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Cell: +263 782 713 141
Email: sales@ctbolts.co.zw/accountsh@ctbolts.co.zw

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WRITERS/ JOURNALISTS
Rudairo Mapuranga - rudairomap@gmail.com
Shantell Chisango
Anerudo Mapuranga
Keith Sungiso

CONTRIBUTORS/ GUEST WRITERS

Hon Edmond Mkaratigwa
Dr Albert Maipisi
Lyman Mlambo

SALES & ADVERTISING

Kelvin Sungiso
kelvin@miningzimbabwe.com
Cell/Whatsapp: 0775523000

PUBLISHER
Timelison Media (Zimbabwe)

ABOUT PUBLICATION

Mining Zimbabwe is the 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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INSIDE MINING ZIMBABWE

Mines and Mining Development Parliamentary Portfolio Committee tour: Enquiry into the gold mining sector problems

Enquiry into the gold mining sector problems


Keith Sungiso

EDITOR'S NOTE

Earlier this month we joined the Parliamentary Portfolio Committee on Mines and Mining Development led by Edmond Mkaratigwa on their fact-finding mission dubbed: **Enquiry into the gold mining sector problems**. The tour aimed at getting the facts surrounding gold leakages, operational challenges in the gold mining industry and the possible solutions.

For once we were in the presence of a group that shared the same passion of seeing a more efficient, productive and smooth operating mining industry as we do.

As miner after miner in both the Artisanal and Small-scale (ASM) and large scale (LSM) Mining Industries raised their concerns it was clear that problems in our beloved industry have prolonged and have largely been left unresolved.

As a publication, we believe the USD4 billion gold industry by 2023 mark can easily be attained if proper fundamentals are in place.

Critical of those are paying Large scale miners 100% forex rate, timely issuing out of mining titles, instant Payment on gold delivery (for both LSM & ASM), investigating and arresting miners, prospectors and Mines officials who connive to create disputes as a way of wrestling claims from registered owners. As lamented by miners, It is a common occurrence that disputes arise when the blocks in question produce high yields.

The 60/40 retention given to large scale miners is a major drawback and a review from the authorities is long overdue. In simple mathematics, the 40% zwl paid to LSM is half in actual value when buying equipment on the market. Service providers peg their prices in tandem with parallel market rates. Currently, the parallel market rate is hoovering around US1:ZWL200 whilst the RBZ auction rate is US$1: ZWL99.93 as of 9/11/2021. Its just not feasible.

Whether you are just an information junkie or a potential investor, this is the publication to read, we have all things mining covered for you all in one place. We would love to hear from you, so feel free to leave your comments on our social media pages and you can also write to us info@miningzimbabwe.com. Enjoy the read!

K Sungiso

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60/40 retention

A major headache for Large scale miners

The current foreign currency retention threshold being paid by the government through the Ministry of Finance and Economic Development has become a headache towards the resuscitation of the country's economy through the mining sector, industry captains have hinted.

Rudairo Mapuranga

The government through the National Development Strategy-1 (NDS-1) underpins the mining sector as the major contributor to economic revival leading to the country becoming an upper-middle-income economy by 2030.

Large Scale Mining companies although following on deaf ears have been advocating for the government to change the foreign exchange retentions which are at 60 per cent to at least 90 per cent forex in order to reduce operating costs.

Unlike their Artisanal and Small-scale counterparts, large scale miners in Zimbabwe are paid 60 per cent of their gold submissions in US$ while the other 40 per cent is paid in local currency at the auction exchange rate (interbank rate). However many suppliers choose to peg their local prices against the parallel market rate which is twice the interbank rate thereby increasing the operational costs on all large scale mines due to high inflation on the parallel market.

Last year, the Ministry of Finance and Economic Development through the Reserve Bank of Zimbabwe reviewed the forex retention to 70 per cent from 55 per cent as part of efforts to increase production. However, due to the need to fund the forex auction system, speculations are high that the Central Bank increased the export surrender requirement to 40 per cent from 30 per cent and the move has left miners short of requirements a move that has potential damage to the US$12 billion mining roadmap.

Caxton Mangezi

The government through the Minister of Mines and Mining Development (MMMD) Hon Winston Chitando has a vision for the mining industry to fetch an annual revenue of US$12 billion by 2023. The sector is critical in generating foreign currency, contributing about 70 per cent of the forex earnings, largely driven by gold, platinum, and diamond.

However, it has been reviewed by large scale miners that the current foreign currency retention is a match stick to fire ablaze the destruction of the mining sector to achieve its intended role.

