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Finance Ministry should look after the goose that lays the golden egg

The year started on a low note with the government imposing another lock-down placing restrictions on both formal and informal companies. It is highly frustrating to have to be passing through several Police checkpoints just to go about one's business not forgetting the queues the checkpoints create. It is however a necessary pain the country has to go through to combat or minimise the spread of the novel coronavirus that is threatening our society and the world as a whole.

Welcome dear reader to the 1st edition of Mining Zimbabwe Magazine of 2021. Like everyone else in the industry we always wish to have the best functioning mining industry and this year is no exception. We strongly feel a lot of challenges in the sector in particular "Illegal mining" is due to incapacitation of the mining industry which is caused by the total neglect of mining industry by the government in particular.

One cannot surely expect the mining industry to run smoothly when its parent ministry is in a sore state as it currently is in. One of the mineral richest provinces Mash west has only two vehicles which like any machines will face mechanical challenges yet those vehicles are expected to process over 4000 applications. This means each vehicle has to pay 2000 mine site visits. Surely it will be over 6-7 years before last years' application is processed!

With the prevalence of shaft collapses across the country and the unnecessary loss of lives further delays in issuing titles leads to increased illegal mining. Miners cannot wait for years for mining titles as it

is almost always the case that someone else will just come to take over. No-one will want to set up proper mining structures before being issued with a title for the fear of arrest and confiscation of equipment as witnessed with operation "Chikorokoza Chapera" and others before it.

Mines and Mining Development Portfolio Committee lead by Hon E Mkaratigwa should take a nation-wide tour to Mines provincial offices to get first-hand information of the situation on the ground. Illegal mining is killing our people, formalisation will help combat this as it forces the miner to follow set standards for proper safer well mapped and planned mining. The Mines Ministry as is, is incapacitated to perform the task it is time for the government, in particular, the Finance Ministry to look after the goose that lays the golden egg.

I would like to also take the opportunity to convey condolences to families of those in the mining industry who have lost their lives to COVID-19. Covid is real let us keep safe and make the use of face mask compulsory even at the small-scale level because our lives now depend on it.

As usual, we welcome your views and comments on content contained herein or on any of our platforms you can email us info@miningzimbabwe.com or Whatsapp pr call us on 08644 276 585

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A new era for Diamonds ahead



Besides being famous for making beautiful jewellery and for industrial use (extremely effective at polishing, cutting, and drilling) researchers have identified diamonds as advanced functional devices in microelectronics, photonics, and quantum information technologies as well as an ultra-wide bandgap semiconductor to more effectively power the electrical grid, locomotives and even electric cars.

Rudairo Dickson Mapuranga

United States' Lawrence Livermore National Laboratory Scientists published a study in Applied Physics Letters showing that diamonds have superior carrier mobility, breakdown electric field and thermal conductivity, which are significant properties to power electronic devices.

Following this study, an international team of researchers have certified the importance of diamonds in the tech industry by conducting a study proving that strained diamonds may take a lead in photonics, microelectronics and quantum information technologies.

This means that the use of diamonds can now be shifted to electricity generation and thereby promoting the rise of diamond prices and markets. Dr. Lu Yang, an Associate Professor in the Department of Mechanical Engineering (MNE) at City University of Hong Kong (CityU) who was one of the heads of the study told the media that a new era for diamonds was approaching the global trend.

"I believe a new era for diamonds is ahead of us," Dr. Lu Yang said. In semiconductors, the bandgap is known to be a crucial property and a broad bandgap facilitates the operation of high-frequency or high-power devices.

The big bandgap and tight crystal structure of diamonds creates a problem to "dope," an easy or common way to control semiconductors' electronic properties during production. This makes it difficult for diamonds to be used as industrial applications in electronic and optoelectronic devices.

Dr. Lu and his colleagues, however, discovered that nanoscale diamonds can be elastically twisted using an unexpected large local strain. They demonstrated that elastic strain engineering could be used to change the physical characteristics of diamonds thereby becoming essential in microelectronics, photonics, and quantum information technologies.

The team firstly microfabricated single-crystalline diamond samples from solid diamond single crystals. The samples were in a bridge shape about one micrometre long and 300 nanometres wide, with both ends wider for gripping.

The diamond bridges were then uniaxially expanded in a well-controlled way under an electron microscope. Under controllable and continuous loading-unloading cycles of quantitative tensile tests, the diamond bridges exhibited a large and highly uniform elastic deformation of around 7.5 per cent strain across the entire gauge section of the sample, instead of deforming at a localized region in bending. And they recovered their original shape after unloading.

Demonstrating the effect of elastic straining between 0 and 12 per cent on the electronic properties of diamond, the researchers carried out density functional theory (DFT) with its simulation results indicating that the bandgap of diamonds generally decreased as the tensile strain increased, while the largest bandgap reduction rate decreased from around 5 eV to 3 eV at about 9 per cent strain along with a certain crystalline orientation.

The team's findings represent an early step in realizing deep elastic strain engineering of microfabricated diamonds. The research effectively proved that it is possible to change the band structure of a diamond, and more significantly, such changes can be reversible and continuous, enabling a range of applications, such as strain-engineered transistors, micro/nanoelectromechanical systems

Zim's opportunity to be one of Rare Earths biggest suppliers getting wasted



There are fears that Zimbabwe will soon regret her potential to become one of the world's largest rare earth elements (REE) supplier if the issuance of Exclusive Prospecting Orders (EPOs) continued to be delayed.

Rudairo Dickson Mapuranga

The delays by the Ministry of Mines and Mining Development and the President to grant EPOs to exploration companies have led to a situation where the quantity of minerals in the country is speculatively quantified.

This means that some metals like rare earth which have become famous in the manufacturing of high-tech products such as smartphone, chips, aircraft engines and new energy production will soon become unpopular before the country benefits.

According to RioZim Chief Geologist Mr Patrick Takaedza, Zimbabwe speculatively has the potential to become the leading rare earth elements, global producer.

"REE are mainly found in what we call Carbonatites or Alkali Ring Complexes in association with other minerals mainly vermiculite and phosphate. We have these in Zimbabwe," Takaedza said.

The RioZim Chief Geologist also said that mines such as Shawa Carbonatite, Chishanya, Dinhidza and Dorowa can diversify to REE mining as this can be a way to yield foreign currency for the country.

"Shawa is already mining vermiculite so they can as well diversify to REE even as a bi-product. Dorowa too. Dorowa is a govt entity and is mining phosphate. There is also potential to diversify into REE." Said Takaedza.

According to Takaedza, there is potential that combined exploration

and mining efforts in these various Carbonatites can potentially yield substantial resources of REE. How much Resource it remains open and speculative though until all the pre-requisite resource work has been completed.

It should be noted that from Mining, the mines will need to beneficiate by flotation, gravity, magnetic, or electrostatic separation then Acidic or Alkaline chemical treatment then separation by solvent extraction or ion exchange, SCF, bio-sorption, electron extraction then finally purification and refining. This won't be an easy and cheap process therefore investment in this sector should be prioritised.

Only China currently can purify and refine rare earth and transform them into precious minerals, magnetic powder and other high-value products. The US reportedly ship some of its rare earth productions to China for processing.

This means that ore mined every year from rare earth mines must be shipped to China, refined into compounds and products and then sold back to the United States.

Recently China has asserted its dominance of the world's rare earth sector with the global industry moving to adopt the country's metal and alloys standards as its own. This came as China continues to battle US sanctions by withholding its rare earth exports leading to emergency measures in the US.

Zimbabwe has been tipped to invest in rare earth as a way to balance Chinese control to become an alternative supplier as this might create a world status for the country.

China continues to battle US sanctions by withholding its rare earth exports



The Shawa Vermiculite Mine is located near the township of Dorowa, approximately 300 kms South East of Harare, the capital city of Zimbabwe.

However, Parliamentary Portfolio Committee on Mines and Mining Development chairperson Hon Edmund Mkaratigwa said it was not wise for the country to invest in rare earth as a way to balance the trade as this might create tension for the country.

"It's international politics and if we look at who Zimbabwe is to the US and China, I think we can start to resolve the challenge. We are to a greater extent currently restricted from trading directly with the US as the government of Zimbabwe. Further, what does trading military-related metals to the US mean to our international relations? That is international politics that may need political solutions beyond economic approaches alone. But it is doable as long as it serves our interests as a country." Mkaratigwa said.



Hon Mkaratigwa said the country needed to invest in the rare earth sector with global business and profit-making in mind not only as to

fill a void created by China-US trade wars.

