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Mining

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TOP 10

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ABOUT PUBLICATION

Mining Zimbabwe premier source of Zimbabwe Mining News. Our core focus is the Zimbabwe Mining Industry, trends, new technologies being developed and used to improve this crucial sector, as well as new opportunities and investments arising from it. Mining Zimbabwe's sole purpose is growing and empowering the Mining Industry and highlighting all its challenges as well as putting forth expert solutions



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The need to fast track ASM formalisation

Welcome to Mining Zimbabwe's first Publication of 2020. We hope you had a smooth transition into the year and wish all a fruitful 2020.

Mining Zimbabwe would like to express its gratitude to the government for moving swiftly to stop Machete gang violence. We saw the arrest of Maziga gang leader and his cronies who were involved in the spate of robberies and bodily harm in Kadoma and surrounding areas.

However, as the government moves to thwart the unruly elements illegal miners seem to be the biggest victims in the war against machete gangs by the Police.

We feel the government and the Zimbabwe Miners Federation must fast track the need to formalise the small scale mining industry and educate the illegal miners on advantages of formalisation, incentivise the ASM sector to make it more lucrative.

Whether the government realises this or not 55/45% is another factor illegal gold mining flourishes, therefore formalisation will be futile if government does not review upwards the current payment system.

Official records of formalised ASM miners stand at just over 35 000 whilst estimated numbers of illegal miners are over a million.

Formalisation is a fight the government needs to fast track as these arrests may just be a way of creating space for newer illegal miners.

Mining has become a poverty alleviation scheme to many therefore formalisation will be a better solution than just random arrests. Never mind the arrests but having a larger number formalising guarantees an increase in gold submissions to Fidelity.

As the year progresses we look forward to a more progressive mining industry. As promised by Minister Chitando late last year, we hope to witness the beginning of digitalisation of the Mines and Mining Development Ministry, some attention and support of local activities from the Minister.

We also hope there is an improvement of Electricity distribution and Zimbabwe moves to self-reliance on energy needs as this has negatively affected output in 2019.

As usual we appreciate your feedback. Please do write to us and follow us on our various social media Platforms

Enjoy the read.

EDITOR'S NOTE



facebook



Online Awards





RHA Tungsten (RHA) announces commissioning of Grid Electrical power

The Board of Premier African Minerals Limited is pleased to announce the commissioning of Grid Electrical power to RHA Tungsten (RHA). Premier holds a 49% interest in RHA and is the operator.

George Roach, CEO, commented that, "We are reassured by the continued commitment of National Indigenisation and Economic Empowerment Fund to meeting the financial commitment to the funding of RHA. As of now, adequate power is available from the national grid to consider the resumption of plant operations at the end of January 2020 to reprocess historic tailings.

Premier previously reported on the potential reprocessing of tailings on 29 June 2016. The test work conducted at that time remains valid and the availability of electrical power has substantially reduced the cost associated with operating the plant. Similarly, and by arrangement with MN Holding Limited ("MNH") in which

Premier has recently acquired a shareholding, the capital plant needed to feed the tailings at RHA is now expected to be potentially available to RHA at net operating cost only.

Further supporting the proposed reprocessing of tailings is the fact that historic tailings are already mined and milled such that the tailings may be fed directly to the gravity recovery sections of the plant, with the added benefits of only needing to run a portion of the plant and reaping the benefits of much lower overall operating costs, better plant availability, reduced maintenance and lower manpower requirements.

Based on the above, I believe that it is completely logical that RHA should now look to consider the reprocessing of the tailings dumps as soon as possible.

Further updates will follow in due course."

Adequate power is available from the national grid to consider the resumption of plant operations at the end of January 2020 to reprocess historic tailings.

Zimplats platinum production decreases



Zimbabwe biggest platinum producer Zimplats Holdings Limited's platinum production has decreased by 24 percent from the previous quarter while tonnes milled decreased by two percent from the previous quarter.

Rudairo Mapuranga

Tonnes milled by the platinum miner decreased 2 percent during the quarter ended 31 December 2019 from the previous quarter ended 31 September 2019. Platinum and six elements (platinum, palladium, gold, rhodium, ruthenium, and iridium) (6E) production decreased 24 percent and 23 percent from the previous quarter respectively.

According to the report released by the platinum miner, ore mined by the miner increased marginally from the previous quarter ended 31 September 2019 and 8 percent higher than the comparable quarter ended 31 December 2018 mainly due to additional tonnage from its new Mine,

Mupani mine.

"Ore mined increased marginally from the previous quarter. Tonnes mined for the quarter was 8% higher than the quarter ended 31 December 2018, mainly due to improved fleet productivity and additional tonnage from Mupani Mine, which is still under development" the platinum miner said.

Tonnes milled according to the platinum miner decreased by two percent due to the planned mill reline shutdown at the Selous Metallurgical Complex concentrator.

"Tonnes milled decreased by 2% from the previous quarter due to lower running time. Running time for the

quarter was constrained due to the planned mill reline shutdown at the Selous Metallurgical Complex concentrator" Zimplats said.

6E metal production in final product decreased by 23% from the previous quarter mainly due to an increase in concentrate stocks and the build-up of inventory in the furnace on start-up after the 122-day major rebuild shutdown. The furnace inventory build-up is expected to reverse during the

financial year and it is anticipated that all the concentrates stockpiled will be smelted before the end of the year.



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Zimplats safety performance declines

Zimbabwe's biggest platinum producer, Zimplats Holdings Limited has reported a sharp decline in safety performances with the platinum miner reporting an appalling five lost time injury in the quarter ended 31 December 2019, from one lost in the previous quarter.

Rudairo Mapuranga

It is however of importance to mention that the platinum miner achieved 1,5 million fatality-free shifts from 1 million in the previous quarter ended 31 September 2019.



According to the platinum miner, the company remains committed to ensuring safety to its workers and has the vision to achieve zero harm at its mines. The



company said that it remains confident that a "zero harm" mining environment is achievable at the mine through its measures and investigations it took to make sure that accidents are reduced or wiped at the mine.

"Zimplats' safety performance deteriorated from one lost-time injury in the previous quarter to five in the current quarter. All accidents were investigated, and management is confident that after fully implementing the recommendations from the investigations, our safety record will turn around. The Group remains committed to its ultimate objective of "Zero Harm".

"The Group achieved one and half million fatality-free shifts during the quarter. Five lost-time injuries were recorded during the quarter" said the platinum miner.

The platinum miner which achieved a milestone of 10 million fatality-free shifts during the quarter ended 31 March 2019



However of importance to mention that the platinum miner achieved 1,5 million fatality-free shifts from 1 million in the previous quarter ended 31 September 2019.

which no fatalities or lost time injuries occurred has undoubtedly declined in its man-

date to create a "zero harm" mining environment at its mines. There were no fatalities or lost-time injuries recorded during the quarter ended 31 March 2019 with the number of fatality-free shifts worked during increased from 9.75 million during the quarter ended 31 December 2018 to 10 million.

The platinum miner as at 30 June 2018, also had accumulated 10 million fatality-free shifts, with no lost-time injuries recorded.

Caledonia increases its shareholding in Blanket Mine to 64 per cent



Caledonia Mining Corporation Plc is pleased to announce the completion of the purchase of an additional 15 per cent shareholding in Blanket Mine (1983) (Private) Limited.