According to General Manager and Director of Caledonia Mining PLC owned Blanket Mine Mr Caxton Mangezi during Mines and Mining Development Parliamentary Portfolio Committee, the current foreign currency retention threshold for large scale gold miners which is standing at 60 per cent is not sustainable for the growth and development of the mining sector and might lead miners to a possible shut-down of operations.

He said operation costs in local currency are increasing due to high inflation on the parallel market and the failure of the central bank to provide all suppliers with the required foreign currency on the auction rate. Mangezi said the retention was a form of tax itself which makes it difficult for operations as costs are always rising due to inflation.

"One of the challenges that we are facing as a mine has to do with the 60/40 per cent gold retention. You could find that there are some miners who could operate viably on a 60:40 basis but some of us could need 100 per cent forex retention due to the extent of our requirements. What we hope the Government could notice is that we comply with tax payments and as such once we also retain 100 per cent forex, that means we are also able to pay all our taxes in foreign currency," Mangezi said.


Brian Chandiwana

Addressing the Mines and Mining Development Parliamentary Portfolio Committee at Sabi gold Mine visit, Chandiwana Holdings Managing Director Mr Brian Chandiwana said that the 60 per cent foreign currency retention threshold was a major factor in the rise of operating costs for the miner saying that the rise in inflation has led the company to lose its intellectual property as the workforce is leaving for greener pastures as their salaries are being eroded by inflation as well as the big gap of over 100 per cent between the black market rate and the official rate.

Chandiwana said 100 per cent foreign currency was going to make work easy for miners to have a constant budget when running their operations as the other part which was paid in local currency was half or less its presumed value.

"The official rate, in reality, erodes the value of the 40 per cent to 20 per cent meaning we are paying more to the government in taxes. We are losing our workforce because the 40 per cent local currency that we get is not sufficient to sustain their livelihoods. If I were to demand a review, I would say the government give us 100 per cent," Chandiwana commented.

According to one of the most prominent figures in the mining industry who is also Freda Rebecca and Shamva mine Managing Director, Mr Eliakem Hove the primary producers were pushing towards


Eliakem Hove

the government giving the miners 100 per cent so that operations may not be affected.

Hove said that the 40 per cent Zimbabwean dollar component was aiding to the increasing cost of production.

"Our position as the Chamber as well as Freda Rebecca, 60/40 is not adequate we would actually want 100 per cent, worst case 80/20. The Zim dollar component increases your cost currently sitting around 60 per cent when trading, 60/40 is putting pressure on our side," Hove said.

In a trading update, Bindura Nickel Corporation secretary Conrad Mukanganga said the adverse impact of the cost of local inputs and the increasing disparity between the auction foreign exchange rate, at which the company surrenders 40 per cent of its revenue for Zimbabwe dollars, and the prevailing parallel market rate battered the miner.

He said the unit cost of production increased significantly due to the higher costs incurred in the quarter, as a result of the adverse impact on the cost of local inputs of the increasing disparity between the auction foreign exchange rate, at which the Company surrenders 40 per cent of its revenue for Zimbabwe dollars, and the prevailing parallel market rate.


Kennedy Mtetwa

According to the Deputy Chairperson of the Geological Society of Zimbabwe Mr Kennedy Mtetwa operation costs in local currency are increasing due to high inflation on the parallel market and the failure of the central bank to provide all suppliers with the required foreign currency.

"Production costs are going up in ZWL yet the exchange rate for 40 per cent is staying the same," Mtetwa said.

Diversified mining group RioZim during the first quarter of 2021 said it did not benefit from a 12 per cent increase in average gold prices due to the reduction of gold foreign currency retention threshold from 70 to 60 per cent by the central bank.

The miner said the retention threshold impacted negatively on gold production by 10 per cent.

The Reserve Bank of Zimbabwe (RBZ) through its subsidiary, Fidelity Printers and Refiners is the country's sole gold buyer and exporter in the country. In 2008, many gold producers particularly the largest that time Metallon Gold was reported to have shut down operations due to unfavorable forex retention and failure by the government to pay them in time. Some gold mines went for months without receiving a single penny for their deliveries the same year.

In 2005 gold deliveries declined by 31 per cent, in the first half of the year compared to the previous one. The Chamber of Mines blamed the administration glitches at RBZ which was delaying payments to producers for gold deliveries as well as an uncompetitive exchange rate. The official exchange rate which miners were paid for a third of their earning was blasted by the chamber of mines as unviable.

The Reserve Bank in 2008 paid 75 per cent of the total value of gold delivered in US dollars directly to the producers' foreign currency accounts with a balance of 25 per cent paid in local currency, this was, however, not viable as the government was always falling behind on payments to gold miners as it struggled for hard cash to import food and other basic commodities that were in short supply in the country.

It seems the 2008 era of an unfavourable foreign currency retention threshold has again hit the mining industry with fears that some companies to shut down operations.