"It's usually not about filling the void but making business sense in all investment endeavours. The main question is why should we release ours when China is speculating with theirs? Without going too far into matters beyond us at the moment, I can say we need investors and those are the biggest barometer of whether investing in the rare earth minerals is making business sense at the moment without us just being exploited for less returns for the country and it's people today as compared to, for example, by what we may get if we hold on to them today. At the same time, are these rare earth minerals easy to extract and separate from other minerals and something like that, which goes on to technologies and resource accountability? He said

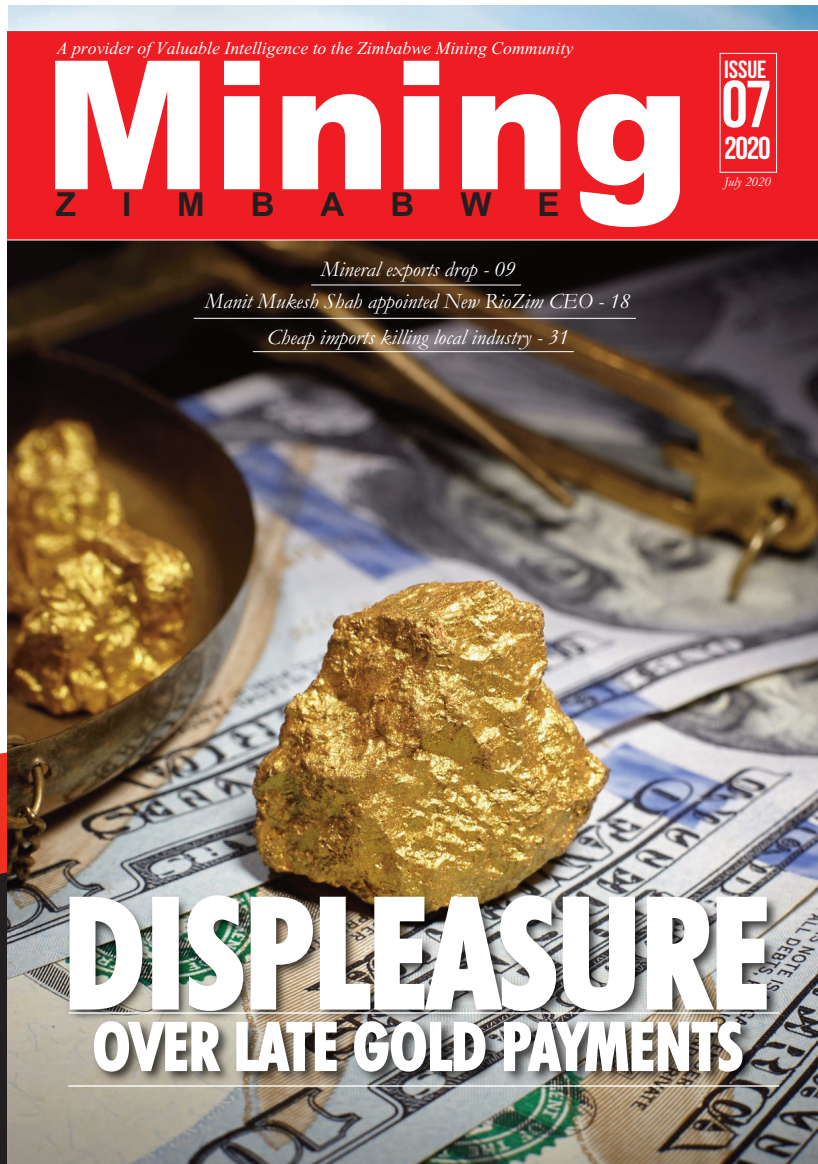
The United States has been planning to rebuild a rare earth supply chain independent of China. President Trump signed an order in September this year to speed up its development. The United States recently turned to Australia, the world's second-largest rare earth producer and signed an agreement with Blue Line to cooperate with Australia company Lynas to build rare earth processing plant in Texas.

Zimbabwe, therefore, needs to speed up rare earth elements mining before the world attempts to ban towards cleaner minerals as the US President-elect, Joe Biden is promising a "green revolution" the position of rare earth development in his plans is still unclear as rare earth processing is highly toxic.

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Fidelity should promote silver mining as gold prices set to shrink



The country's sole gold and silver buyer and exporter, Fidelity Printers and Refiners should consider promoting silver extraction, recovery and deliveries as the metal is set to shine this year.

Rudairo Dickson Mapuranga

In a period of 10 years, from 2002 to 2012, Zimbabwe's silver production failed to reach 15 tonnes which means the whole country was producing an average of fewer than 1.5 tonnes a year.

The prices of the shiny metal were below USD18 per ounce in January 2020 are now approximately USD28 per ounce, an ounce is roughly 28 grams this, therefore, means 1 gram of silver in the country can be bought at USD1.

Analysts are of the view that Silver's dual role and its greater volatility means it could fare better than gold as world economic growth picks up due to the discovery of the Covid-19 vaccine, as well as the world's push into clean energy prompts more usage of the shiny metal.

The Covid-19 pandemic triggered stockpiling of minerals by investors looking to protect their wealth. This, therefore, led to prices of gold and palladium to increase by more than 20 percent and platinum going as far as 10 per cent, silver also rose by almost 50 per cent.

Traditionally seen as a safe place to store money, gold began to rise as economic growth slowed in 2019, but the pandemic accelerated the rally and in August 2020 prices hit a record high of USD2 072.50 per ounce.

While demand for physical gold was hammered as the virus forced lock-downs, investment demand surged as reflected in the holdings of the world's largest gold-backed exchange-traded fund, SPDR Gold Trust, which recorded its biggest yearly gain since 2009 at about 30 percent.

Prices then dipped to around USD1 900 per ounce as investors stopped buying and vaccines were deployed against the virus, encouraging investment in assets that perform well during periods of economic growth.

In Zimbabwe, the shiny metal occurs as native silver in association with other minerals such as gold, copper and lead. With exception of the Osage Mine in Zimbabwe, it is declared as a by-product from the mining of platinum, gold and copper. Gold mines in the Odzi greenstone belt have the highest silver and gold ratios.

Small scale and artisanal gold miners are currently wasting away silver.

Government to take advantage of coal boom



The government is focusing on opening coal ground held speculatively by some companies in an endeavour to allow extensive exploration in these areas as coal global consumption is expected to rise significantly.

Rudairo Mapuranga

Despite many governments and pressure groups pushing for the ban of coal for energy generation, there has been no real cheaper and clean alternative, for example, the United Arab Emirates is set to become the first Arab Gulf country to generate electricity from coal with other countries expected to follow suit.

Speaking to Mining Zimbabwe, the Deputy Minister of Mines and Mining Development Hon Polite Kambamura said the government was drafting a coal policy which is expected to guide the country in benefiting from coal.

Hon Kambamura said the government has come up with coal beneficiation and value addition stance where coal concessions will be given to companies with a financial muscle to benefit as the country is geared to achieve a US\$12 billion mining industry by 2023.

"Currently we are focusing on opening coal ground held speculatively by some companies this will allow extensive exploration in these areas.

"The Coal Policy will soon be in place to regulate all coal and hydrocarbons mining in the country.

"We have several coal projects that are already being undertaken in line with our 12 billion milestone.

"The ministry has also come up with a coal beneficiation stance where coal concessions will be given only to companies with the ca-

capacity to exploit the resource and benefit within specified time-lines.

"It is through this drive that we envisage to be power generation self-sufficient and a net exporter of electricity by the year 2023.

"Value addition of metallurgical coal to coke is now a condition for export.

Needless to say, we look forward to also be fuel sufficient by 2030." Hon Kambamura said.

Indeed, coal can undisputedly contribute to the president's vision of the country becoming an upper-middle-income earner by 2030 through the mining industry achieving a US\$12 billion industry by 2023.

The continued use of coal for electricity generation is an indication that the mineral can fetch billions of dollars through energy production and exports.

The International Energy Agency (IEA) has projected that global coal demand will rise in 2021 and that by 2050 the volume of coal trade will increase by 1.5 times compared to the current level.

There is no sign that coal will fade away quickly. Energy consumption will increase by almost 60 per cent by 2040 and coal will still be the major source of power generation globally.

China has been recently hit by a massive electricity problem as coal shortages see power companies pull the plug.

According to Chinese National Energy Information Platform, the country is suffering from coal shortages due to its ongoing dispute with Australia which provides around 60 per cent of China's coal and other two countries almost at the point of cutting diplomatic ties.

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Holding roundtable is key towards attracting cobalt investments



Parliamentary Portfolio Committee on Mines and Mining Development Chairperson Hon Edmund Mkaratigwa has said that holding of roundtables is important for the country to create an enabling environment for investment and the market drive of metals such as cobalt.

Rudairo Dickson Mapuranga

Despite the country boasting of high untapped and underutilised mining concessions of cobalt, investment in the cobalt sector has not been attractive to investors due to various reasons.