On November 6, 2018, Caledonia announced it had entered into a legally binding agreement with Fremiro Investments (Private) Limited to purchase Fremiro's 15 per cent shareholding in Blanket. Completion of the purchase required approvals from various Zimbabwean regulatory authorities, all of which have now been received. The gross consideration for Fremiro's shareholding in Blanket is \$16.667 million which has been settled through the cancellation of the loan between Fremiro and the Company which stood at \$11.467 million as at June 30, 2018; and the issue of 727,266 new shares in Caledonia at an issue price of \$7.15 per share, being the closing price on the NYSE American at August 17, 2018. Consequently, Caledonia's shareholding in Blanket is 64 per cent and Fremiro holds approximately 6.3 per cent of Caledonia's issued share capital.

Commenting on the transaction, Steve

Curtis, Chief Executive Officer, said:

"I am pleased to report that the Company has concluded its transaction with Fremiro to increase Caledonia's shareholding in Blanket to 64 per cent. I would like to thank Fremiro for its support as a shareholder in Blanket during the last seven years and am confident that Fremiro, now as a significant shareholder in the Company, will continue to be supportive of Caledonia's business going forward."

Background

Fremiro acquired its shareholding in Blanket when Caledonia implemented transactions in 2012 to comply with the Zimbabwean Indigenisation and Economic Empowerment Act (the "Act"). As part of the transactions, Caledonia sold 41 per cent of Blanket to the following indigenous Zimbabwean shareholders:

- **Fremiro: 15 per cent**
- **The National Indigenisation and Economic Empowerment Fund: 16 %**
- **Blanket Employee Trust Services (Private) Limited: 10 per cent**

The financing of these acquisitions was facilitated through approximately \$30 million of facilitation loans to the above parties apportioned pro rata between the parties based on shareholding.

In addition, 10 per cent of Blanket was donated to the local community in the form of the Gwanda Community Share Ownership Trust.

In March 2018 the Act was amended to remove the 51 per cent indigenisation requirement for gold mining businesses; shortly thereafter, Caledonia and Fremiro agreed a transaction whereby Caledonia would purchase Fremiro's shareholding in Blanket.

Per the Company's announcement of November 6, 2018, Caledonia is issuing 727,266 common shares to Fremiro under the terms of the transaction. Application has been made by Caledonia for these shares to be admitted in the form of depositary interests to trading on AIM and it is anticipated that trading in such securities will commence at 8am on or around January 24, 2020 ("Admission"). Upon Admission, Caledonia's issued share capital will be 11,515,860 common shares. There are no shares held in treasury. The total voting rights in the Company upon Admission are therefore 11,515,860 and this figure may be used by shareholders and depositary interest holders as the denominator for the calculations by which they determine if they are required to notify their interest in, or a change to their interest in, the Company.

Fremiro acquired its shareholding in Blanket when Caledonia Complied with the Indigenisation law

Mthuli's Eiti move supported by the mining community



Finance and Economic Development Minister Professor Mthuli Ncube's move for Zimbabwe to join the Extractive Industries Transparent Initiative (EITI) has been supported by both the mining and business community as a noble move that has the capacity to bring transparency in the mining sector.

Rudairo Dickson Mapuranga

Professor Ncube last year in his 2020 budget presentation in the National Assembly said that his ministry will allocate resources to ensure that Zimbabwe joins the EITI at the annual Mining Indaba which will take place this month.

The move by Ncube has reportedly received criticism from other cabinet ministers who referred to it as an unpatriotic move that will destabilize the economic independence of Zimbabwe by involving western tools and organisations to monitor the movement of our natural resources.

The criticism by cabinet ministers to the Finance Minister is believed to have emanated from the fact that EITI's establishment was overseen by the former British Prime Minister Tony Blair in an endeavor to

address key governance issues in the extractive sectors. The cabinet ministers are therefore against the idea of Zimbabwe joining EITI because it is a western initiative.



However, stakeholders in the mining sector believe that it is fairly good for the country to join the EITI in order to bring in global standards that promote the open and accountable management of oil, gas and mineral resources. Zimbabwe Miners Federation Spokesperson Dosman Mangisi could not comment much to the idea of Zimbabwe joining EITI.

Mangisi could just praise it and expressed that it was good for Zimbabwe to join the initiative.

"It is a good move" said Mangisi.

The mining community also slammed those who were against the idea of Zimbabwe joining EITI as a section of people who are

corrupt and are therefore allergic to any idea that seeks about bringing in transparency to the mining community.

According to Renowned Geologist Kennedy Mtetwa, it is very absurd for any person wanting to hide public funds from the public and blocking a move that seeks to bring in transparency. Mtetwa said that it can only be corrupt individuals that want to hide public funds for personal gain that would block such a move.

"You must ask why any person is against transparency? What kind of person wants to hide public funds? What do you call such people? In short, they are corrupt" said Mtetwa.

Former President of the Confederation of Zimbabwe Industries (CZI) Sifelani Jabangwe said that it is of extreme importance for the country to join the EITI because it will benefit the government against unscrupulous businesses that have a tendency of not declaring their mineral production in full.

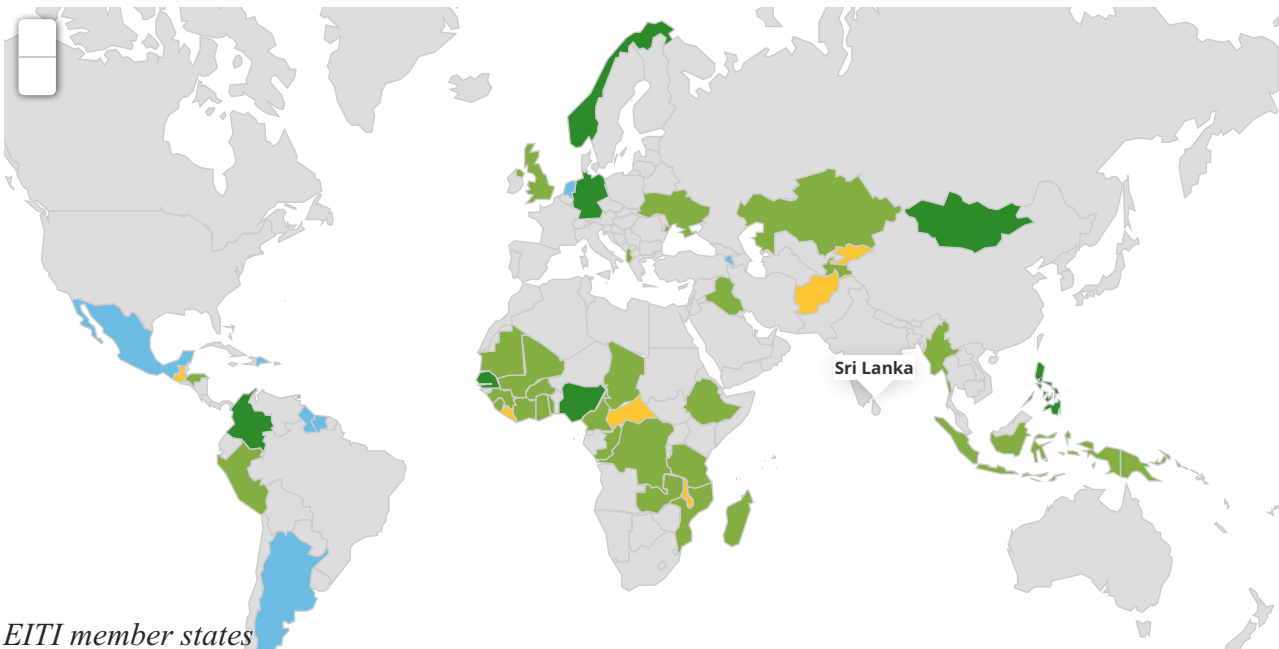
Jabangwe also said that joining EITI can help the country to know how much the government uses mining revenues

because it has been a problem and no one knows what really happens to the funds Zimbabwe is getting from mining production.