Enquiry into the gold mining sector problems

MINES AND MINING DEVELOPMENT PARLIAMENTARY PORTFOLIO COMMITTEE TOUR

A five-day field tour by the Edmond Mkaratigwa led Mines and Mining Development Parliamentary Portfolio Committee to gold mines and gold mining communities in the Southern Region has unearthed a myriad of challenges in the mining sector that need urgent addressing if the gold sector is to successfully become a US$4 billion industry by 2023.

Rudairo Mapuranga/ Keith Sungiso

The tour which was dubbed: **Enquiry into the gold mining sector problems**, aimed at getting the facts surrounding gold leakages in Zimbabwe and providing possible solutions for legislation thereof has proven to be fruitful with the visit equipping the parliamentarians with information necessary for policy address and redress.

The visits according to Hon Mkaratigwa is the Portfolio's way of enforcing the President's vision following the National Development Strategy-1 (NDS-1) which is underpinned by the mining industry with the mining sector through its US$12 billion putting much emphasis on the importance of gold production and its capacity to reach 100 tonnes by 2023.

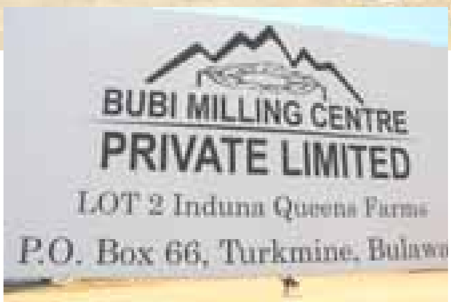
Day one: Bubi gold service centre

The Mines and Mining Development Parliamentary Portfolio Committee first visited Bubi Gold Service centre which is the Zimbabwe Mining Development Corporation (ZMDC)'s venture with Bubi Small-Scale Miners Association). A plethora of challenges that could hurdle the government's initiative of capacitating artisanal and small-scale miners to realise optimum returns from their ore were unearthed.

It was discovered by this publication that the centre was heading for collapse operating like a white elephant.

Parliamentary Portfolio Chairperson on Mines and Mining Development Hon Edmond Mkaratigwa asked the Bubi Gold Milling Centre to write a proposal on what was needed to finish the project so that it may be presented in parliament.

With ZMDC Non-Executive Director Mr Peter Chimboza imploring that for the capacitation of the programme which involves the installation of a Carbon-in-Pulp (CIP) plant at Bubi Milling Centre and equipping ZOO 9 and ZOO 7 small-scale mines in Bubi with mining equipment and accessories such as hoist, generators and electricity transformers as well as offering capacity-building programmes, therefore, a sum to the tune of over US$2 million was needed.



Speaking at the visit, Bubi Small Scale Miners Association Chairperson Mr Siqduthando Ncube said the project was headed for failure as ZMDC was failing to fund small scale miners to bring gold ore to the milling centre. He said the pilot project has failed on its mandate to be exemplary for other provinces to take a leaf because the implementation of the whole idea was offside.

"The only way this project can flourish is by empowering small scale miners. The resources are there but we are still using picks and shovels to extract ore. A pilot project should be adequately funded and be exemplary and it seems we have lacked on the implementation of the idea on paper, on the ground," Ncube said.

Jane Lusinga

Enquiry into the gold mining sector problems

MINES AND MINING DEVELOPMENT PARLIAMENTARY PORTFOLIO COMMITTEE TOUR

"The only way this project can flourish is by empowering small scale miners. The resources are there but we are still using picks and shovels to extract ore. A pilot project should be adequately funded and be exemplary and it seems we have lacked on the implementation of the idea on paper, on the ground," Ncube said.

Bubi Miners Association Secretary Mr Benjamin Ndlovu implored the government to finish the project as it has not been as successful as was anticipated. Government must however draw lessons from that, and improve on the idea as it is still noble.

"We thought we were very lucky to get a milling centre but it has not been as expected. These milling centres do not need too much capital, but this has failed since 2018. The government must fully fund this project so that the investment benefits are fully realized," he said.

The small-scale miners also reported that ten compressors were ordered yet to date only three were delivered, and time has lapsed, giving speculation of corruption.

Some equipment in a shed is gathering dust as it is sitting idle with miners claiming the equipment is not of good use to them. The miners say the equipment they initially expected to be delivered and that which was delivered is completely different, which might have doomed the project from the beginning.

The Mines Committee arrived on-site before 9 am and departed after 13:00hrs, and at no time during that period did any miner bring in any ore. There also was no electricity and the centre was quiet yet unmistakable noise of mining equipment was heard from neighbouring mines. This led to Mines Committee members asking why the generator was not being utilised instead of relying solely on electricity, which they dismissed as unreliable.