Speaking to Mining Zimbabwe, Hon Mkaratigwa said it was essential for the government to create an enabling environment for investment and therefore the creation or holding of roundtables of utmost importance.

"The shifts on mineral market prices and related products are genuine and one of the government's key role is to create an enabling environment for a market drive.

"Holding roundtables with the affected constituency representatives is the best option," Mkaratigwa said. While it seems that the EV manufacturers are trying hard to push cobalt out of sight, a team led by researchers at the Pacific Northwest National Laboratory in the United States designed a highly active catalyst that contains cobalt

interspersed with nitrogen and carbon and, thus, doesn't rely on platinum to spur the necessary chemical reaction.

This means that cobalt has the potential to surpass or substitute platinum in fuel cells. The invention is four times more durable than similarly structured catalysts made from iron which is another platinum substitute.

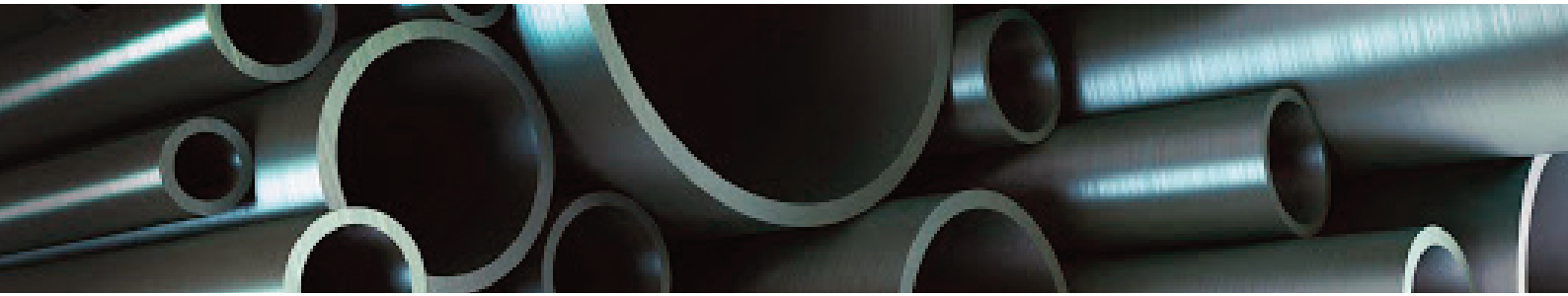
The research was conducted to substitute Platinum. Platinum Group Metals (PGMs) even though are the most common catalyst material for PEM fuel cells, are very expensive. Cobalt therefore could become a faster and cheaper substitute in degrading the acidic proton exchange membrane fuel cell environment.

The team also discovered, for the first time, significant differences in demetallation, where metal ions are leached out of the catalyst and that catalyst then loses activity. They also found that oxygen radicals from hydrogen peroxide, a byproduct of oxygen reduction in fuel cells, attack the catalysts and cause performance loss.

"In the end, we were able to not only improve the activity of the cobalt-based catalyst, but we significantly improved the durability," Shao said.

"Our further investigation led us to discover the mechanisms that typically degrade these types of catalysts."

Iron prices rise, opportunities for investment should be explored



Opportunities for investment into Iron mining have to be tapped into for the economic good of the country through local as well as international marketing efforts, the Parliamentary Portfolio on Mines and Mining Development Chairperson Hon Edmund Mkaratigwa has said.

Rudairo Mapuranga

Prices of Iron ore have more than doubled in 2020 putting the steel-making raw material on track to be a top-performing major commodity globally for the second straight year.

Speaking to Mining Zimbabwe, Hon Mkaratigwa said all efforts that should promote investment into iron ore mining and smelting should be considered in the country.

The Mines Portfolio Chairperson said it was important for the government to research on how best small to medium scale miners and smelters can be encouraged to venture into the iron subsector.

"What we may need to establish is whether small to medium investors can also be motivated into the sector and whether it is viable at those scales. Otherwise in the current context government may have to rethink opening or partnering towards reinvestment in the sector or look for a possibility for us to attract interested independent private players," Mkaratigwa said.

In Zimbabwe steel has been monopolised before and has been predominantly driven by the Government. Small players have not been much active in the sector because iron ore mining and steel manufacturing is capital intensive hence usually suitable for long term investment.

According to Mkaratigwa, ZiscoSteel was to a larger extent negatively affected by the proliferation of other competing global suppliers and particularly from China as well as the associated fall in market prices then.

Prices of Iron may continue or may not continue in the upward trend

in the longer term, however, investment in the sector remains key towards national development.

Zimbabwe Miners Federation (ZMF) National Chairperson Mr Makumba Nyenje said small players have been investing a lot into iron mining and smelting in the Mberengwa region but the government has not taken them seriously.

"We have plenty of miners doing iron in Mberengwa. They just need support," Nyenje said.

Reports have indicated that the most active iron ore features on the Dalian Commodity Exchange have gained 37.8 per cent this quarter and 21.5 per cent in December alone. They were up to 123 per cent as of 18 December 2020, while Platts' CFR China 62 per cent iron ore index has climbed more than 72 per cent.

Chrome Miners Association President, Mr Shelton Lucas said logistical problems have become a stumbling block for the iron sector to attract investment.

The National Railways of Zimbabwe (NRZ) is incapacitated to transport ore to ports for exports. This makes iron mining unviable.

The NRZ has never developed since 1980, it has been moving in retrospect this means that there is no growth of the sector.

"There is a need for a proper rail network to be functional since iron is voluminous for instance if SPA has got 70 000 tonnes per month it needs a robust rail network for this cargo to be hauled to the sea Port per month. Iron is a low-value cargo and cannot be hauled by trucks because the cost of transport outweighs the value of cargo," Lucas said.

The profitability of any iron ore mining lies in its location by the way of its proximity to the railway sidings. The Mines should also be in the railway grid that links the port.

Caledonia targets 67 000 ounce gold production in 2021



Aim- and NYSE American-listed Caledonia Mining Corporation, targets production of 61,000 to 67,000 ounces of gold in 2021 and 80,000 ounces of gold per annum from 2022 from its Blanket Mine in Gwanda. The miner is determined to play its part in helping the country achieve the President's vision of the Mining sector achieving a US\$12 BILLION mark by 2023.

Rudairo Dickson Mapuranga

Last year, the gold miner signed a memorandum of understanding with the government to boost investment in the country including a possible takeover of state-owned mining assets.

Caledonia has openly indicated that it was eying several brownfield gold mines in the country but faced challenges concluding deals.

Through the MoM, it signed with the President, Emmerson Mnangagwa, the company has secured exclusive rights to explore and as well as an option to acquire mining claims in the gold-rich Connemara North and Glen Hume areas in Gweru as part of efforts to expand its operations.

Due to the high performance of Blanket mine as well as the sharp rise in gold prices, the company announced that its Board of Directors declared an increased quarterly dividend of eleven United States cents (US\$0.11) on each of the Company's shares, 10 percent increase from the previous quarterly dividend of 10 cents that was paid in October 2020 as well as 60 percent cumulative increase from the level of 6.875 cents since October 2019.

"Increasing production, a high gold price and good cost control have continued to result in increased cash generation which has given

the Board confidence that the business can sustain a higher level of dividend distributions before the benefits of Central Shaft are realised." The company said.

Commenting on the announcement, Steve Curtis, Chief Executive Officer said:

"We are pleased to announce an additional 10 percent increase in our quarterly dividend, the fourth increase in the past 15 months representing a cumulative 60 percent rise in the dividend since the first increase in October 2019. The decision by the Board to increase the dividend reflects our continued and increasing confidence in the outlook for our business. As we reported in our third quarter 2020 results, the business continues to perform well supported by strong production and a firm gold price.

"As we approach the end of the six-year investment programme at Blanket Mine, we expect the combination of rising production and declining capital investment over the next two years will give us the scope to consider further increases in the dividend in addition to providing funding for investment in new projects, including the exploration prospects at Glen Hume and Connemara North as announced on 10 and 17 December 2020, respectively," Curtis said.

Caledonia is poised to become Zimbabwe's biggest gold producer following its determination to acquire as well as improve gold mining in the country. The efforts by the miner are to a larger extent going to contribute significantly to the attainment of the US\$12 BILLION mining sector by 2023 as well as the country achieving the President's vision to become an upper-middle-income earner by 2030.

Murowa diamonds raise community development



The government has always been advocating for mining houses to aid in community development in the areas they are operating in as part of the repelled Indigenisation and Economic Act which forced miners to give 10 per cent of mining shares to the community.

Rudairo Dickson Mapuranga

RioZim's medium-scale diamond miner RZM Murowa has shown that communities in areas with mineral deposits' living standards must be transformed for the better through Corporate Social Responsibility.