"You must ask why any person is against transparency? What kind of person wants to hide public funds?"
Kennedy Mthetwa

"I am in full support of it for as long as it increases disclosure by mining companies of value being obtained from a country. For us I don't think the major problem is with how our government utilises the revenues but it's that of too much being siphoned out from the country" Jabangwe said.

Continued on the next page



EITI member states



Sifelani Jabangwe

The former CZI president also said that for Zimbabwe to join EITI, it will be of benefit to the citizens of Zimbabwe and also the government through a more transparent revenue declaration by mining firms and the government will then demonstrate its mandate by using the revenue for the good of the citizens of this country.

"The government has to also demonstrate it is using the returns from mining for the good of the citizens particularly those in the vicinity of the minerals. So it will benefit the government from more transparent revenue declaration by major mines but ultimately should benefit the citizens" the former CZI President Sifelani Jabangwe said.

However, it should be noted that the idea of bringing transparency in the mining sector in Zimbabwe and Africa as a whole can also be done by Africa creating a similar

organization like EITI in order for the continent to protect itself from imperial fears that are associated with EITI.

The Extractive Industries Transparency Initiative (EITI) is the global standard to promote the open and accountable management of oil, gas and mineral resources.

Guided by the belief that a country's natural resources belong to its citizens, the EITI has established a global standard to promote the open and accountable management of oil, gas and mineral resources. The EITI Standard requires the disclosure of information along the extractive industry value chain from the point of extraction, to

how revenues make their way through the government, and how they benefit the public. By doing so, the EITI seeks to strengthen public and corporate governance, promote understanding of natural resource management, and provide the data to inform reforms for greater transparency and accountability in the extractives sector. In each of the 52 implementing countries, the EITI is supported by a coalition of government, companies, and civil society.

The EITI Standard requires information along the extractive industry value chain from the point of extraction, to how the revenue makes its way through the government, to how it benefits the public. This includes how licenses and contracts are allocated and registered, who are the beneficial owners of those operations, what are the fiscal and legal arrangements, how much is produced, how much is paid, where are those revenues allocated, and what is the contribution to the economy, including employment.

"You must ask why any person is against transparency? What kind of person wants to hide public funds? What do you call such people? In short, they are corrupt"

Kennedy Mtetwa

Interview: Mr. Patrick Takaedza , Africa's youngest Group Chief Geologist



Mr Patrick Takaedza RioZim Group Chief Geologist

Inside Mining Zimbabwe met a youthful most likely the youngest Group Chief Geologist in Africa Mr Patrick Takaedza who gave us an insight on his line of work.

IMZ: Good day Mr. Patrick Takaedza welcome to Inside Mining Zimbabwe. We understand that you are the Group Chief Geologist at RioZim. Can you please explain your role as the group Chief Geologist at RioZim and your background information up to how you become the Group Chief Geologist at one of Zimbabwe's biggest miner?

PT Thank you. I will start with my background as a career geologist. Firstly I am highly indebted to Mark Tsomondo, probably my first proper mentor as a professional geologist. Other notable individuals that have helped shape me as a career geologist are Felischismi Mwijage and Julian Ford.

I have had the opportunity to be exposed to several mineral commodities throughout my working experience in projects across Southern, Central, Eastern and Western Africa, Australia and Asia in **exploration**,

mineral resource and mining roles. This effectively makes me an all-rounder in the essential roles of geologists.

I am a member of both the AusIMM and SAIMM and through all this, I have achieved competency, by JORC 2012 definition, in various mineral commodities some that are not the usual or common mineral commodities we deal with every day. This has allowed me to do work and reports for various companies listed on the ASX for example.

My role with ZSE listed RioZim LTD, in summary, is to increase ounces, grams, kilos, tonnes, you name it, within the corporate portfolio. Simply put, I assist in ensuring that the company's Mineral Resources keep growing. This, in turn, increases the Life of Mine (LOM) of projects within the Group.

I guess the next question would be how do I achieve this. Firstly it is organic growth through robust exploration. One of my strategic objectives is to generate resources at twice the rate at which **mining** production depletes them, at minimal costs. So far the

RioZim Group has invested in 8 Diamond Coring Rigs.

Secondly, I help grow the company's Mineral Resources through mergers and acquisitions by scouting for, assessing and evaluating potential external projects RioZim LTD is a diversified mineral commodities group and so I guess my competency and multi-mineral commodity experience and exposure have found me the role as the Group Chief Geo.

IMZ: How is it working for a leading a critical area of a huge organization like Rio Zim

PT: Its very hectic but exciting to be managing more than 13 projects within the group. My colleagues offer full support within their capacity and as a result, am not really overwhelmed.

IMZ: What do you emphasize when evaluating geological data.

PT: Data quality and Standards as guided by the JORC 2012 or NI43 – 101 are a pre-requisite. To achieve this only a professional with sufficient experience should undertake the work.

IMZ: If you were to lead the Zimbabwe geological survey what would you introduce or get rid of?

PT: Firstly I would expedite the Cadastre finalisation for obvious reasons. Some countries like Uganda have completed this timeously because they outsourced some German company to do it for them. Secondly, we need field-based extension geologists to probably assist the artisanal and small scale miners at government-

subsidized with the a exploitation

Interview: Mr. Patrick Takaedza , Africa's youngest Group Chief Geologist

subsidized cost. This will ensure compliance with the act and sustainable exploration and exploitation of mineral resources.

Lastly, not really sure if that should be applicable through the ZGS or the parent Ministry rather but I have serious reservations on CRAPs. (or peggers), their role and their necessity in the mineral or mining industry. I would scrap them altogether or set minimum professionally relevant qualifications for which one can be considered for a CRAP.

IMZ: Geologists are of the opinion that Zimbabwe is hamstrung by a lack of mineral exploration. What is the way forward for the country to be able to fully explore its mineral wealth other than issuing EPOs?

PT: Unfortunately, I do not see any other way unless we are going to find ways to incentivize, promote and support brown-fields exploration on and around already existing and producing mines. Probably the government should consider incentives for these brownfields projects as any exploration is very risky and capital intensive and not ideal to be funded from production revenue. In other countries listed companies actually raise exploration funding on the Stock Exchange and so don't have to use their own revenue.

IMZ: It is without a doubt that you are a very experienced and tested geologist, there is an issue of Exclusive Prospecting Orders (EPOs) in Zimbabwe, there are people who are pushing for the ban of these EPOs. From a geologist's point of view, do you think it is wise to ban EPOs and why?

PT: I will give my own brief perspective on

this sensitive matter. Firstly there are specific organizations claiming to represent some groups of people who have been lobbying for this blanket ban on EPOs, take note of "BLANKET" ban. I happen to attend some of the MAB meetings where these groups are asked to give reasons to object to the issuing of EPOs. It has therefore occurred to me that most of these organization are now more like activists who just oppose for the sake of opposing without giving any concrete reasons.



