambia's lack of current geophysical data adds years onto the process of getting these new mines up and running and, by extension, delays any possible increases in the country's copper production. This is because, without access to the data they need, explorers have to start at the very beginning. Obtaining high quality geodata sets (using magnetics and radiometrics) can take around a year. Only then can data be stitched together in another year-long

process to create geological maps which they can begin interpreting. These maps may or may not help them to identify targets for exploration. This is not to mention the time spent acquiring an exploration license, environmental clearance, and a host of other permissions. Access to high quality geodata sets can reduce lead time by five years, according to Mr Matthews and Mr Carruthers.

## Modern Exploration Process



But it's not just about shortening the time it takes for new mines to be built. The fact is, without data to suggest that Zambia has untapped mineral deposits that are worth exploring, companies and investors typically can't justify the risk of looking in the first place. For starters, how does one pick the area where they apply for an exploration license without any data to guide them? It's like looking for a needle in haystack.

***"The fact is, without data to suggest that Zambia has untapped mineral deposits that are worth exploring, companies and investors typically can't justify the risk of looking in the first place."***

This is particularly true of minerals other than copper, which has historically been found in the Katanga Basin, home to the rich copper-cobalt deposits that make up the Central African Copperbelt in Zambia, and the Democratic Republic of the Congo (DRC).

But finding out where the minerals – including gold, cobalt, nickel, and manganese – that government hopes will diversify the mining sector are located is anyone's guess.

A national airborne geophysical survey is the first step in creating a map that can be layered with additional details and interpreted, with the ultimate goal of leading you via one of many routes to the proverbial treasure. The technology available to capture data might change over the years, but once you've measured the magnetic and radiometric properties of rocks, the raw digital data will not. Collecting it is a once-off exercise that allows this data to be interpreted and reinterpreted for years to come.

"If the data was available off-the-shelf," explains Mr Carruthers, "an exploration company could simply provide Government with the coordinates of their

exploration licence and access the data they need for a nominal fee, before reprocessing and reinterpreting it.”

Charging nominal fees (at most) is a necessary incentive that benefits all parties. Today, it is common for a company to spend the first year or more of their exploration licence acquiring the data they need at a cost of millions of dollars. Providing access to the data that they need would, instead, enable them to be on the ground within months.

#### **There’s competition on our doorstep.**

Charging no more than nominal fees for access to data like this is also the gold standard of Governments across the region. Botswana, Namibia, and Mozambique have all completed geophysical surveys in recent years, so if Zambia is to remain competitive in the mining world, we need to act fast.

“Think of exploration as critical Research & Development for the mining industry,” says Mr Matthews. “Without exploration, the industry is inherently unsustainable.”

#### **Walking on a proverbial gold (or, copper) mine.**

If Zambia were to undertake an airborne survey without delay, national geophysical coverage could be realised within three years, with private sector involvement. Working with institutional investors like the World Bank would involve more moving parts which would, inevitably, slow the process to around five years. Setting this exercise in motion now – so that investors can hit the ground running in a few years’ time – is an exciting and viable route to putting Zambia firmly on its path to significantly boosting copper production.





## INSIGHT INTO THE CHAMBER OF MINES ZAMBIA MINES RESCUE ASSOCIATION

**T**he Zambia Mines Rescue Association (ZMRA) under the Chamber of Mines, is a non-profit making organization rendering quick emergence response to the mines. The establishment of Mine Rescue Services units in the Zambian mining industry is traced to the early 1930s, reportedly starting with Luanshya and Mufulira mine sites.

The growing need for this specialized service and subsequent transformation in the mining industry led to the formation of a structured association which has continued to serve as the backbone of emergency preparedness in the mines. Suffice to say that it is now an essential requirement for underground mines to have functional mine rescue teams in place, according to the Mining Regulations under the Zambian law.

Currently, mine rescue teams are organized under the Zambia Chamber of Mines, who serve to oversee the operations of rescue teams of member mines in the mining industry to ensure individual and collective capacity. Effective and efficient mine rescue services is enhanced in accordance with the mining regulation pertaining to underground mine operations.