RZM Murowa's operations impact six communities – Mutambi, Mhototi, Murowa, Indaba and Davira and Sese. The middle scale diamond miner works consultatively with the local communities through a five-year Communities Action Plan with the programmes directly benefitting and impacting close to 50,000 people.

The diamond miner strongly believes that the success of the mine lies in the community, therefore it needs the support of communities to operate a successful business.

its sustainable development programmes focus on long term sustainability as compared to short term relief or philanthropy. These programmes are anchored on five impact areas namely education, economic empowerment, community health, agriculture and infrastructure development.

RZM Murowa respects the traditional and cultural values of the community. Through commute rosters and internal codes of conduct, we minimise the potential for social and economic fragmentation in these communities. The mine's employment policies give preference to locals and focus on keeping the local economy secure and strong.

EDUCATION PROGRAMS

It is a fact that Zimbabwean communities value the importance of educating their children as a springboard to a better future. From a business perspective, continued investment in education is part of RZM long-term vision. Over the years, the mine has built classrooms, supported science departments, renovated and equipped a physics laboratory and also provided supplementary feeding for Primary School learners. Its contribution to an improved learning environment has seen an increase in pass rates in the schools in the communities.

RZM Murowa donates textbooks to primary and secondary schools in the above-mentioned communities contributing to the school in the communities achieving a 1:1 child to a textbook ratio in core subjects at Primary school level. In 2015 the Business launched an Educational Assistance Programme which has seen orphans and vulnerable children attend Primary and Secondary School. Over 100 disadvantaged students benefit from the programme annually.

The diamond miner donated computers to Baradzanwa Primary School taking the 270 learners and 9 teachers into the digital age. The donation is in alignment to new developments in the educational sector that promote the use of Information Communication Technologies a rarity in rural Zimbabwe.

RZM Murowa introduced mine tours to expose rural learners to the mining environment and some of the career opportunities that exist in the industry. This has helped the learners look beyond some of the traditional professions and inspire them to take up technical vocations.

HEALTH

RZM Murowa has done considerable work to improve health in its communities over the years. The activities include the provision of infrastructure to improve access to clean water and improved sanitation facilities. It also includes building clinics, assisting in the development of hospitals and facilitating funding for a medical doctor to attend at community clinics once every two weeks.

Communities have not been spared from the effects of the Covid-19 pandemic. The miner intervened through the provision of screening equipment and face masks to neighbouring community clinics. The mine also renovated an Isolation Centre at Lundi Rural Hospital in the Midlands Province and donated Covid-19 PPE and prevention consumables to the Zvishavane District Covid-19 Taskforce to aid the fight against the disease.

The Mutambi Clinic is a health facility built by RZM Murowa and is now used as a referral centre by other clinics. The clinic was fully equipped, electrified with a solar system as back-up and supplied water. The diamond miner assisted in the completion of a new maternity waiting room and supplied water to the building. RZM Murowa refurbished Murowa Health Centre providing electricity, equipment, plumbing and supplies and provided drugs for the clinic.

The youth continually face various challenges including dealing with the impacts of HIV and AIDS. To further strengthen the focus on youth awareness, RZM Murowa purchased multimedia equipment for the Murowa Youth Centre.

INFRASTRUCTURAL DEVELOPMENT PROGRAMS:

Investing in community infrastructure has always come as second nature for RZM Murowa. The mine's efforts to date include partnering with local and national government in the maintenance of community and urban roads.



Other infrastructure development initiatives undertaken include the construction of Factory Shells, electrification of health centres and schools, water reticulation, bridge and road construction.

In 2016 Murowa diamonds handed over Jimu Bridge to the community and a year later in 2017, completed the construction of Mhike Pipe Drift Bridge across the Muchekwachekwa River. Both projects created much-needed employment for over 150 community members. The bridges enable safer passage and access for not only mining operations but for students and community members during the rainy season.

FOOD SECURITY

The dry, harsh weather conditions in the communities resulted in the Company paying particular attention to food security programmes. An agricultural training programme has been conducted in partnership between RZM Murowa, the community and the Agricultural Technical and Extension Services Department (AGRITEX). To date close to 3,000 community members have received training to ensure food security.

The capacity building programmes complement other investments, such as micro-irrigation schemes, crop production, epi-culture, livestock enhancement and dip tank construction. In 2014, the mine launched the small grains programme which trained farmers in the growing of sorghum and finger millet / rapoko. AGRITEX provided technology transfer and capacity building to the smallholder host farmers whilst RZM Murowa provided funding for the whole project.

The programme is currently benefiting over 1,500 farmers with an expected averaging yield of 3.6 tonnes per hectare. To ensure the sustainability of the project, the host farmers are required to pass on to the seed bank twice the amount of seed originally issued for subsequent redistribution to new project host farmers.

Murowa diamonds raise community development



WATER RESOURCES

Water is a precious resource for local farming families, especially in the arid climate experienced in the area. Communities need clean water for drinking, sanitation and other essential needs such as developing micro-irrigation projects. The Company has constructed and rehabilitated boreholes and has provided water to schools, clinics and other amenities. Under the community micro-irrigation programme, RZM Murowa has been able to provide additional water sources with systems designed to minimize water waste. The desilting of community dams has helped to increase water holding capacities of inland dams and weirs. The supply of water facilitates flourishing market gardens and crop production in the communities.

LOCAL ECONOMIC DEVELOPMENT



RZM Murowa believes that helping local people to develop their own businesses is a very practical way of driving long-term employment and sustainability. The diamond miner pays particular attention to local employment and procurement, capacity building, skills transfer and the formation of small to medium businesses.

The company is also very active in supporting entrepreneurs with business training and business incubation programmes. Developing small businesses is what will drive the economy of the future.

Equipping these ventures with skills they need for their continued growth and survival will do much to create employment and ensure the sustainability of the region.

23 students selected from the community, pioneered a vocational skills training programme in garment making and steelworks at the Murowa Business Centre Factory Shells. The training runs in partnership with the Zvishavane Vocational Training Centre.



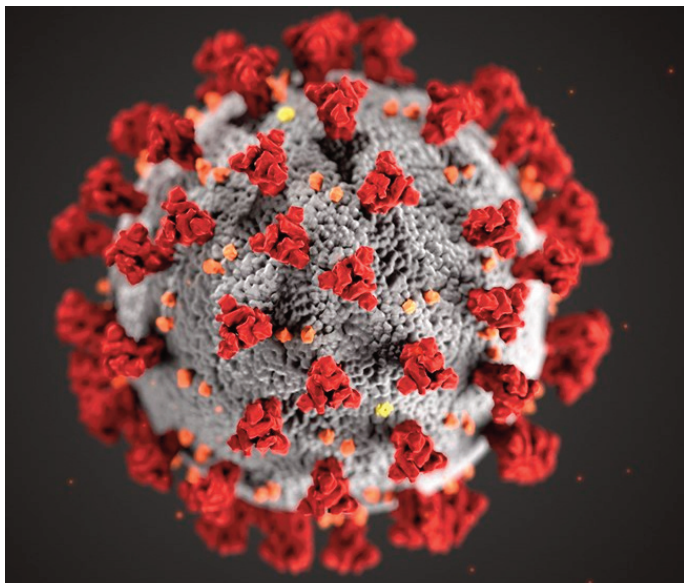
The students sat for qualifying examinations in June 2020 and performed beyond expectations. This creates an opportunity for the company to carry forward sustainable development through skills development in the community.

LOCAL EMPLOYMENT

RZM Murowa actively favours local employment contributing to the welfare of communities. The pool for local employment mirrors the company's immediate community footprint and covers four wards in Mazvihwa and two wards in the Chivi District. Over the years more than 3,000 people have been direct beneficiaries of local employment programme. This policy has seen the rapid transfer of skills into the communities, enabling new businesses and other initiatives.

Indeed the diamond miner's innovative and a practical approach sets it apart from other medium-scale miners, its work is indeed aligned to the country's socio-economic development blueprint and in line with the sustainable development goals.