The merits of granting or not granting an EPO should be dealt with EPO by EPO. All stakeholders should be involved, eg farmers, lands, forestry, fisheries, tourism, heritage, district councils, and even village representatives not only small scale miners should be part of this process. Having said that, I believe small scale miners and large scale miners should be complementary in their contribution towards the mineral production of a nation rather than being pitted against each other as competitors.

It has also been apparent that some of these organisations are being led by individuals who lobby for this ban for personal or individual reasons. We have gold mining barons in as much as we have land barons. To explain this, for example, I have been asked by leaders of one such organization to commit in writing that I will

reserve the right their members to peg within RioZim pending EPOs, a provision set in section 103 of the Mines and Minerals Act. They argue that EPOs monopolize and sterilize ground available to third parties wanting to peg as well. My response has always been it doesn't make sense that we reserve that right to any particular organization and that we will rather consider everyone and anyone depending on circumstances.

Why then do small scale miners oppose EPOs as if they are reserved only for large scale organizations unless there are some other reasons except "gold claim grab". Why are EPOs being opposed as if they are a legal provision only available for gold exploration? Some organizations are lobbying for the ban to preserve business for CRAP holders.

Are EPOs are necessary? In my opinion... yes. Therefore, anyone interested in the sustainable growth of mineral resources and production at a national level will never oppose EPOs. EPOs attract exploration investment and anyone can apply for an EPO, even the small scale miner if they have a plan and the resources to undertake and fulfill the work required. However, exploration is very risky and capital intensive and under the circumstances, not anyone can execute it. Exploration undoubtedly has led to the discovery of all significant mineral deposits across the world in general and Zimbabwe in particular. Not all of these deposits have surface expressions that would be easily discoverable. As we slowly deplete the near-surface resources that we are exploiting currently we need to do advanced exploration to discover more resources to replace what we

Interview: Mr. Patrick Takaedza , Africa's youngest Group Chief Geologist

are depleting. EPOs then provide the mainframe to which mineral deposit discoveries and resources can be generated through exploration. Some of these deposits constitute the biggest gold, platinum, and coal mines in Zimbabwe. One would then question whether that is detrimental to the country's growth and how. The answer is crystal clear.

IMZ: We have seen small scale and artisanal miners accounting for over 60 percent gold deliveries to the country's sole gold buyer and exporter Fidelity Printers and Refinery (FPR). Can we, therefore, trust small scale and artisanal mining to sustain the economy of Zimbabwe?

PT: Well, if the 60% is true, then its short term and I do not see this trend lasting for a couple of years. It is actually a misnomer that the Zimbabwe Govt should have addressed the moment it manifested. The government should have investigated the reasons why this happened. The answer is simple though. The bigger scale miners have been constrained and throttled by wrong policies for years. There have been double standards when dealing with small and bigger scale miners clearly favoring the former. This has included different forex payments and payment times, the "look aside" attitude of government when it comes to miners compliance obligations all which come with costs that the bigger mines have to bear while not being enforced to the smaller miners. Having said that, small scale miners will never sustain a growing economy for reasons I stated before. They can only mine high grades that are closer to the surface and they can't mine the wider open pit resources that are usually low grade. Most of these near-surface high-grade resources will soon get depleted but production will

still need to go on. It brings me back to the EPO issue and why they need to be allowed.

IMZ: You mention Policies name one?

PT: Allocation of Forex payments. Small scales used to get far more and in cash while larger mines got about 30% that never used to be paid. This incapacitated the big miners while the small guys prospered

IMZ: What would you say the small scale and artisanal gold miners are doing wrong in their operations and how can they correct this?

PT: Generally small scale mining in Zimbabwe is not sustainable. Mining is very technical requiring proper planning and scheduling for sustainability. This is also a huge gap in Safety, Health and Environmental footprints associated with mining and mineral processing speaking of artisanals, recall the Battlefields/ Cricket disaster. My advice is that they follow the law to the book rather than seek waivers and engage consultancy services where they require professional help.

IMZ: We speak to lots of ASMs funding is a major challenge for them in initial stages to seek professional services and most venture into ASM as a way to eke a living due to high unemployment. Is there anything professionals like yourself can do to help because ASM seems to be here to stay Zimbabwe just has to make it work?

PT: It all starts with the mind set. First it needs to be appreciated that exploration is a must in mining. Secondly is the issue of sustainable mining that obviously includes SHE that needs acknowledgment. Having said that I recall the lands/agric ministry used to have AREX or AGRITEX officers who

would technically assist the farmer no matter how small scale. Its a consideration worth the while with the Ministry of Mines who employ many geologists and mining professionals.

Yet again Fidelity has been on the forefront to promoting mining through loans. Why don't they extend the helping hand to prior processing to ensure sustainable growth of the product they require. They need to sponsor exploration/prospecting as well as pre-requisite obligations and requirements that need compliance like EIAs and EMPs.

Other organizations like the UZ, School of Mines, Banks and Institute of Mining Research can also extend their services to assist the small scale as part of their projects.

IMZ: ASM use gold Peggys who only know a few methods like using copper wires, gold detectors etc what's your advice when they are prospecting for gold?

PT: Well I don't know if this copper wire divining really works and where it has actually worked. The secret in successful mining is knowing how much Mineral Resource you have and where exactly it spatially sits in the ground. The biggest gold miners like Barrick, Newmont, Kinross, Randgold, Gold Fields etc would not have been spending millions to billions doing exploration and drilling if it was that easy and straight forward. Copper wires surely can't give you a grade, a tonnage or a reef thickness. Only one machine is capable of doing that, and that would be the drill rig, reason why it is nicknamed "The Truth Machine". My free advice is that anyone prospecting for gold does it the scientific way, using properly trained professionals

Interview: Mr. Patrick Takaedza , Africa's youngest Group Chief Geologist



like geologists. Initially, it may sound expensive for the small scale miner but ultimately it will save them lots of money, time and headaches.

IMZ: What needs to be done for small scale mines to develop into medium mines in Zimbabwe?

PT: It is all about the discovery of mineral resources in sufficient quantities. The size of the resource determines the size and extent of a Mine. Discovery means exploration and so the small scales need to acknowledge and accept that exploration is the most important aspect in mining and mineral resources should they require sustainable growth. As such, they need to invest in exploration no matter how rudimentary.

IMZ: Which mineral would you say is the most underrated or under utilized in Zimbabwe and how can its true value be appreciated?

PT: I cannot think of any but generally interest in mineral commodity follows the

global trends and markets to which it is destined. So you will find out that a lucrative mineral commodity today might not be so lucrative in a couple of years. So true value is only realised if it is only profitable to exploit such a mineral. Mining is a business and any business should be profitable to make sense.

IMZ: There has been noise on the delay by big mines like Great Dyke Investment and Vast Resources to start their operation. From a geologist's point of view, what do you think could be the reason for these delays?

PT: Delays are always associated with funding or rather lack of it. The processing from exploration, feasibility, mine establishment and mining can take many year while requiring funds at each stage.

Unfortunately, as Zimbabwe, where we stand right now, such pre-requisite funding is not easy to come by for obvious reasons I will not dwell on.

IMZ: Jobs are not easy to come by for geologists who just graduated, what your

advice on a recently graduated John.

PT: Unfortunately for John, it's never an easy walk. John naturally doesn't have the experience and exposure to even do small consultancy jobs so he will have to just keep applying and hopefully wait. While he waits I recommend he does some extra professionally related courses, voluntary jobs, internship etc. It is also worth joining professional organizations even at student level. Networking in the industry usually helps too.