Mine rescue teams comprise of volunteers who not

only have passion for the service to protect life and property but must be medically fit and complete prescribed training to prepare them to undertake demanding tasks in case of emergencies. Operations of individual mine rescue teams are supported by the respective host companies or contracting organization.

Zambia has been a beacon of best practice in mine rescue owing to the support of the Chamber of Mines to the ZMRA in providing training and capacity building for mine employees in various disciplines.

Since 2011 when Zambia Chamber of Mines became a member of the International Mines Rescue Body (IMRB), the Chamber has always been represented at biennial IMRB meetings and conferences which have previously been held in China, Germany and Russia.

In order to conform to international best practice in mine rescue, the Chamber through the ZMRA also organises mine rescue competitions which started as far back as back in 1972. During ZCCM time, Copper Industry Service Bureau (CISB) coordinated all the activities of mine rescue teams across all the mines. The winning team from the Final Heat National Mine

Rescue Competition would then be sent to Zimbabwe to take part in the Zimbabwe International Rescue Competition which was an annual event.

After affiliating to the IMRB, Zambia has been participating in the International Mine Rescue Competition (IMRC) with the Mopani Nkana Team B representing the country in the IMRC that took place in Russia in 2018. The 2021 National Mine Rescue Competition was attended by officials from Morupule Coal Mine of Botswana who also adjudicated the Competition. Lubambe Mine won the Competition and will together with the 2018 winners, Mopani Copper Mines – Mufulira, participate in the IMRC that will be held in the USA in 2022.

The Zambia National Mine Rescue Competition is receiving regional and international recognition and the 2022 Competition will see mining rescue teams from the Democratic Republic of Congo (DRC) and Botswana participating.

Zambia is honoured to be chosen as the first African country by the IMRB to host the International Mine Rescue Competition (IMRC) in 2026 that will host mine rescue teams from all over the world.

On the local front, ZMRA has been called upon by the Government of Zambia to assist in fighting fires at Collum Coal Mines in Sinazongwe and Maamba Collieries Limited in Maamba, outside the Chamber membership. ZMRA has also been called upon to carry out risk assessments on old tunnels at possible new hydro power sites in Kasama and Kawambwa.

The rescue teams are constantly engaged by the community to retrieve bodies from the wells, dams and rivers in case of tragedies.

### **Article by ZMRA**





## BRITISH FIRM PLANS TO INVEST \$100 MILLION IN ZAMBIA MINE EXPANSION

**LUSAKA** — Britain's Moxico Resources plans to invest **USD100 million** to expand its majority-owned Mimbula copper mine in Zambia, UK Minister for Africa Vicky Ford said on Wednesday.

The investment will create new jobs and increased tax revenues for Zambia's government, Ford said in a statement released by the British High Commission in Zambia while she was on a visit to the country.

Ford was visiting Zambia to launch a new investment model, which she said marked a key moment for Britain's financing of private sector growth and infrastructure across Africa.

"We are committed to supporting countries grow their own economies, bolster private sector investment and trade, and deliver the returns that will support wider socio-economic development," Ford said.

The Mimbula Copper Project is located in Zambia's

copper belt on the outskirts of Chingola town, more than 400 km north-west of Lusaka.

The copper-rich deposit is located on a large-scale mining license held by Moxico Resources through its Zambian subsidiary, Mimbula Minerals Ltd.

Moxico holds an 85% ownership in the license holding company and 15% is held by Moxico's Zambian partners. The mining license was granted in May 2017, with a validity for 25 years.

***Article by the Independent Observer***

# "MINING, LARGEST CONTRIBUTOR TO GROSS REVENUE"

An excerpt from Minister of Finance, Dr. Situmbeko Musokotwane on his First Quarter Budget and Economic Performance Briefing.