Precious Metals and the Fight Against COVID



Shree Kargutkar, CFA

A Critical Role in Medicine

As COVID-19 spread across the globe last spring, investors rushed to precious metals as a financial safe haven. Gold rose to over \$2,000 by early August, up more than 30% from the start of the year. Silver surged more than 50% over the same period, reflecting the common correlation among precious metals during times of

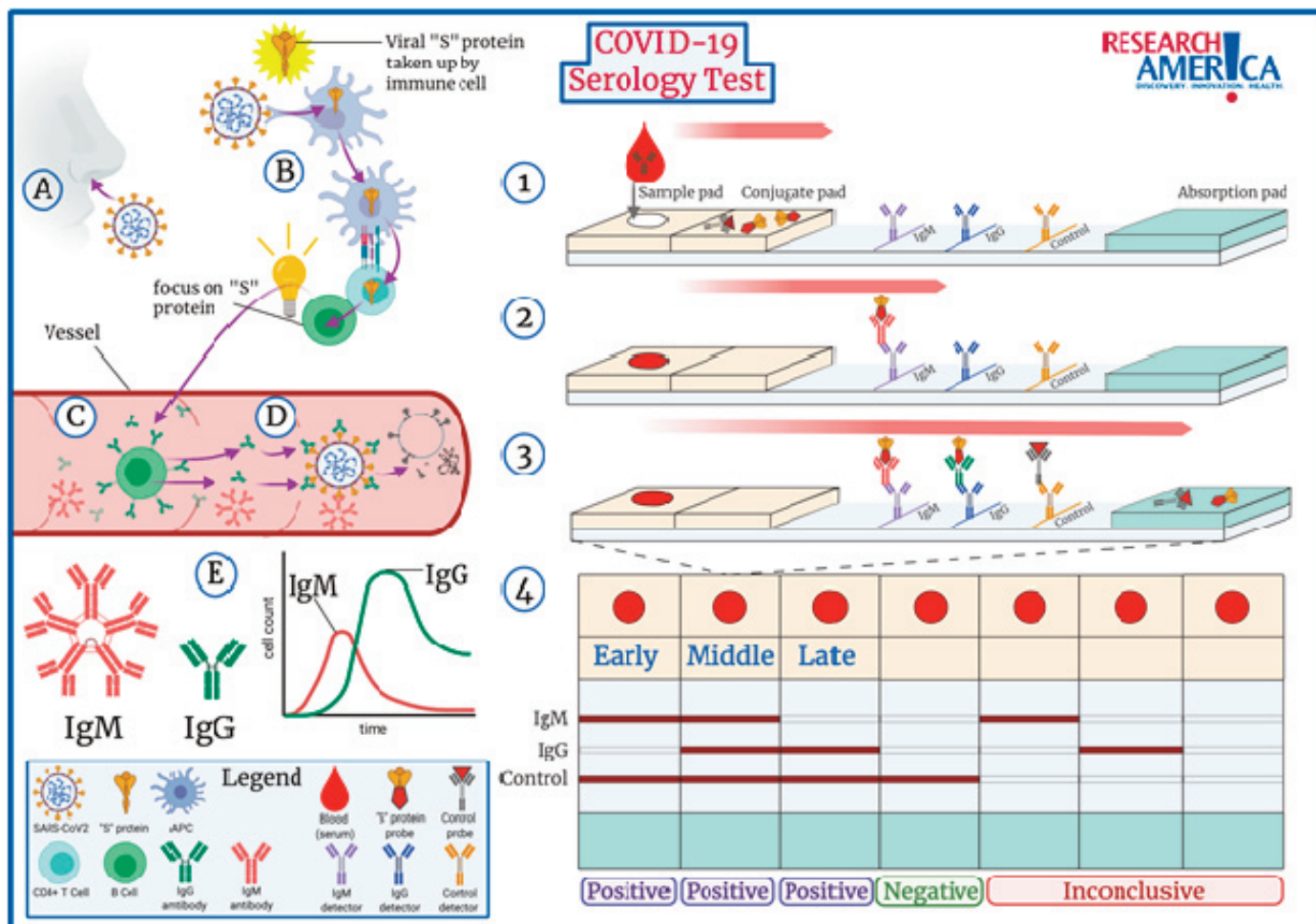
financial uncertainty or volatility.

Providing financial protection is not the only role that precious metals are playing in the fight against COVID-19. The metals also have broad applications in the medical field, well beyond the dental uses most people associate with them.

Combatting COVID-19: Gold, Silver and Platinum

Researchers have developed drugs and tests that use silver to detect and protect against the virus. Serological assays, a type of blood test, employ silver and gold nanoparticles

- 1 to quickly determine if antigens exist in a patient's bloodstream.
- 2 These are critical in determining if the person is infectious and to ensure that donated plasma used to treat ill patients is safe.
- 3 Beyond silver's diagnostic and therapeutic uses in the fight against COVID-19, there are also trace amounts of silver in the fabric of some masks.⁴ While not anti-viral, silver does protect against other bacteria and eliminates odors, which helps when wearing the masks for extended periods of time.



Silver has been used for thousands of years to prevent microbial infections and was the most important antimicrobial agent in use before the introduction of antibiotics.

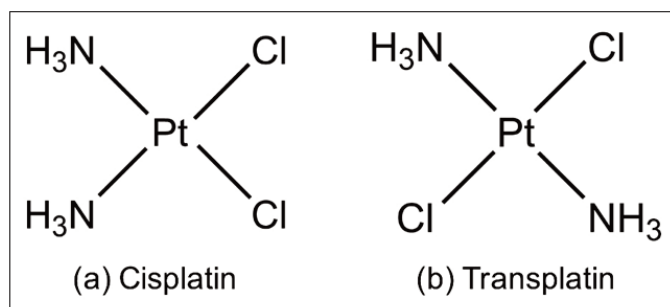
The fight against COVID-19 highlights a trend: growing demand for precious metals in healthcare. This has particular relevance now, but also into the near future as the population continues to age. National health spending in the U.S. is expected to rise to 19.4% of GDP (gross domestic product) by 2027, or \$6 trillion a year, representing a generational shift in spending.⁵ Precious metals, because of their unique physical attributes, are expected to play a role in this shift.

The Fight Against Cancer: Gold and Platinum

Treatments for certain cancers employ gold and platinum. This role has the potential to grow, accelerated by recent breakthroughs.

Since its natural properties slow cells – both healthy and cancerous ones – from dividing, platinum (Pt) has long been used in chemotherapy treatments, including in drugs known as cisplatin and carboplatin.⁶ A downside to these platinum-based drugs is their non-specificity, which creates some of the adverse side-effects in chemotherapy, like hair loss.

Figure 2. Chemical Structures of Cisplatin and Transplatin



Gold nanoparticles have become a focus of a new type of more targeted treatment. Researchers are testing therapies that use gold-silica nanoshells to target cancer cells, preventing the diseased areas from spreading.⁷ Similar to the platinum treatments, it essentially suffocates the diseased cells, but the gold nanoparticles are more effective in attacking the unwanted cells. This treatment has shown particular promise in prostate cancers, a disease that impacts about 11% of men.

8. Additional Therapeutic Uses

Gold nanoparticles (tiny spheres made of gold atoms with a diameter of only a few billionths of a meter) have also shown potential in the testing and treating of HIV/AIDS. In a study,

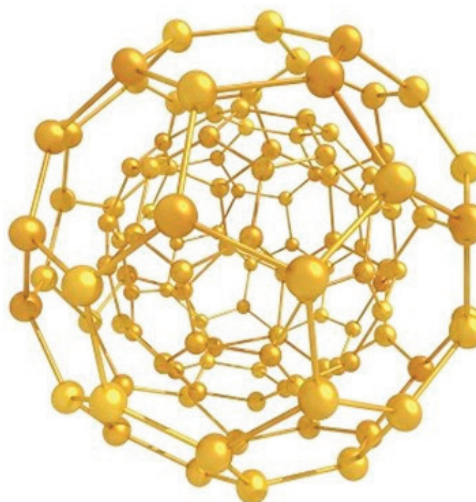
researchers were able to detect the HIV virus, even in situations where the virus had little development. This brings hope of earlier detection. In an early study of monkeys with an HIV-like virus, gold nanoparticles reduced the number of infected cells. Though still very early days for this research, it provides some promising potential.

Gold has anti-inflammatory properties that help reduce joint inflammation and pain, and gold preparations were among the original treatments for rheumatoid arthritis (RA). Gold is also used in rapid tests for malaria, allowing doctors to test the disease within 20 minutes. This has value, particularly in parts of the world where there they lack access to labs.

Platinum and palladium have similar biological properties. While platinum is typically selected for many uses, palladium can stand in platinum's stead for biological purposes.

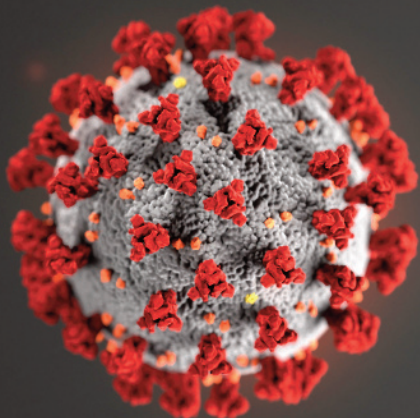
Since precious metals are inert, they react with other chemicals in few naturally occurring environments. They are also electrically conductive, opening applications where the body or organs are stimulated directly. And they are strong, so they do not break easily. This has encouraged the broad use of platinum in catheters. Electrophysiology catheters, for example, use electrodes to measure cardiac muscle activity.¹⁰ The platinum electrodes make the device possible.