IMZ: Besides your busy work schedule what do you do in your spare time do you socialise or have family time?

PT: Rather put it as besides family and work what else do you do (laughs). Family comes first, my job and career second, then when I get extra time I am a keen reader and researcher. I watch cartoons with the kids when at home but generally am an outdoors person and when am not busy I take time for social networking and drinks with my fellow industry seniors like Luckstone Saungweme and Kennedy Mtethwa among others. Am usually very busy with very little time to spare.

IMZ: Thank you so much for your time insightful information. We hope to have more interactions like this in future.

PT: Thank you for having me.





TOP TEN

Operating Mines in Zimbabwe 2019

Despite the continued challenges being faced by the mining sector, some mines have managed to defy odds by consistently churning out positive results both for shareholders and the nation in general.

During the course of the year, some mining companies have folded due to the crippling power crisis and depreciating global mineral prices. This publication however for the second time came up with a top ten list of operating companies in Zimbabwe.

(1) Caledonia Mining

The Matabeleland based gold miner despite it being a mid-tier gold producer has managed to outperform its peers in the mining sector. The second time in a row the mining company has managed to top the rest by continuously churning out fantastic results.

Since inception, the mining company immensely showed its image as a good corporate citizen and has been on the best-performing companies owned by foreign investors.

Listed on the New York Stock Exchange, the mining firm being run by Steve Curtis and

Mark Learmonth is currently carrying out an ambitious expansion drive aimed at producing 80 000 ounces of gold by 2021.

Late last year Caledonia Mining Corporation plc installed diesel generators at its mine which has the capacity of providing 100 % backup power to escape gruelling power-cuts the country is facing.

The company's strategic focus remains the implementation of its investment plan at Blanket Mine which was announced in November 2014 and is expected to extend the life of mine. The expansion project is expected to be commissioned this year.



Top ten Operating Mines in Zimbabwe 2019

(2) Zimplats

Zimplats, the country's biggest platinum miner has been true to its economic standing by playing a huge role in anchoring the ailing Zimbabwean economy. The mining firm has remained an anchor to the Zimbabwean economy and its professionalism cannot be compared to any.

The mining firm has been consistent in posting positive results and its role in economic development is unquestionable. The platinum miner's total payments to Government in direct and indirect taxes has been sitting at \$17 million in the quarter to March 2018.



(3) Unki



Modest in nature and quite in its activities, the Anglo platinum owned miner, Unki has been doing well and this has been seen through projects put in place to date.

The platinum miner last year commissioned its US\$60 million making it one of the leading miners in Zimbabwe in terms of production and profitability.

(4) Mimosa

The Zvishavane based platinum producer has always been visible in its corporate responsibility initiatives with the sponsoring of the famed FC Platinum.

Its role in economic development should never be underestimated especially from the fact that it has managed to keep alight the mining town of Zvishavane following the

folding of the once vibrant Shabani Mines.

The company has been consistent in its production despite earlier clashes with Government where at one time, its South African shareholder mooted shutting down the Zimbabwe mining operation.

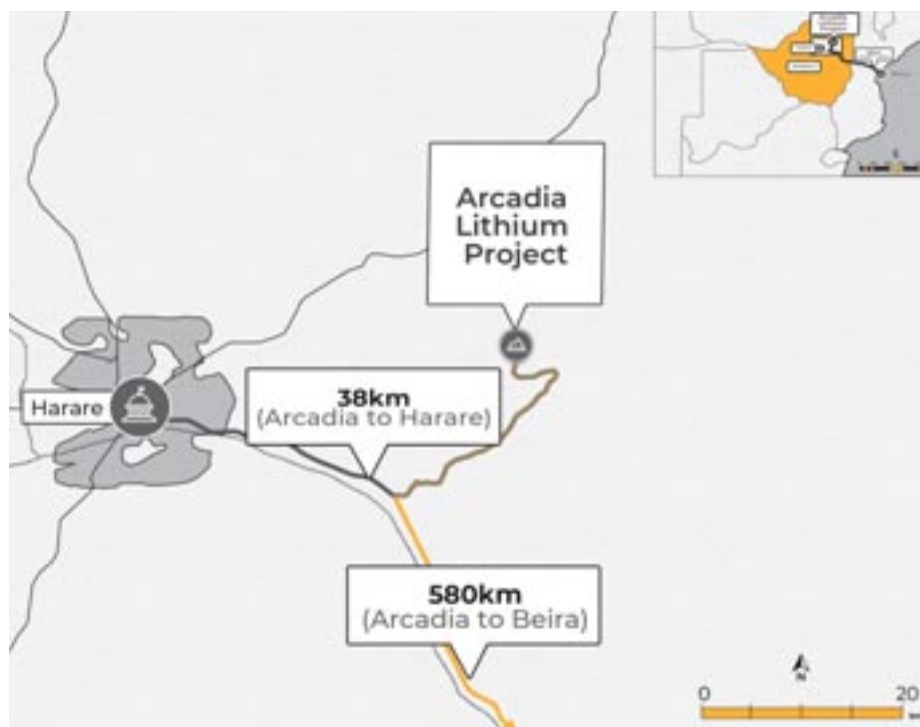


(5) Prospect Resources



Prospect Resources Limited is a battery minerals company with a focus on lithium in and around Zimbabwe, with the flagship project being the 87% owned Arcadia Lithium project, located on the outskirts of Harare in Zimbabwe.

Since acquiring the project in mid-2016, Prospect Resources has progressed the project from discoveries to an updated DFS in a 3 years period. The mining company has been operating is earmarked to be one of the best performing mining companies in Zimbabwe. The Arcadia venture contains an estimated 457,000 tonnes of Li₂O (1.12Mt of Lithium Carbonate Equivalent) and 10 million pounds (MLbs) of Ta₂O₅;



(6) RioZim



RioZim Operations Map

Au	RIOGold CARM & MOTO MINE RENCO MINE
	RIOBase Metals EMPEROR NICKEL REFINERY
	RIODiamonds MURKWA DIAMONDS
mW	RIOEnergy SINOVA MINE

RioZim was incorporated on August 29, 1956 as Rio Tinto Southern Rhodesia Ltd. It was set up initially to develop and mine the Empress Nickel deposit in the Midlands and was the first mining operation to be set up outside Europe by Rio Tinto plc.

RioZim separated from Rio Tinto plc in 2004 and became a wholly-owned Zimbabwean company that produces gold, coal, toll refines nickel and copper. The company is listed on the Zimbabwe Stock Exchange (ZSE). Despite challenges, the company has managed to stay afloat.

(7) ZIMASCO

Arguably the country's biggest ferrochrome producer, the firm has had its fair share of challenges which saw it being placed under judicial management.

Zimasco was placed under JM in June 2016 after its indebtedness to banks and

creditors had gradually increased to about \$65 million. However following various initiatives, the company has since exited judicial management and by January 2018 the company had posted \$160 million in turnover and a profit of \$45 million.



Despite the debt albatross hanging around the firm, Zimasco has managed to defy the odds and has so far managed to repay its debt is one of the profitable companies at the moment.