"In Mining, in 2021, the mining sector shrunk despite high copper prices, the sector shrunk by -6.3%. This reflects difficulties happening in the Mining Sector. If we are to attain 3 million tonnes production target in 10 years, the Mining Sector has to drive very hard for a turn around that sustainable" - Minister of Finance Dr Situmbeko Musokotwane, at the First Quarter Budget and Economic Performance Briefing on Thursday 8th April 2022.

Below is an excerpt from the Minister's Presentation.

- i. The Mining and Quarrying sector has continued to be the largest contributor to gross revenue collections recorded in Q1 of both years which has now increased from 40.8% in 2021 to 41.8% in 2022;
- ii. In Q1 of 2022, Mining Company Tax increased by 98.8% to K3.4bn from K1.7bn in same period of 2021
- iii. Mineral Royalty revenue collected increased by 35.2% in Q1 from K2.4bn in 2021 to K3.2bn in 2022.

Through its Facebook page, stakeholders reacted positively to the news that Mining is contributing to the taxes collected by ZRA.

## Perry Siatulye

"The zambian citizens thinks that the mining industries contribute almost nothing in taxes as some sectors of the society alleges. It is important as the institution mandated to collect revenue, I feel it prudent for you to adequately enlighten the owners of the taxes (citizens) how the mines are hugely contributing to the zambian coffers".

## Patson Katebe

"Kudos ZRA! Truth Independence only comes when a country is able to mobilize local revenues to finance it's national budget. Those doomsayers who created a false perception that mineral royalty was removed must be ashamed now..... unfortunately majority have no sense of shame".

## Grace Njapau

"This is very important information for those who think Mining is waste of time and it is for the foreign investors only see how artisanal mining sector is contributing".

## Oswald Besa

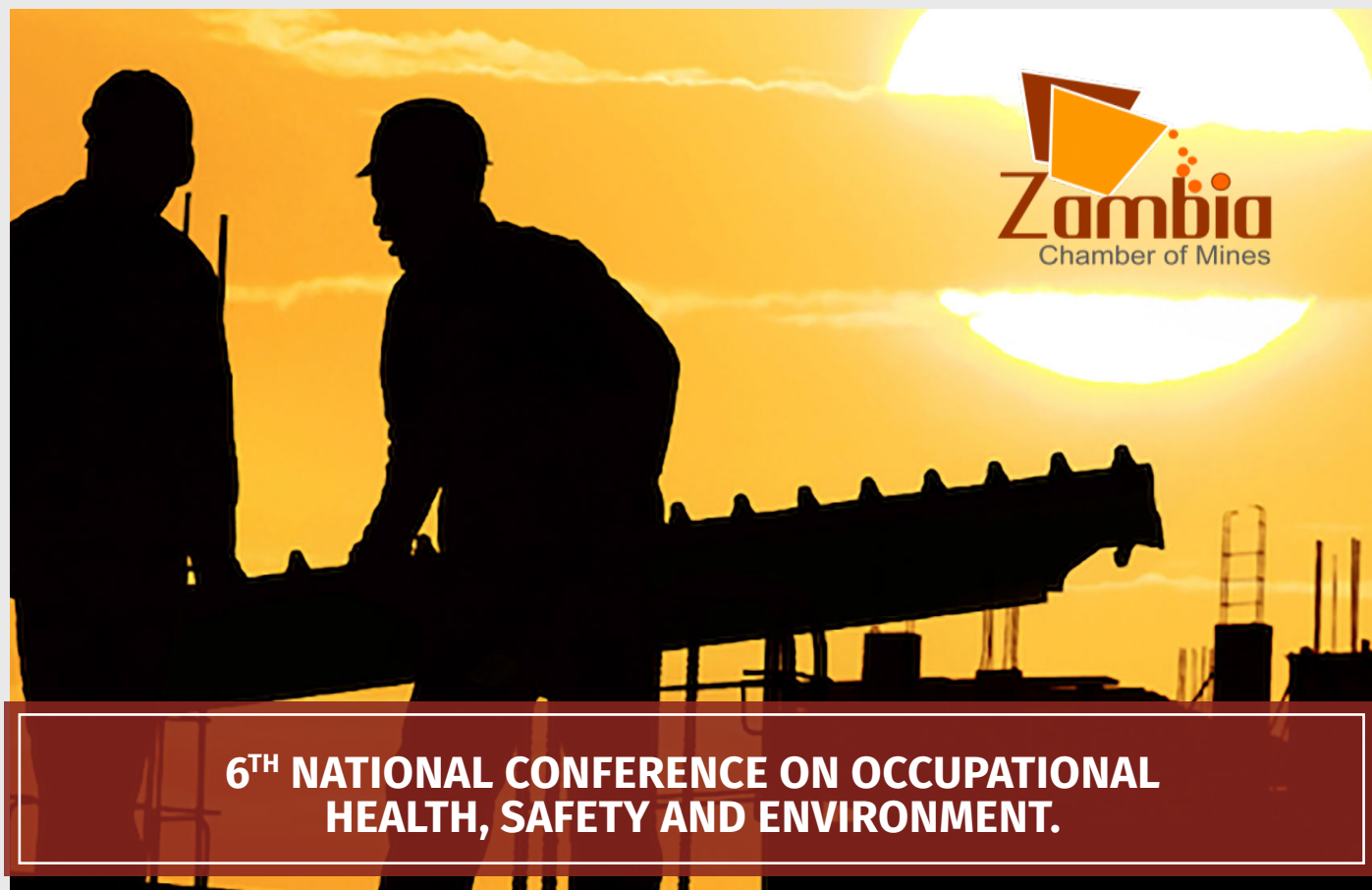
"Congratulations".