Figure 3. Gold Nanoparticles Support New Drug Development and Drug Delivery Systems



A Place in Medical Technology

Germs do not spread on a silver surface, due to its anti-microbial properties. This makes it an ideal component of many of the devices and tools one sees in a hospital. In fact, silver is much more useful in medical devices than in medicines because of its toxicity – too much silver in the body can cause Argyria, a blue or grey hue in the



skin. But in the medical technology field, it has a place because of this germ-protective property. Staphylococcus aureus, a dangerous and highly infectious bacterium, spreads quickly in hospitals. To limit the spread, hospitals often use equipment lined with silver, from surgical tools to stethoscopes to even the furniture.

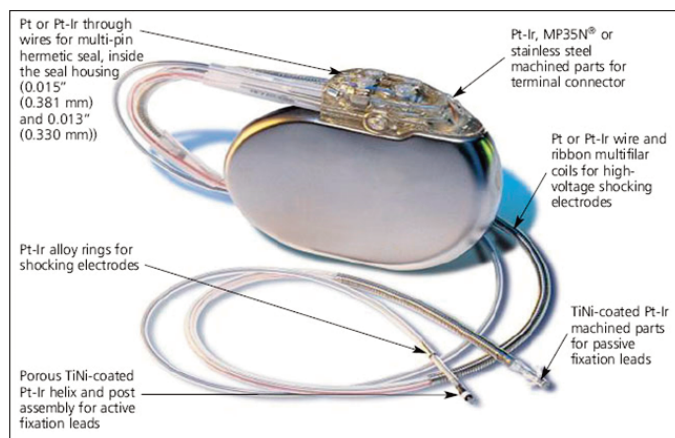


Figure 4. Platinum (Pt) is a Critical Components in Implantable Cardioverter Defibrillator- Source: Johnson Matthey.

11 Silver is also often incorporated in breathing tubes and catheters to protect against infections.

Platinum is also broadly used in medical devices, including stents and pacemakers, in addition to catheters. Platinum reduces the likelihood that the body will reject the devices. It also appears in X-rays, allowing healthcare workers to track the progress of the operation. Platinum plays a critical role in neuromodulation devices, which help treat Parkinson's patients' neurological conditions by sending electric signals to the central nervous system. In these "brain pace-makers," there is platinum in the electrodes and within some of the device's components.¹²

by Shree Kargutkar, CFA
Portfolio Manager
11 Years of Investment Experience

Shree Kargutkar has more than 10 years of investment experience. He began his career at Sprott Asset Management in May 2010. During his time at Sprott, he has run both long-only and long-short strategies. Mr. Kargutkar specializes in precious metals and commodities investing. He also leverages his expertise in derivatives across various mandates and implements strategies for risk mitigation, income generation and improving upside capture. He obtained his MBA from the University of Toronto in 2011. Mr. Kargutkar holds a B.A. Hons (Psychology) from York University and is a CFA® charterholder.



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Ten exemplary small-scale miners of 2020

The small-scale mining sector has of late become one of the pillars of the economy of Zimbabwe contributing significantly to national fiscus.

Rudairo Dickson Mapuranga

The gold small scale mining sector contributes up to 12 per cent of total exports cementing its position in helping the country achieve the President's vision of achieving an upper-middle-income earner by 2030 as well as the mining sector becoming a US\$12 BILLION earner by 2023.

2020 has not been a good year in terms of business due to the Covid-19 pandemic which forced governments to lockdown many businesses. Mining in Zimbabwe was however not restricted from operating but the effects of the pandemic in terms of marketing and selling of minerals was widely experienced.

Despite all the obstacles in the mining sector, small scale miners still managed to return their mark as the biggest gold and chrome producers in 2020. However, the sector has continued to be linked with informal activities with the current Mines and Mineral Bill under heavy criticism of trying to close down all the activities of small-scale miners to create a medium scale.

There have been individuals in 2020 who have managed to set a standard on what the small-scale miners need to do in terms of mining, growth and community development, below are small scale miners who managed to set an exemplary standard of a small-scale miner in 2020 in no particular order.

Scott Sakupwanya



Scott Sakupwanya

Mr. Pedzisai Scott Sakupwanya is a gold buying agent as well as Better Brands Jewellery (BBJ) founder. Through BBJ Sakupwanya

has empowered many youths in the country in a time where unemployment is at its highest level by allowing them to work on his several claims around the country. BBJ has over 5000 youths operating at Redwing mine in Manicaland under tribute for the next several years. Apart from Manicaland, BBJ has empowered many youths in Mashonaland and Matabeleland regions providing them with equipment and capital. BBJ delivered over 850 kilogrammes of gold to Fidelity Printers and Refiners (FPR) in 2020.

Sakupwanya encouraged small scale miners to practice social corporal responsibility when he led his company to donate 100 tonnes of maize-meal to vulnerable groups affected by the COVID-19 pandemic.

Sakupwanya was named the most influential and innovative mining director by the Institute of Corporate Directors Zimbabwe (ICDZ), while the Chartered Institute of Project Managers Zimbabwe (CIPMZ) recognised him as one of the top executives under 40 in 2020.

Marufu Sithole

Marufu Sithole is currently Zimbabwe Miners Federation (ZMF) Acting President who has proven that artisanal mining like operations in small scale mining can become a thing of the past.

Sithole has been engaging different artisanal miners into a formalised mining setup where he encourages them to set up syndicates and sometimes provide them with capital to kick start their endeavour to formalised mining.

Sithole's mining operations employ qualified staff just like an ideal large-small mines where all professional mining departments are found.

In 2020 Marufu delivered over 55 kgs of gold to the country's sole gold buyer and exporter Fidelity Printers and Refiners (FPR) from his mines leading by example that miners should sell their productions to FPR. Sithole through his mine Chimona Mining has been leading in social corporate responsibility in 2020.

The mine scooped the 2014 Corporate Social Responsibility award in the Small-Scale Mining Sector at Mine Entra 2014 as well as Zimbabwe National Chamber of Commerce 2014 National Small-Scale Miner of the Year.

Ten exemplary small-scale miners of 2020

The mine scooped the 2014 Corporate Social Responsibility award in the Small-Scale Mining Sector at Mine Entra 2014 as well as Zimbabwe National Chamber of Commerce 2014 National Small-Scale Miner of the Year.

Spencer Tshuma

Mr. Spencer Tshuma is the Director and founder of Tshuma Milling as well as the Director of Abacus Mining Investments operating around Chegutu, Kadoma and Kwekwe. Tshuma has been assisting several small scale miners around the country with mining equipment and capital. Many miners have received trucks and excavators from the miner these miners include Zimbabwe Miners Federation Youth in Mining chairperson Mr Timothy Chizuzu.

Tshuma through the National Environment Awareness Trust (NEAT) and Kadoma Miners Association donated groceries to windows affected by the pandemic in Kadoma and has sponsored youth sporting activities.

In June 2020, Tshuma handed 30 tonnes of maize and 60 tonnes of maize meal to His Excellence the President of Zimbabwe, Emmerson Dambudzo Mnangagwa towards benefit communities in Bulawayo affected by the lockdown.

Johanne Sithole

Johanne Sithole is the Managing Director of Murasta Mining as well as a member of Zimbabwe Miners Federation and Kadoma Miners Association. Sithole reportedly employed interns of Harare Institute of Technology (HIT) in 2020 to use computer-aided valuation and mine design systems to provide great facilities in project development and planning to curb mine accidents and increase mining transparency.

He also through National Environmental Awareness Trust (NEAT) donated USD thousands worth of food to the less privileged during the lockdown period and is also known for supporting local youths through different sustainable projects.

Through his Murasta Mining, Sithole also empowers other small scale and artisanal miners with equipment and other consumables.

Chris Murove

Engineer Chris Murove is a Former Zimbabwe Miners Federation

(ZMF) Deputy President, Former President and CEO of Zimbabwe Artisanal and Small-Scale for Sustainable Mining Council (ZASMC) and currently the Managing Director and owner of Munyati Milling (Pvt) Ltd, a mining and mineral processing company operating within the small-scale gold mining sector. The company has developed a model to formalise artisanal mining by embedding artisanal miners in small-scale mining claims in a structured and sustainable manner.

Murove has also developed his mine by employing graduates from the school of Mines as a way to professionalize his mining ventures. He employs youth and promotes gender equality. His mine development has a major focus on continuous improvement and growth of the artisanal sector to small scale then to medium scale. Engineer Murove's mining ventures have a major focus on research and innovation.