Top ten Operating Mines in Zimbabwe 2019

(8) Asa Resources plc



Despite massive shareholder scandals rocking the group company, its mining subsidiaries, Bindura Nickel Corporation and Freda Rebecca Gold Mine have continued to show massive resilience posting encouraging results. There have been some allegations of externalization of funds at Freda Rebecca by Chinese shareholders amounting to about \$15 million. This was a

major setback to the mining group, a situation which eventually led to the suspension of its share on the London Stock Exchange. The mining group is currently under the stewardship of administrators, Mark Skelton and Trevor Birch of Duff and Phelps Limited. There are also plans currently underway to restart the smelter at Bindura Nickel Corporation.

(9) Makomo Resources

The coal miner based in Matebeleland North has been the main driver of coal mining in the country at a time when the biggest coal miner, Hwange Colliery has been facing capitalization challenges.

Over the past six years, Makomo Resources has grown to become the biggest coal miner by output and has also become the biggest supplier of coal to Zimbabwe Power

Company. Over the years the miner has managed to clinch a contract of supplying 600 000 tonnes a month of coal to ZPC and the miner has a monthly output of 160 000 tonnes of coal. At its peak the output was 180 000 tonnes.

At the moment Makomo Resources also exports coal to Zambia and Malawi.



(10) The ZCDC



Following the consolidation of diamond mines by the Government, there has been sanity and order in that sector. Production has been consistent and this also saw Government injecting a considerable amount of investment capital to boost production.

The diamond miner, however, is targeting to produce 10 million carats by 2023, an output that is expected to feed into President Mnangagwa vision of a middle-income country by 2030.

The diamond mining sector earnings are expected to hit \$18 billion by 2023.

How young women can be incorporated into small scale mining



Sharon Tsuro

The ailing economy and the unrestrained rise of poverty saw a great number of women finding their way into mining and as the economic conditions continue to take a turn for the worst a lot more women are getting involved in the mining industry. However, due to the various obstacles, women are struggling to be accepted into the sector.

By Sharon Tsuro

Their challenges revolve around societal opinions on gender equality, exploitation, lack of financial capital, equipment and tools, legal and policy restrictions and lack of adequate support from the government. In an era where Zimbabwean women in their numbers are getting relevant training in the mining sector, this article serves to discuss ways in which young technical women can be incorporated into the industry.

The patriarchal nature of the Zimbabwean society demeans the mindset, physique and general capability of a woman. According to Dreschler (2001), cultural barriers impose a heavy burden on women, as a result, limiting their mobility and ability to start up and run their own businesses. They are generally believed to be the weaker sex but the question one would be prompted to ask is, what kind of strength does one need to make it in the mining industry and what ev-

idence is there to prove that women do not have what it takes to survive in the industry? Women now constitute approximately fifty percent of small-scale miners in Zimbabwe (Dreschler; Hoardly and Limpitlaw, 2004). The likes of Mrs. Evans Majola (Founder of Mthandazo Women's Mining Centre in Collen Bawn Gwanda) and Mrs. Sthembile Ndlovu (Chairperson) are examples of women who are making it in mining.

Henceforth it is of paramount essence to educate society and make them believe that women are capable and can be trusted to do well in the mining industry. This can be done through social media platforms, national television, newspapers, and magazines. The society needs to get used to the fact that it is not an inconvenience or an anomaly to have women working in the mines. Accepting women in the industry actually guarantee economic growth and help alleviate poverty.

It is commendable that the government allowed small scale miners to sell to Fidelity Printers. In 2016, they set up a loan facility to anchor the production of gold by

artisanal miners (The Gold Development Initiative Fund). Sadly, the government served only twenty-million out of the one hundred and fifty million fund for the female miners. This included money for training at Zimbabwe School of mines. This goes on to show that even the government has little confidence in women who are in the mining industry. There is a lot more that the government can do to support young

women in the mining sector. In an interview done by the Global Press Journal, a spokesperson for Fidelity Printers said distribution of funds had been poor and only ten percent of the

twenty million had been given out at that time. The authorities need to start supporting women not only theoretically because they are also the future of this nation and thus, but they should also be given enough resources that will enable them to compliment the men in resuscitating the economy through the exploitation of minerals.

The society needs to get used to the fact that it is not an inconvenience or an anomaly to have women working in the mines.



How young women can be incorporated into small scale mining

The exploitation of women by men in the mining sector needs to stop. In as much as women may want to be included in the mines, no living being can tolerate abuse especially if it's gender-based. Women have complained of being sexually assaulted by men who only see objects meant to satisfy their physical needs whenever they feel like. In other instances, women are forced to surrender the proceeds of their labor to men who bully them around.

According to Sophia Takuva (Secretary of the Zvishavane Women Miners Association), Amid all the talk of land plots, machinery and earnings at ZWMA, there is always an unspoken problem that haunts the discussions in the group. Women are harassed and abused by men at all stages of the mining process. She said, "Many women we know have experienced it, its just one of those things that are difficult to talk about." In order to make the mining industry a better place for the women, stern measures should be put in place to discipline offenders and women should be encouraged to speak up about abuse. Women need to know that the mining industry is not a male territory and that they have rights.

After graduating, young women can only dream of getting employed let alone start their own mining businesses. The lack of financial capital is the deadlock to the brilliant minds of these women. This has been worsened by their subordinate position in society. Financial institutions are allowed to give out loans to everyone regardless of gender but women still remain victims of distrust. According to (Maramba 1998), most financial institutions will not grant loans to women unless the husband supports the application. This proves to be very hard on the young technical women



who would have finished their courses but are either unemployed, don't have assets to use as collateral or are single. Women need more organizations that will have enough confidence in women to be able to fund them.

The legal and policy measures are a stumbling block for women who would wish to penetrate the mineral exploiting department. The process of acquiring a mining license is not inclusive and it takes

way too long. There have been complaints of women who wait for years before they can start working legally. Some of the costs needed to acquire the necessary documentation are way too steep. In order to curb this, the Mines and Mining Development Ministry needs to make the process faster and easier for those that want to invest in Zimbabwe's mining industry.

In a nutshell, young technical women need a society, government, and financial institutions that believe that they are more than capable of working with men in the mining sector. The media is a major source of definitions and images of social reality (McQuail1994:1), therefore it should be used to change archaic beliefs about what women can and can't do. Given a fair chance woman can help create a better Zimbabwe.

Article written by Sharon Tsuro. Sharon is a Metallurgy graduate from the Zimbabwe School of Mines and she writes in her own capacity.

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What needs to be done to improve ASM in Zimbabwe



In many parts of the world, artisanal or small-scale mining (ASM) activities are at least as important as large-scale mining activities, particularly in terms of the numbers of people employed. ASM can play a crucial role in poverty alleviation and rural development. Most of those involved are poor and mining represents the most promising, if not the only, income opportunity available.

By Canaan Joseph Saurombe

In Zimbabwe today ASM has become a poverty alleviation scheme to many. Following the droughts and high input costs in farming most communities have resorted to Artisanal mining (Chikorokoza). However, the sector is perhaps better known for its high environmental costs and poor health and safety record.

Many continue to view it as dirty, unprofitable and fundamentally unsustainable. Whether or not the sector is a net contributor to sustainable development, the fact remains that small-scale and artisanal mining activities will continue for at least as long as poverty makes them necessary. It is therefore

essential to maximize the benefits brought and enabled by small-scale mining and to mitigate the costs.

Broadly speaking, artisanal and small-scale mining refers to mining by individuals, groups, families or cooperatives with minimal or no mechanization, often in the informal (illegal) sector of the market.