Dr. Situmbeko Musokotwane - Zambia Minister of Finance

2: Jan-Mar 2022 vs Jan-Mar 2021 Gross Collections by Sector, K 'Million

| Sector                                                                                                                      | Gross Tax Collections (Value) |                 |              | Gross Tax Collection of Total |               |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------|--------------|-------------------------------|---------------|
|                                                                                                                             | 2022                          | 2021            | Var          | 2022                          | 2021          |
| Mining and Quarrying                                                                                                        | 11,058.2                      | 7,937.9         | 39.3%        | 41.8%                         | 40.8%         |
| Wholesale and retail trade; repair of motor vehicles and motorcycles                                                        | 3,121.5                       | 2,374.4         | 31.5%        | 11.8%                         | 12.2%         |
| Manufacturing                                                                                                               | 2,314.2                       | 2,004.2         | 15.5%        | 8.7%                          | 10.3%         |
| Public administration and defence; compulsory social security                                                               | 1,587.8                       | 805.0           | 97.2%        | 6.0%                          | 4.1%          |
| Financial and insurance activities                                                                                          | 1,476.2                       | 1,037.6         | 42.3%        | 5.6%                          | 5.3%          |
| Unclassified/Individuals                                                                                                    | 1,017.7                       | 791.1           | 28.6%        | 3.8%                          | 4.1%          |
| Administrative and support service activities                                                                               | 914.2                         | 642.8           | 42.2%        | 3.5%                          | 3.3%          |
| Information and communication                                                                                               | 829.1                         | 626.5           | 32.3%        | 3.1%                          | 3.2%          |
| Other service activities                                                                                                    | 803.7                         | 604.5           | 33.0%        | 3.0%                          | 3.1%          |
| Professional, scientific and technical activities                                                                           | 664.5                         | 509.6           | 30.4%        | 2.5%                          | 2.6%          |
| Electricity, gas, steam and air conditioning supply                                                                         | 644.5                         | 680.6           | -5.3%        | 2.4%                          | 3.5%          |
| Construction                                                                                                                | 486.9                         | 338.1           | 44.0%        | 1.8%                          | 1.7%          |
| Education                                                                                                                   | 463.6                         | 231.6           | 100.2%       | 1.8%                          | 1.2%          |
| Agriculture, forestry and fishing                                                                                           | 344.5                         | 269.5           | 27.8%        | 1.3%                          | 1.4%          |
| Transportation and storage                                                                                                  | 326.8                         | 290.1           | 12.7%        | 1.2%                          | 1.5%          |
| Human health and social work activities                                                                                     | 111.9                         | 65.3            | 71.4%        | 0.4%                          | 0.3%          |
| Accommodation and food service activities                                                                                   | 89.6                          | 62.7            | 42.9%        | 0.3%                          | 0.3%          |
| Real estate activities                                                                                                      | 88.0                          | 108.0           | -18.5%       | 0.3%                          | 0.6%          |
| Arts, entertainment and recreation                                                                                          | 70.3                          | 26.8            | 162.3%       | 0.3%                          | 0.1%          |
| Water supply; sewerage, waste management and remediation                                                                    | 18.9                          | 38.6            | -51.0%       | 0.1%                          | 0.2%          |
| Activities of extraterritorial organizations and bodies                                                                     | 18.8                          | 11.2            | 67.9%        | 0.1%                          | 0.1%          |
| Activities of households as employers; undifferentiated goods- and services- producing activities of households for own use | 0.2                           | 0.2             | 0.0%         | 0.0%                          | 0.0%          |
| <b>Total</b>                                                                                                                | <b>26,451.1</b>               | <b>19,456.2</b> | <b>36.0%</b> | <b>100.0%</b>                 | <b>100.0%</b> |