Chimboza speaking at the visit said, his company which owns 60 per cent of Bubi Gold Milling Centre was failing to raise capital to increase its milling volumes as such, there has not been enough apex to channel to the growth of the ASM sector in Bubi.

He said that because his company was

Mkaratigwa and Team inspecting a roundmill at Bubi gold centre

under sanctions, it has been difficult for them to source for outside investment as investors are not willing to be associated or to risk their money in a project that can be blacklisted due to ZMDC sanctions.

Chimboza said it was of importance for the government to take a leaf from the Bubi Centre as it has proved that the project is achievable but some things needed to be addressed.

"We are not able to raise funds from international partners because of sanctions. The main thing that we want is to grow our milling volumes because the ore is there in this area but the equipment is not enough for small scale miners to bring big tonnes.

"We are hoping through the help of the government to fund the miners, if miners are capacitated, we will have big volumes to mill here.

"This is however a pilot project, we hope after this we will have successful gold service centres," Chimboza said.

The milling centre according to Chimbodza has provided a learning curve for the other gold service centres to be established. He said that financial support for the milling centre can be of huge significance to the US$12 billion mining roadmap.

Speaking to Mining Zimbabwe after the meeting, Mines and Mining development Portfolio Committee Chairman Hon Edmond Mkaratigwa said, "We have been informed that a CPA plant which will be able to handle more than 100 tonnes per day is envisaged but it needs a budget of more than USD400 000 which we support."

"We also hope that the gaps that are existing in terms of the operations around the facility are going to be addressed and that will see stakeholders who are the Artisanal and Small-scale miners responsible for the feedstock being properly funded and properly capacitated in terms of equipment and machinery to rump up their production. That will also see the replacement of the crushers on-site to make sure we have modern crushers that can actually be able to process more material and rump up production which will feed into the dump and ultimately feed into the CPA plant. This will go a long way in ensuring that we meet the US$4 billion target that we expect from the gold sector towards the US$12 billion mining industry by 2023," Mkaratigwa concluded.

Gold service centres are a priority for the achievement of the President Dr Emmerson Dambudzo Mnangagwa for the country to achieve an upper-middle-income economy by 2030 with the National Development Strategy-1 (NDS-1) emphasising on the state-run gold milling centres to help capacitate small scale and artisanal miners as well as increasing gold recovery methods among these micro miners.

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MINES AND MINING DEVELOPMENT PARLIAMENTARY PORTFOLIO COMMITTEE TOUR

DAY TWO: PLUMTREE BORDER POST


Plumtree border post

The Mines and Mining Development Parliamentary Portfolio Committee visited Plumtree Border Post to have an understanding of the country's security or preparedness and measures applied at the border in combating the smuggling of minerals from the country.

The visit saw the Portfolio Committee on Mines and Mining Development engaging with stakeholders who included Zimbabwe Revenue Authority (ZIMRA), Zimbabwe Immigration, Zimbabwe Republic Police (ZRP), Environmental Management Agency (EMA), clearing agencies among others.


Stakeholders converged at Plumtree border post

Hon Mkaratigwa enquired on measures taken to stop the smuggling of mercury into the country with the representatives from EMA stating that they were working closely with the Police and ZIMRA to ensure that there was no smuggling of the silver chemical into the country.
Magunje House of Assembly Constituency member Hon Cecil Kashiri enquired if the police have apprehended a person who was smuggling gold or any mineral in the last two years with the police admitting that they had only arrested a single person in 2018 who was caught with a few grams of the yellow metal.

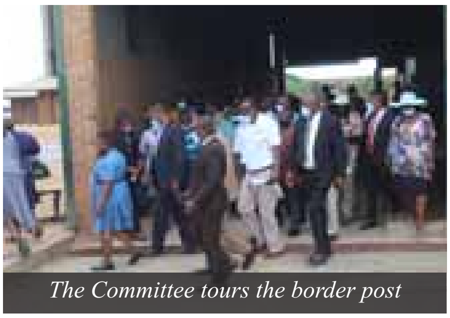
Speaking at the same visit in Plumtree, Matabeleland Assistant Regional Immigration Officer Mr Cadwell Chikara Moyo said it was pivotal for the government to address issues mineral leakages through to matters on the ground like funding the police adequately and buying patrol vehicles and drones to improve the illegal movement of goods from areas away from the border.

"The problems of mineral leakages are not necessarily to do with border securities, the government needs to address issues of pricing before they move to improve the borders which are in due need of improvement and rehabilitation," Moyo said.