The following criteria are most often used to define:

- **Production volume**
- **Number of people per productive unit, intensity (volume) of capital employed, labour productivity**
- **Size of mine claim**
- **Quantity of reserves**
- **Sales volume**
- **Operational continuity**
- **Operational reliability**
- **Duration of the mining cycle)**

The local definitions vary from country to country according to the macroeconomic situation, the geological framework, the mining history, and the legal conditions.

In Zimbabwe, the macroeconomic situation requires mineral production in order to generate foreign income. The geological framework supports that most mineral resources in Zimbabwe are more amenable to small scale mining than the conglomerate mining and the legal conditions have been putting a thrust towards formalization of the sector since last year.

EMR (2014) defines an artisanal miner as 'a miner who carries out mining activities using approved tools and employs up to 50 people. These include government-registered groups or syndicates or co-operatives. In particular, artisanal miners engaged in alluvial mining are not permitted to use mechanized equipment or motor-powered equipment (excavators, dredges, James tables, generators, and earth-moving equipment such as front end loaders and bulldozers). Thus, the official distinction between artisanal miners and small-scale miners in Zimbabwe is based on the scale of operation and degree of mechanisation. The law expects both categories of miners to be registered.

What needs to be done to improve ASM in Zimbabwe

If the distinction is based solely on whether or not one is registered, there would be a problem of classifying registered 'small-scale' miners who use 'artisanal' (un-mechanised) mining methods. At the local level, the ASM sector is subject to rural district councils act (chapter 29:13) that empowers the local council to impose a land development levy on any rural land-owners including miners that fall within the council's jurisdiction. In addition, the miners need to have an environmental impact assessment (EIA) approved by the Environmental Management Agency (EMA). Renewal of mining licenses is dependent on the miner's reclamation of land degraded by their mining activities.

Nevertheless, ASM is characterized by a number of conditions:

- **Lack of or limited use of mechanization, and a lot of physically demanding work**
- **Low level of occupational safety and health care**
- **Poor qualification of personnel at all levels of the operation**
- **Inefficiency in exploitation and processing of mineral production (low recovery value)**
- **The exploitation of marginal and/or very small deposits, which are not economically exploitable by mechanized mining**
- **Low level of productivity**
- **Low level of salaries and income**
- **Periodic operation by local peasants by season or according to the market price development**
- **Lack of social security**
- **Insufficient consideration of environmental issues**
- **Chronic lack of working and investment capital**

A benchmark ASM support regime should

'ensure that the ASM does not, in the long run, produce any harm to the communities but induces positive elements for poverty reduction and sustainable development' (hentschel et al. 2002: 16). In order to achieve this, there's a need to address ASM issues that are aforementioned. All these issues can be grouped into legislation, environmental, technical, marketing, financial, policy and value addition issues. The only way issues can be addressed with diligence is through government-stakeholder collaboration as well as support through relevant Associations.

Mining Policy and legislation are influenced by the government but put in use by participants. A consistent policy regime is a prerequisite for a sustainable ASM sector which contributes to poverty alleviation and rural development. Good policies motivate players to produce, formalize, develop and engage in Community Social Responsibility (CSR). Policies can be enacted which subsidises the cost for miners who engage in social responsibilities and rural development. For instance deduction in tax percentage to all cooperates or miners who join hands in observing CSR, such as, construction of roads, schools, donations, etc. An increase in mineral production within an area should equate to an increase in the area's development and improvement of livelihood. Other ways to improve to a favorable mining policy and legislation are:

- Availability of demand-oriented services (technical, legal, socio-economic and environmental).
- Incentives for formal (legal) ASM e.g. import duty exemptions, taxation relief to upcoming ASM companies, improved access to finance/ credit, and access to

free markets.

- Harmonization of government departments and other stakeholder institutions into the asm sector policy administration and implementation. In Zimbabwe this is particularly important where a multiplicity of agencies separately seek to collect fees from and regulate, ASM activities.
- A transparent and appropriate legal framework.
- Strict monitoring of compliance with the legal framework and penalties against violations.

Technology, in general, is not being practicalised in the sector. Under normal circumstances, the small scale has to be the breeding ground of innovation and the digital revolution.

Many ASM enterprises use basic tools for mining, ore handling, and mineral processing, leading to strenuous chores of low productivity. Appropriate ASM technological interventions can enhance the economic sustainability of such ventures without compromising on their environmental sustainability. Filling this technological gap is one way of transforming artisanal mining into vibrant small scale mining ventures. Similarly, it is possible to upscale from small-scale mining to medium-scale mining by upgrading the operational environment, including technology/ equipment which is basically showing good business ethics. The idea is to start small with the aim to grow big. Starting with hand tools is ideal but there comes a time when the need arises to upgrade both extraction and processing equipment in order to maintain or increase recovery.

What needs to be done to improve ASM in Zimbabwe

For instance, a miner can start well with hand tools only but a time comes when they have to go beyond 30m to maintain tonnage at the same time chemical processing will come to be of need to deal with sulphides, oxides and/ or other additives. Therefore, a good ASM miner has to be business-minded and prepare for the future before odds change.

Tenure and formalisation has always been a complex challenge in the Zimbabwean ASM sector. Many ASM activities are informal and some prefer to remain informal for a number of reasons:

- **Lack of incentives to legalise,**
- **Bureaucratic procedures and heavy fees to become and remain legal,**
- **Lack of capacity of the government to enforce penalties, and**
- **Non-provision of benefits which should be associated with legalising activities.**

A supportive ASM regime should encourage and incentivise legalization or formalisation of ASM. To this end, governments should develop objective, consistent, transparent and non-discriminatory regulatory mechanisms, which offer easy access to mining titles and legal production. An ordinary miner from the deepest corner of Zimbabwe might not find time and resources to visit a mining office in the city, where they are sometimes tossed from one office to another. Registration procedures should be made easy to follow and at least compiled in one office. The Government through the Ministry of Mines has to accept the efficiency of computerising information and going paperless, countless times miners register their mines only to be approached by officials later with information that the same mine is

under someone else's tenure. This corrupt and misusing of office has been ongoing and most miners prefer to work on their mines without grabbing the attention of the mines and mining development officials. For us to have a good ASM system every miner deserves a chance to explore and to be respected over their land as long as they are following all the policies required of them to follow.

Technical support.

In ASM is vital yet it is missing in most ASM mines in Zimbabwe. According to Hentschel et al. (2002), most ASM problems are technical and require appropriate technical solutions implemented in an integral approach.

The technical solutions have to be commensurate with the economic potential of the target group and need to be accompanied by education and training, and be affordably replicable. There is a serious lack of knowledge in the ASM sector and valuable mineral is being lost to waste due to this problem. The mining process is very sensitive from exploration up to production, slight misinformation leads to a huge loss. Most ASM mines are losing precious minerals in processing plants because they don't understand the importance of metallurgical test work and process selections. We can only have a productive and sustainable ASM sector if we employ the right people with the right skill sets. This shouldn't be a problem especially in Zimbabwe where we have many young technical people who are energetic and highly skilled.

Social support

Traditionally, support to the ASM sector has largely been technical and financial, and

rarely social. Supporting the ASM sector through provision of health and social insurance cover is likely to become an important yardstick against which to judge how fairly a country treats its ASM workforce. There's need to carry out vigorous campaigns across mining and herding areas, raising awareness of the need for insurance cover among herders and ASM workers, and assisting them to obtain insurance cover on negotiated terms. This shows that a nation recognise the ASM sector not just benefiting from its production. Where there is social support, there is motivation and where there is motivation, there is production and good workmanship.