## CALL FOR PAPERS

The **Zambia Chamber of Mines** will be holding its 6<sup>th</sup> OHSE National Conference from **3<sup>rd</sup> – 4<sup>th</sup> November, 2022** at Protea by Marriot Hotel, **NDOLA**.

### Conference theme

The theme for the Conference is: **“ACHIEVING EXCELLENCE IN HEALTH, SAFETY AND ENVIRONMENT (HSE) SYSTEMS THROUGH INSTITUTIONAL LINKAGES AND NETWORKING.”**

### Scope and Topics

This high-level Conference will provide an ideal forum, for sharing, ideas, experiences and best practices for experts in mining Occupational Health Safety and Environment, from academia, research institutions, regulatory bodies and industry.

Occupational Health, Safety and Environment issues in the mining industry have continued to be a subject of debate and scholarly enquiry globally.

Interested authors are hereby invited to submit articles based on original research work, projects, surveys and industrial experiences relevant to **Occupational Health, Safety and Environment**, in mining and related industries in line with the theme.

### Paper Submission

Abstracts of papers should be submitted to the Organising Committee by email on the address given below by **Wednesday 31<sup>st</sup> August, 2022** for consideration. Submissions must be original and should not have been published previously or be under consideration for publication while being evaluated for the Conference.

Successful Authors will be requested to submit full papers not exceeding 15 pages in length, inclusive of illustrations. The papers must be in MS Word, produced on A4 paper size in 12 Point Times New Roman font, single line spacing, and in a single column format. The margins should be 35mm on the left and 25mm on the other three sides of the page. The text must be fully justified and paragraphs must be separated by single line spaces.

Submitted papers must contain the following sections as a minimum requirement:

- I. Title
- II. Name of author(s) and affiliation with the e-mail address for lead or corresponding author
- III. Abstract not exceeding 300 words
- IV. About five (5) keywords (which must also appear in the abstract)
- V. Main body of the paper
- VI. Conclusions
- VII. References (Harvard style)

## REVIEW PROCESS AND PUBLICATION

All papers submitted will be reviewed with respect to overall quality of content, presentation, potential for future impact of the presentation on the practice of OHSE in the mining industry relevance to the target audience. All accepted papers will be published in the Conference Proceedings Report.

## CONTACTS:

|   | Stream/thematic area | Addressee                                                                                         |
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| 3 | Environment          | Victor Sichamba: <a href="mailto:Victor.Sichamba@mopani.com.zm">Victor.Sichamba@mopani.com.zm</a> |

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