Midlands House for Assembly and also member of the Portfolio on Mines and Mining Development Hon Cathrine Gozho said the Portfolio which is led by Hon Mkaratigwa has been deliberating on improving the prices of the minerals found in Zimbabwe as well as trying to enquire of better ways Fidelity Printers and Refiners together with Minerals Marketing Corporation of Zimbabwe (MMCZ) can market the country's minerals.

"We are going to push as always for Fidelity to offer better prices that it would be difficult and unreasonable for miners to seek for the outside market. Fidelity has a mandate in the region to offer prices that can be attractive for other countries to bring in their gold in Zimbabwe," she said.

Parliamentary Portfolio Committee on Mines and Mining Development chairperson speaking after the visit said the committee was recording every detail of the meeting verbatim and was going to write strong recommendations that's help stop the leakages of gold starting from the ground up until to the boarders.


The Committee tours the border post

Day Three: Blanket Mine and Mthandazo Women miners gold centre

Parliamentary Portfolio Committee on Mines and Mining Development visited New York Stock Exchange-listed Caledonia Mining Plc's Blanket Mine in Gwanda where General Manager and Director of the Blanket Mine Mr Caxton Mangezi raised concerns over the current foreign currency retention threshold for large small gold miners which is standing at 60 per cent with the other 40 per cent liquidated to local currency at the inter-Bank rate.


Mangezi with Mkaratigwa

He said operation costs in local currency are increasing due to high inflation on the parallel market and the failure of the central bank to provide all suppliers with the required foreign currency of 100 per cent. Mangezi said the retention was a form of the tax itself which makes it difficult for operations as costs are always rising due to inflation.

Magunje House of Assembly Constituency member Hon Cecil Kashiri enquired if it could a good business if the Mines Parliamentary Portfolio Committee recommends that a certain tax holiday on imports be adopted for the miners but Mangezi would not take it saying that the tax holidays were already in place but was failing to work due to inflation. Mangezi said it was important for the Reserve Bank to give miners 100 per cent to increase production if the gold target is to be achieved.

Enquiry into the gold mining sector problems

MINES AND MINING DEVELOPMENT PARLIAMENTARY PORTFOLIO COMMITTEE TOUR

Mangezi speaking at the same event as his mine was targeting to become the country's biggest gold producer and said that production and recoveries at the Blanket mine have been improving significantly.

He said that the increased gold output at the mine was attributed to enhanced capacity following the commissioning of the Central Shaft at Blanket in the first quarter of the year. The mine is targeting a production of 80 000 ounces from 2022 and beyond.

According to Mangezi when Caledonia acquired Blanket from Kinross in 2006, production in the third quarter of that year stood at 6 475 ounces however during the same quarter of 2021 a production record of 18 965 ounces has been reached indicating that the mine is determined to the growth and development of the mining sector to sustain the economy.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The Committee at Mthandazo Women in mining milling centre

Mthandazo women miners

During the same day, the Parliamentary Portfolio Committee on Mines and Mining Development also visited Mthandazo Women in Mining milling centre in Colleen Bawn where a host of issues affecting women in mining were raised.

The women were lamenting about Exclusive Prospecting Orders (EPOs) and the failure by the Ministry of Mines and Mining Development to accept or reject them leading to a vast of land laying speculatively. Mthandazo Women Miners Trust founder and national chairperson Sithembile Ndlovu lack of claims was one of the biggest challenges for women in mining because there have come to terms with the fact that for them to be sustainable, they have to maximize production.
She said her organisation was encouraging women to venture into the mainstream mining sector by helping them receive training from reputable mining institutions such as the School of Mines in Bulawayo. She said the Trust assists them to get formal education so that they shift from general knowledge of mining to a more precautious approach in health and safety and technical mining. Ndlovu said the organisation encourages more women to venture into formal mining because it will help alleviate poverty and will assist the government's goal of producing 100 tonnes of gold by 2023.

Mines Parliamentary Portfolio Committee chairperson Hon Edmond Mkaratigwa commended the women's project saying it has more to offer to the country's vision of becoming an upper-middle-income economy by 2030. He said that though it is a pilot project headed and run by women, the project has offered a learning curve for the government to improve the artisanal and small-scale mining sector through recommendations that help the growth of the sector.

He said it was important for the project to receive government support that it can be registered as key to economic development then be upscaled and prioritized by the government in its quest to see the mining sector reaching a US$12 billion annual revenue by 2023.

A Portfolio Committee member and Bulawayo Member of Parliament Hon Jasmine Toffa praised the project saying that the women were doing a wonderful job and proposed that they should go and take a look at Bubi centre's strength but she however said Mthandazo were doing significantly well than ZMDC at Bubi although their financial muscle initially was magnificent.