Environment, health, and safety are very important in any industry, whenever we talk about production it is important we also talk about the environmental impact caused and health or life affected. Small-scale mining generally has a greater environmental impact per unit output compared to large-scale mining. The environmental problems associated with ASM include: mercury pollution, cyanide pollution, acid mine drainage, river siltation, erosion and deforestation, landscape destruction and cultural damage. Governments are expected to enforce legislation to protect the environment and the health of communities and miners, but legislation and enforcement alone are not enough. A realistically supportive ASM regime should couple enforcements with awareness campaigns about the risks of unsafe work practices, and to proffer safer alternatives compatible with local cultural, social and economic norms. In Zimbabwe, the cost of environmental compliance, administered via the environmental management agency (EMA), is beyond the reach of many ASM



workers who are already burdened with a plethora of other licensing fees from several other agencies/ government departments.

Minerals marketing has always been a challenge, especially in the gemstones sector. Typical market problems in the ASM sector include lack of direct markets (going through intermediaries), stringent market regulations and illicit trading (largely due to poor government policies). Decentralisation of markets help curb illicit dealings by cutting off unnecessary exploitative intermediaries, who are the main culprits in smuggling, while at the same time ensuring that miners get higher profits for their produce. Profit margins can also be increased by assisting the ASM sector to establish local processing industries that add value to mining products. A benchmark ASM support regime promotes fair trade initiatives that give miners the opportunity of trading their produce under the best selling terms and conditions.

In every jurisdiction, the government sets laws and regulations to govern the way things are done. It's through partnerships and associations that people respond to set



laws in a way to try and relate them to practical tasks. All the above-stated frameworks can be well implemented to support a productive and sustainable small scale-ASM sector. This is the reason why we form Associations like Core Miners Association (CMA) to exhibit a standard operation of a proper small scale mine. It takes proper planning, resource allocation, organizing and controlling to produce efficiently and effectively in the mining sector.

Canaan Joesph Saurombe is the founding chairperson of Core Miners Association, he writes in his personal capacity, can be contacted at canniesaurombe@gmail.com



Protecting your operations from Machete gangs



Machete gangs have wreaked havoc in the small scale mining industry and in rare reported cases have small-scale miners succeeded in foiling machete gang's attacks.

Recent blitz from the Police has had machete gang leaders going underground in fear of the long arm of the law making the industry much much safer. A Kadoma menace machete gang known as Ziga went viral early this year with the gang showing off their small loot armed to the teeth with machetes, swords, and knives on video. The video got over 13 000 views on the Mining Zimbabwe YouTube channel. The fearsome video attracted attention from the Police, saw the gang leader getting arrested in Rushinga 385km away a few hours after it surfaced.

Small-scale miners definitely need to boost their security in order to minimise the risk of getting easily robbed by the so-called Machete gangs or Mashurugwi as they are popularly known countrywide. The gold they steal is believed to be smuggled into South Africa where the precious commodity fetches a higher price and is paid in a more preferred currency to our local dollar.

Below are some of the methods to safeguard your mining claims.

1. Your production should be your secret

Retired Chief Inspector Elia Sungiso said that "Machete gangs" are not prophets. They are fed with information from within for them to strike.

Their modus operandi is they get tipped on mining claims performing well and they ask for names for easy access to the target site. Suspects in such cases are disgruntled workers working at target mines who will, in turn, be given a "cut" (share of the loot). It is highly advisable that mine owners vet their workers and pay decent rates. They should also inform workers on the dangers and risks of discussing mine performance outside work zone.

2. Secure your claims (fencing)



Miners should make it a habit of fencing their operations and control access to their operations. It takes seconds for machete gangs to access open operations and fighting them off is usually impossible as they pounce unannounced and in large numbers. Should there be no security guards available resting mineworkers can take turns to monitor entry points.

3. Install CCTV



Miners can install a cheap CCTV system to monitor their operations and entry points. In this digital age, CCTV can be monitored remotely on multiple devices.

An example is before allowing access to unfamiliar faces at entry points the site manager, foreman or owner can log onto the CCTV and check if they know whoever is at the gates. If they sense trouble they can raise alarm. In case perpetrators breach perimeter fence undetected CCTV can help identify the suspects after they are gone. All this can cost under US\$300.

4. Pay fair wages and treat workers well

It's a well know secret that machete gangs get their information from within the targeted operations. The information usually comes from disgruntled workers who will get paid a commission or "cut" for snitching. Some mine owners from all races are known to ill-treat their workers with a number of

It's a well known secret that machete gangs get their information from within the targeted operations. The information usually comes from disgruntled workers who will get paid a commission or "cut" for snitching. Some mine owners from all races are known to ill-treat their workers with a number of videos online of miners physically assaulting workers. This is an excellent recipe for having workers trading inside information.

5. Hire a security company



Miners should hire armed guards who have training in unarmed defence patrolling their areas. The upside of Zimbabwean security companies is the law clearly stipulates they should only be owned by ex-servicemen/ women from the Police, Army or Prison service meaning a security company's guards can be adequately trained.

On request, Security companies can provide experienced armed personnel who usually succeed in apprehending trespassing elements.

Those employed as Guards should have a clean criminal record, vetted by the Police.

6. Unknown vehicles with lots of people is a sign of danger. Create relationships with local communities, headmen etc

Mines are usually located in remote areas. It is an added advantage to have miners familiarise themselves with villagers and village heads and exchange contact numbers. It is highly important to know



who's who as it may be an ordinary villager that may be able to raise alarm when you cannot.

The more villagers are familiar with operating miners in their areas the easier it is to notice unfamiliar vehicles and faces. A good example is in the Mukaradzi area where a machete gang was apprehended after miners and locals in the area got suspicious seeing an unfamiliar vehicle and unfamiliar faces prompting the miners to seek Police assistance.

7. Be familiar with your local Police and Emergency hotlines and local miners whatsapp groups



In case of suspicion, the Police are the quickest way to stop a machete attack.

These days the Police have WhatsApp hotlines it is highly advisable for anyone venturing into mining to ensure they have contacts to their nearest police station and join local miners' WhatsApp groups. This makes it easy for Police to pinpoint the location of a distress signal and easy assistance from local miners.

Mount Darwin Police stopped an almost machete victim mine after a quick tip-off.

Police responded swiftly, searched the gang of eight and four machetes, four okapi knives were discovered in the boot of a Toyota Wish vehicle they were using. On further interrogation, the gang confessed to being behind the spate of attacks in Shamva, Mazowe and behind the stabbing of soldiers in Bindura. The gang was jailed.

8. In case of attack stay calm usually, you are outnumbered

Machete-wielding criminals as we saw with the Ziga machete gang who numbered over 40 outnumber small-scale miners at even the largest operation. If you are outnumbered and not armed it is highly advisable to comply with the gangs.

9. Only Hire vetted workers



With the spate of robberies that escalated last year it is important to hire people with a clean criminal record.

Workers should have finger prints vetted by the Police, produce ID copy and have traceable references. This is a process that majority of ASM take for granted however with the spate of robberies happening it is of paramount importance that you trust who works for you.

10. Avoid working at night

It's common knowledge that evil lurks at night. If you do not have adequate security and lighting working at night increases risk.

Written by Chief Inspector E. Sungiso (retired). He has trained thousands of Police recruits who graduated into full time service men and women. He can be contacted on eliasungie@gmail.com

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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

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