Engineer Murove has been also writing articles and researching as well as implementing alternative methods to mercury in gold recovery. He does not use mercury for gold recovery. Some of his proposed measures have been embraced by a large number of miners as a way of safeguarding the environment from the dangers of mercury. He is also regarded as the voice of reason in the sector and is nothing short of a legend in the sector.

Makumba Nyenje

Makumba Nyenje is currently Zimbabwe Miners Federation (ZMF) chairperson and the Secretary for Health and Safety under Mberengwa Miners Association (MBA). Nyenje has taken tours around Mberengwa and Zvishavane teaching small scale miners on the importance of worker's safety as well as their health, to ensure that the community benefits from mining activities and to prevent pollution and environmental degradation, and ensure sustainable management and use of natural resources while promoting justifiable economic and social development. Nyenje also owns Rose 25 custom milling which he has been developing to function as a gold service centre to ensure that leakages of gold are minimised in the country.

Nyenje has also been supporting small scale miners to venture into iron mining and smelting as well as small scale steel manufacturing. He is also working with the Minerals Marketing Corporation of Zimbabwe (MMCZ) to ensure that women iron ore miners in Mberengwa operating in Buchwa Mountain find a lucrative market for their iron ore which they have been struggling to sell.

Ten exemplary small-scale miners of 2020

Nyenje is an accountant by profession with a Higher National Diploma, he is also pursuing a Hon Degree in Accounting with Zimbabwe Open University (ZOU).

Philimon Mokoete

Philemon Mokoete is currently Zimbabwe Miners Federation (ZMF) Secretary for the General Council. Mokoete has been pivotal and vocal this year when it comes to small scale mining growth and development.

Mokoete has been encouraging small scale miners to grow from small scale mining to medium scale and has been leading by example at his mine by creating both vertical and inclined shafts at his mine with steel and concrete headgears. The headgear supports wheel mechanisms for suspending winding cables that transport workers and ore up and down deep level shafts.

Mokoete has also called for the government to educate miners on issues of Exclusive Prospecting Orders (EPOs) and has also called on the Ministry of Mines to include small scale miners in terms of budget allocation to help speed the growth and development of small-scale mining to medium scale.

He has been encouraging small scale miners to improve from artisanal operations to imitating large scale mines like Blanket Mine in Gwanda. He has also spearheaded the rescue of tens of miners trapped underground after shaft collapses in his province.

Sheila Mabasa

The late Sheila Mabasa was a Director and biggest shareholder of Moflegosh Mine in Norton. She was also a member of the Norton Miners Association as well as a member of the Zimbabwe Miners Federation (ZMF).

Through her mine, Mabasa has proposed a model where she was going to supply several communities in Norton with fresh purified water from her mine. Moflegosh mine has been supplying fresh water to the residents of Norton Police station. She had also promised to build houses for the police officers at the station after a fire destroyed several blocks last year.

The mine has an operating horticulture site that supplies Norton with fresh farm produce. Norton like Harare has challenges with a consistent supply of clean water. Mabasa also been involved in

various community development scheme as well as awareness campaigns for women empowerment.

Sheila Mabasa according to Norton Member of Parliament Temba Miswa succumbed to Covid-19 on the 31st of December 2020.

Jean Rheiner

Another legend in mining business, Jean Rheiner is a geologist by profession who started mining in the 1980s with an interest in tantalite, he then moved into the gemstone subsector as both a miner and geologist in 1995. Rheiner has created an empire through gemstone mining however, complications around the export of gemstones have been wearying his business down.

Rheiner like many other gemstones miner's belief that the gemstone sector in Zimbabwe has the potential to create a billion-dollar industry in the country. Besides mining gemstones, Rheiner is involved in the value addition of the stones where he is famous for supplying jewellery to the Zimbabwean community with some of his produce exported to the countries in the European Union.

Rheiner has proven that through the gemstone industry small-scale miners can create a formidable and cash cow industry. The government has constantly called for value addition in Mining, Rheiner has proven that small scale miners can add value to their productions that they can gain more from mining.

Value addition has been at the centre of the government for the mining industry to achieve a USD12 billion mark by 2023. Zimbabweans should make use of Zimbabweans like Rheiner as they possess knowledge that should be passed on from generation to generation in order to have consistence in mining industry.

Timothy Chizuzu

Timothy Chizuzu at 35 years is a miner, mining consultant and Environmentalist with 15 years' experience in consultancy. Chizuzu is currently Zimbabwe Miners Federation (ZMF) Youth in Mining Chairperson as well as Zimbabwe Prospectors Association (ZPA) Secretary-General. He is also the founder of the National Environmental Awareness Trust (NEAT). NEAT is a Non-Governmental Organisation that deals much with environmental activities.

Ten exemplary small-scale miners of 2020

Our main activities are awareness and advocacy. We move around educating people on safe practices of mining, how to keep our environment safe and clean, how to manage our affluence as miners.

Chizuzu has been vocal on mining safety in 2020 and organised several workshops on the health and safety of mineworkers.

Chizuzu also heads Timella Mining Consultancy an independent Consultancy company that provides focus, advice, and instruction in the mining industry. It offers services from mining rights acquisition, exploration through feasibility mine planning and production to mine closure. The organisation also assist with disputes and legal matters in the mining industry.

He has also engaged the services of professionals (mining graduates) on his mining concessions to have professional mining operations. He has also called for small-scale miners to employ

graduates as a way to professionalize the small-scale and artisanal mining sector. He through different platforms also called for the graduates from different fields of mining to form syndicates or register companies and peg their own claims and implement what they learnt from school.



Timothy Chizuzu



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BARRIERS TO SUCCESS: Setting up a small-medium scale mine in 2021



Small scale mining is a big-time contribution to the mining sector and economy. Most players in this sector have limited technical know-how of the industry and therefore face major barriers in setting up their operations. This article will discuss 5 common barriers to success in setting up a small or medium-scale mine.



1 LICENSE TO OPERATE

The process of acquiring mining licenses is essentially the first step in setting up a small scale mine and can be done via a variety of methods broadly classified to pegging and/or entering into agreement on existing claims.

In pegging the integrity of the prospective land has to be verified using desktop and reconnaissance geological surveys, which are rapid, cheap and therefore easily accessible to small scale. In addition, the integrity of the application papers has to be checked by an independently approved prospector when submitting so that the application is compliant with the mining laws. Ministry of Mines will reject uncompliant applications and this becomes a stumbling block to prospective small-medium scale mine owners.

In acquiring mining rights via agreement, the owner of the rights has

to submit a report with evidence of mineralization or deposition of prospective mineral. This can be done either by submitting verifiable mining records (for example Fidelity Printers receipts of gold sale) or a comprehensive geological report with lab (assay) samples showing results positive for the prospective mineral. An independent integrity (or due diligence) check of this report will then lower the risk of acquiring a bad prospect.

2 EXPLORATION RISKS

The biggest barrier to success in setting up a small or medium-scale mine is the failure to intersect the mineral being prospected for, and this risk is inherent in all projects greenfield or brownfield. Small scale projects operate from small scale budgets and therefore cannot afford some exploration methods (e.g diamond drilling) employed by large scale operators. Small scale mines will also have small scale deposition which requires more attention to detail as the structures can easily be missed out early in an exploration project.

Exploration for small and medium scale mines should focus on getting positive samples whilst cutting down on total exploration costs. Methods which can be employed in search for positive samples are outcrop sampling, soil sampling, trench or pit samples and sampling from shafts. Exploration projects for small scale should essentially focus on narrowing down 'where to sample' using cheap methods like geological and geophysical methods.

For underground exploration methods, a small scale mine can resort to sinking a shaft on a reef and collecting samples instead of

drilling. This method is convenient for the small-scale miner as production from shaft sinking can also sustain and grow the project up to a point where more expensive methods become affordable.

3 OPERATIONAL RISKS

Operations risks arise in executing a small-medium scale mining project and have to do with both technical and administrative risks. A small scale mine will need a compliment of capable and experienced mining team to conduct mining activities and oversee the operations. However, when it comes to effective mine administration, it has to do with more than technical skills and will require transversal skills (relating to management) in addition to technical capabilities.

Some specialized skills are not affordable for daily hire on small scale operators and therefore the sector can face challenges caused by lack of professional advice. This challenge can be resolved by enrolling for mining-related training programs and workshops and engaging a consultant for period project reviews. Other medium scale operators can opt to have a consultant to set up the mine and administrate it during the start-up phase before laying down procedures for the sustenance of the mine after set-up.