Mthandazo initially received a 53 000 dollar loan which they have fully paid back to Fidelity Printers and Refiners (FPR).

The women miners also raised security concerns as robbery cases were being reported in the area to which members of the committee implored for the group and all others in the small-scale sector to invest in security.

Mkaratigwa also suggested the idea of Miners getting paid into bank accounts where they can retrieve their funds at a later desired time.

"I know the Mining sector especially the Artisanal and Small-scale miners, they always want the cash on site there and there when they part with their gold. We need to encourage the use of electronic money in the form of the currency that you prefer which is the US dollar. As a pilot project for example After delivery you get a
confirmation that you have a certain amount for example 500 into your account. It will be up to you to approach a bank at a time specific to yourself, which is not known to anyone and you can cash it there and then. If we are able to do it from women from such a project I am sure in terms of confidence-building we can convince the whole mining fraternity to actually accept payment by way of electronic money and be able to mitigate on the challenge of security..," Mkaratigwa said.

Day Four: Sabi Gold, Mberengwa Mining community

The committee had an extremely busy day visiting Zvishane based Sabi Gold, Mberengwa Mining community and Chimona near Shurugwi.

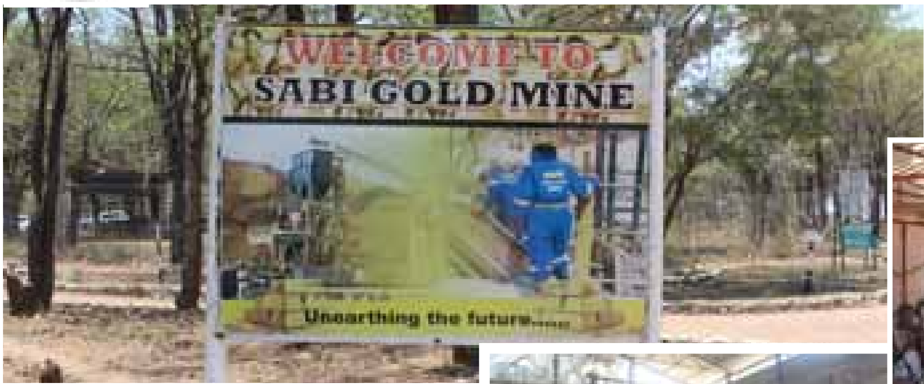
At Sabi, the publication learnt that the mine was under judiciary management with the process of handing over the mine to new investors, Chandiwana Holdings which after finalization will own 56 per cent of the mine against ZMDC's 44 per cent.

Mkaratigwa said the mine was proof that the closed mines can be resuscitated by local investors without looking outward for foreign investors. He commended Chandiwana Holdings for investing in the country saying their zeal has proven that local investors can be the answer to achieve the 2030 vision.

Sabi Gold mine is currently producing 25 kgs a month with the new investors hoping that the mine can reach a 100kg monthly gold output in the coming years making the mine one of the significant players in the achievement of the US$4 billion annual gold revenue by 2023.

Enquiry into the gold mining sector problems

MINES AND MINING DEVELOPMENT PARLIAMENTARY PORTFOLIO COMMITTEE TOUR



Addressing the Mines Parliamentary Portfolio Committee Chandiwana Holdings Managing Director Mr Brian Chandiwana said electricity was the main problem to the operations of the mine with power constantly under load shedding while using a generator has proven to be too expensive leading to high operational costs.

He also said that the 60 per cent foreign currency retention threshold was also significant to the rise of operations costs for the miner saying that the rise in inflation has led the company to lose its intellectual property as the workforce is leaving for greener pastures as their salaries are being eroded by inflation as well as the big gap of over 100 per cent between the black market rate and the official rate.

Chandiwana said 100 per cent foreign currency was going to make work easy for miners to have a constant budget when running their operations as the other part which was paid in local currency was half or less its presumed value.

Hon Edmond Mkaratigwa's Parliamentary Portfolio Committee committed to pushing through the recommendations if that was what the sector needed to achieve the target.

On the same day, the committee also met small-scale and artisanal miners in Mberengwa with a lot of challenges faced

A lighter moment: Mkaratigwa & Chandiwana

by small scale miners in the area being raised.

Representing at the visit in Mberengwa, Zimbabwe Miners Federation (ZMF) Midlands Provincial chairperson Mr Makumba Nyenje said his sector was under-looked by the public despite its contribution to the national fiscus. He said the police were harassing registered small-scale miners and arresting them willy-nilly at their mines as a way of seeking bribes and also said that the same the police is suspected of robbing miners in the night at gunpoint the reason why they are always initiating unnecessary patrols.

The Midlands chairperson said the government was failing to be reactive to address the issue of mine accidents in the small-scale sector proposing that the government should have a fund or a grant extended to small scale miners that they fully mechanize their operations.

He said that the coming of the cadastre system was taking too long stating that it was of importance that for the Ministry of Mines and Mining Development to get rid of peggers as they were confusing the mining sector through double pegging and over pegging. He said the government was supposed to employ strategies specifically for the growth and development of the small scale and artisanal miners.

He said many youths coming from studying mining-related courses were failing to get employment thus, he proposed the government create an initiative into the small scale and artisanal mining.

Mberengwa and Zvishavane Miners came to meet the committee in their numbers

Similar problems were raised by other participants at the visit with the committee promising that all issues will be deliberated on in parliament.

Day Five: Chegutu Elvington Mine and ASM meeting

On day five, the Parliamentary Portfolio Committee on Mines and Mining Development visited Evington Mine owned by Kuvimba Mining House with a number of stakeholders gracing the event including the Ministry of Mines and Mining Development, Fidelity Printers and Refiners, Zimbabwe Miners Federation (ZMF) and local miners.

A host of problems in the Gadzema mining area where the Evington mine is based were presented by small scale miners with emotions running high at times prompting the committee members to suggest Ministry of Mines members be called to parliament to answer on the poor workmanship that was creating pandemonium in the mining industry. The Miners represented by Zimbabwe Miners Federation chairperson for Mashonaland West Province said miners in the province were willing to formalise to see the growth of the sector to achieve a US$4 billion gold revenue.

Former ZMF Mashwest representative Chiedza Chipangura said that in the province there were large scale miners who were coming pegging on top of small-scale miners blocks and at times using fire-arms to force small scale miners out of their mines to pave way for their operations causing confusion and chaos. All parties reportedly have Mining Titles.

Enquiry into the gold mining sector problems

MINES AND MINING DEVELOPMENT PARLIAMENTARY PORTFOLIO COMMITTEE TOUR

The Mashwest mining community listens as a speaker laments about his ordeal

She also said that it was of importance for the Ministry of Mines and Mining Development to improve on its forfeiture notice as miners are losing their mines due to failure by the Ministry to communicate properly. She said that the Ministry had every miner's contact details and it was of importance for them to communicate with them.

Chipangura also raised the issue of a Norton missing map.

"We heard a Norton map went missing. How can we have the whole map disappear and what has the ministry done about it, its almost three months the Ministry is just quiet. We hear there are internal investigations. What it then means is they can't come and do ground verification, it means all ground verification can only be done when the map is found. Surely as big as the Ministry is they cant be incapacitated to buy a simple photocopier! It amazes me it looks like there is someone who enjoys the chaos," Chipangura alluded.

The Ministry of Mines representative admitted there was no backup map bewildering the stakeholders in attendance. The Ministry official however said all information was available and another will have to be re-created but admitted it was going to be a daunting task.

The former ZMF Mashwest Chairperson also urged large scale mines like Elvington to have written agreements with tributary miners. She raised concern that when things go wrong large scale miners simply report to authorities that tributary miners were illegal miners leading to ASM losing their investments.

Lack of equipment at the Provincial head office in Chinhoyi was also raised with reports of staffers using their personal laptops to conduct business. Some of the staffers were fired for corruption and left with Mines Ministry's data. Miners asked the committee to lobby for the adequate resourcing of the Ministry as this was dragging progress in the province.

Evington mine is currently non operational and Kuvimba Mining House is hoping to resuscitate the mine in the next three months according to the Mine manager Mr John Magaga.

Allegations that illegal miners were currently snicking into the mine to dig for gold were raised. There were reports that there was an office in Chegutu where up to 4000usd was being paid for one to work an 8hour shift at the gold-rich mine and all that gold would not end up at FPR.

Magaga said since he joined Elvington illegal mining has been a thing of the past. He said he conducted unannounced visits and he worked with the Police to ensure the mine is properly secure.

An illegal miner was crushed to death at the mine earlier this year with allegations that mine security officers were being paid sums of 300usd or more to let in illegal miners at the Chegutu based mine.

Conclusion

The tour was an eye-opener and although they were high emotions at times it was clear Mkaratigwa and team were fixated on ensuring the stumbling blocks to the attainment of the 4billion dollar gold mining industry are eliminated. Whilst the large scale miners are enthusiastic the gold industry will attain the 4 billion status by 2023, they all share the common sentiment that 60/40 is a major stumbling block. It is an elephant in the room that government will have to address this one fast.

Mkaratigwa assured all those that shared their thoughts that they had Parliamentary immunity and anyone who faced any challenges because of any contributions they made in the presence of the Mines and Mining Development Parliamentary Portfolio Committee should approach them.