4 SECURITY RISKS



The fourth barrier to success has to do with security and loss control which is a big hindrance in setting up small and medium scale mines. Security risks can arise internally whereby employees steal from the company or externally for instance via the ill-famed 'Mashurugwi' robbers. Many security options are available for small scale miners including setting up an internal security department or engaging a private security company. In addition to this, the small-scale mines are also required by law to set up security structures around high-security areas. Security fences around shafts and plants should come as standard at a mining operation in addition to a lighting system and 24-hour surveillance.

In addition to a good security strategy, small scale miners are recommended to employ effective loss control strategies to help

minimize leakage of resources from operations. An effective loss control strategy will involve analyzing loopholes within a system, creating and formulating a strategy to curb losses, implementing and monitoring, and measuring the progress (in terms of statistics) of the loss control strategy, making relevant corrections to perfect the system.

5 DISRUPTIONS

Disruptions in small-medium scale mining projects are any events or occasions which negatively impact production and may arise from various sources.

The most common

disruptor of production in small scale mines are the seasonal rains which cause problems with mine accessibility, power and network interruptions, and mine safety. Small scale mine operators should consider conducting ground competency surveys and installing relevant mine support structures to avoid fall of ground during the rainy season which thing may result in fatalities and loss of production time.



As of 2020, the country has been dealing with the Covid 19 outbreak which is part of a global pandemic and this has brought challenges of its own. The country has been on lockdown since March 2020 and recently has revised lockdown level to part 4. Even though small-scale miners are exempted in part 4 lockdown, the Covid 19 pandemic will have adverse effects on mining including the shift of metal prices, disruptions in mining supplies and services which ultimately may lead to lower productivity. Small-scale miners, however, can deal with these challenges through long term planning and procurement, and exercising health precautions on site.

Our Solutions

Golden Glance helps new small-medium scale operators overcome these barriers and successfully set up their projects by offering a wide range of cost-optimized and innovative geological and mining solutions. Contact us today on call or WhatsApp (+263712704400), or visit our website www.goldenglance.co.zw today for enquiries

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Minerals and Location found in Zimbabwe

Agate	Nyamandhlovu, Chikomba, Lupane
Aluminum	Mutare, Nyanga, Mwenezi
Amazonite	Nyamandhlovu, Rushinga
Amethyst	Nyamandhlovu, Hurungwe, Hwange, Makonde, Lupan
Antimony	Kwekwe, Bubi, Mberengwa, Kadoma, Shurugwi
Arsenic	Bubi, Shurugwi, Mutare, Gwanda
Asbestos	Masvingo, Gwanda, Matobo, Mberengwa, Insiza, Makonde, Umzingwane
Aventurine	Masvingo, Beitbridge
Barites	Kwekwe, Mwenezi
Beryl	Hurungwe, Kariba, Goromonzi, Harare, Mudzi, Rushinga, Mutoko, Bindura, Marondera, Gutu, Buhera, Bikita, Chegutu, Hwange, Mberengwa, Gweru
Bismuth	Gwanda, Insiza, Goromonzi, Hwange
Cesium	Mudzi, Bikita, Goromonzi
Calcite	Hwange, Bindura, Chiredzi, Mwenezi
Chromium	Mberengwa, Guruve, Makonde, Gweru, Kwekwe, Shurugwi, Chegutu, Kadoma, Gwanda, Insiza, Masvingo, Chirumanzu
Citrine	Marondera, Harare, Goromonzi
Clay	Harare, Bulawayo, Gwanda, Gweru
Coal	Gokwe, Chiredzi, Beitbridge, Mwenezi, Hwange, Lupane, Binga, Kariba, Hurungwe, Bikita
Cobalt	Kwekwe, Insiza, Shamva, Bubi, Bindura
Copper	Makonde, Kadoma, Mutare, Chirumanzu, Chegutu, Kwekwe, Shurugwi, Beitbridge, Gokwe, Bindura, Chipinge, Bikita, Insiza, Makonde, Harare, Bulawayo, Shamva, Chiredzi, Nkayi, Mudzi, Chegutu, Bindura, Kwekwe, Hurungwe, Bubi, Makonde, Bikita, Gwanda, Masvingo.
Cordierite	Hurungwe, Beitbridge, Chimanimani, Rushinga, Makuti
Corundum	Beitbridge, Chiredzi, Shurugwi, Marondera, Mberengwa, Mazowe, Rushinga, Insiza, Goromonzi, Wedza, Makoni
Diamond	Gweru, Bubi, Beitbridge, Binga, Mwenezi, Mutare, Chivi
Diatomite	Hurungwe
Dolomite	Mutare, Beitbridge, Makonde, Mudzi, Masvingo, Rushinga.
Emerald	Gutu, Masvingo, Insiza, Mberengwa, Hurungwe.
Feldspar	Harare, Bikita, Umzingwane, Goromonzi
Fireclay	Hwange, Chiredzi, Kwekwe, Lupane, Nkayi, Kadoma, Kwekwe
Flint clay	Mwenezi, Beitbridge
Fluorite	Hwange, Guruve, Binga
Garnet	Beitbridge, Hurungwe, Mudzi, Guruve, Rushinga, Marondera
Graphite	Hwange, Hurungwe, Kariba, Makonde
Gypsum	Beitbridge
Gold	Every district in Zimbabwe
Iron	Kwekwe, Mberengwa, Harare, Kwekwe, Buhera, Gweru, Charter, Chiredzi, Masvingo, Mazowe, Kadoma.

Minerals and Location found in Zimbabwe

Jade	Masvingo
Kaolin	Kwekwe, Mutare, Bubi, Hwange, Kadoma, Mazowe, Harare, Umzingwane, Nkayi, Chegutu
Kainite	Hurungwe, Nyanga, Mudzi, Rushinga
Lead	Mberengwa, Kwekwe, Gokwe, Mutare, Wedza, Hwange
Limestone	Mberengwa, Gwanda, Bindura, Shamva, Mazowe, Kadoma, Umzingwane, Gweru, Chegutu, Chimanimani, Mudzi, Harare, Hurungwe
Lithium	Goromonzi, Mudzi, Buhera, Bikita, Chegutu, Hwange, Harare, Insiza, Rushinga, Mutoko, Mutare, Hwange
Magnetite	Gwanda, Nyanga, Kadoma, Mwenezi, Insiza, Buhera, Mberengwa, Beitbridge, Gweru
Manganese	Kwekwe, Gweru, Makonde, Mberengwa
Mercury	Bubi, Kadoma
Mica	Hurungwe, Rushinga, Kariba, Hwange
Molybdenum	Kwekwe, Insiza, Shurugwi, Makonde, Chipinge, Gweru, Mutare
Mtorolite	Guruve, Mutare
Nickel	Bubi, Makonde, Kwekwe, Insiza, Guruve, Shamva, Shurugwi, Matobo, Chegutu, Bindura, Gweru.
Ochre	Gweru, Kwekwe
Palladium	Kwekwe, Makonde, Shurugwi, Chegutu
Phosphate	Buhera
Platinum	Kwekwe, Makonde, Shurugwi, Chegutu, Centenary
Pyrite	Shurugwi, Gwanda, Mazowe, Kadoma, Bulilimangwe, Shamva, Hwange.
Salt	Mwenezi
Sapphire	Mudzi
Selenium	Makonde
Silica	Gweru, Kwekwe, Makonde, Chegutu, Gokwe, Harare, Goromonzi
Sillimanite	Hurungwe
Silver	Makoni, Makonde, Kwekwe
Talc	Bubi, Guruve, Insiza, Nyanga, Mutare, Mt Darwin, Mberengwa, Goromonzi, Mutoko, Wedza, Kwekwe, Makoni
Tantalum	Hurungwe, Guruve, Kariba, Mudzi, Mutoko, Shamva, Bindura, Harare, Goromonzi, Murehwa, Mt Darwin, Rushinga, Mazowe, Marondera, Gutu, Masvingo, Buhera, Bikita, Mutare, Hwange, Chivhu, Mberengwa, Chimanimani, Makoni, Insiza
Tin	Hurungwe, Mudzi, Shamva, Bindura, Goromonzi, Harare, Rushinga, Mt Darwin, Nyanga, Gutu, Bikita, Hwange, Masvingo, Mutare
Topaz	Hurungwe, Gweru, Mutare
Tungsten	Hurungwe, Kariba, Shamva, Mazowe, Rushinga, Bindura, Guruve, Mt Darwin, Harare, Mudzi, Goromonzi, Bulawayo, Insiza, Matobo, Gwanda, Umzingwane, Bubi, Buhera, Mberengwa, Kadoma, Bikita, Shurugwi, Mutare, Chipinge, Chegutu, Kwekwe, Chiredzi, Wedza, Gweru, Hwange, Masvingo, Makoni
Vanadium	Mt Darwin, Guruve, Bulawayo
Vermiculite	Buhera, Mudzi
Zinc	Kwekwe, Gokwe, Nyanga