***At the top:** Edmond Mkaratigwa stands at the top of Chimona mine near Shurugwi*

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Associated Tyres at 20 Years - Older and Stronger.

The early days of Associated Tyres were very likely the same as many small companies starting out... exciting, chaotic, learning as we went along, and made possible by a small team of extremely hard-working young people. James Hunter and Colin Pike were our driving force and it was a 7-days-a-week mission. From small premises in Graniteside, we have grown to a tyre company that has spread to 7 branches and counting. Today the ever-expanding company is led by Mark Ralphs, Tracey Hunter and Farai Makuvise.

We supply all tyres, from forklift to mining and everything in between. Our flagship brands include Pirelli, Kumho and Hifly, although we supply and support a far wider range in Bridgestone, Continental and Dunlop in our retail stores. Agricultural premium tyres Trelleborg, Mitas and Cultor and mining tyre brands Michelin and Boto make up the choice. Additional Brands we have tested in the Underground Mining sector are Galaxy, Yokohama and Westlake. These tests have been undertaken in order to fill a gap where we have found shortages due to the Firestone and Continental Underground Mining Tyres factories closure in SA.

Survival of the Fittest

Today, Associated Tyres stands as a strong and proudly Zimbabwean member of our industry. But it has to be said that it is our survival during the toughest of times over the past 20 years, that makes us most proud. The doldrums of hyperinflation, restrictive exchange control regulations, loss of local tyre manufacturers, closure of dozens of businesses, Covid and many more challenges have had us fighting hard to keep going. But survive we did and our close-knit management team and loyal workforce bears testament to our resilience and hard work.

Focus on Staff

Our Company Mission Statement puts our staff at the centre of our values, and we are very proud of our low staff turnover and open door policy with all our field staff and management. Training has been a high priority and we hold workshops both in-house and externally by sending our managers on business and technical courses locally and in South Africa. Training has also been carried out in Germany and Italy for our specialised processes and equipment.

Growing with Zimbabwe

With a recent upswing in agriculture, mining, road upgrades and general industry, there is an air of optimism in Zimbabwe and Associated Tyres have shown pleasing growth in those areas. We pride ourselves in our technical strength, and that has been a major factor in winning significant contracts and regular work.

Head Office Expansion

We are currently expanding our warehouse in Workington to keep up with the necessity of more tyre storage. Expanded space for our Tyre Repair Bays and Tyrfil facilities will also benefit from this capital investment. Both tyre repairs and our exclusive Tyrfil products (foam filling of Off Road tyres to make them solid) have seen a surge in demand over the past year.

Protyre – Our Retail Pride

Our Protyre Fitment Centres in Borrowdale, Msasa, 7Th Street CBD and Mutare are proudly serving the public and corporate customers. As well as selling tyres, we offer batteries, fitting, balancing and alignment services. All branches have a wide range of tyres to suit all pockets and types of vehicles. We have recently moved to bigger and better premises in Mutare and seen a wonderful response from old and new customers there. Plans are in place to continue this expansion as new development sites become available with growing markets to service.

20TH ANNIVERSARY

On – Site Setups

Our on-site satellite stations have become an invaluable service to large contractors, and we provide in-depth technical feedback on tyre usage and long term cost analyses.

To The Future

With a present growing demand in most sectors of the economy, Associated Tyres is ready to take on the new challenges and we certainly hope that this positive trend continues. We acknowledge the support given from our key supply chains over the years and look to cementing our relationships positively in our future ahead. Proudly Zimbabwean, we look forward to continuing our journey to service the Zimbabwe market, provide excellence in what we set out to achieve, and keep you our customers, safely rolling on our Roads, and in our Mines and Fields.

Eureka set to be the biggest gold producer

Victoria Falls Stock Exchange-listed mining and exploration company Dallaglio Investments' Eureka Gold Mine in Guruve, Mashonaland Central Province is set to lead in gold production in the country.

The mine which was commissioned by President Dr Emmerson Dambudzo Mnangagwa last month is expected to become one of the leading gold producers in two years forecasting to produce up to 200 tonnes of gold a month.

According to Eureka Gold MD, James Beare the mine plans to produce an initial average of 140 kilogrammes of gold per month gradually increasing to 200 kilogrammes monthly, positioning the mine to be a significant contributor to the US$12 billion mining industry by 2023.

"Our grades are projected to increase as we dig down and the current results are encouraging," Beare said.

Eureka Mine's parent company, Dallaglio's revenue during the Financial Year 2020 was at US$40,35 million contributing over half of Padenga's US$71,38 million revenue, which was 145 per cent ahead of the prior year reflecting the consolidation of the mining operations. There is hope that Eureka operations will increase Dallaglio's contribution to Padenga revenue.

The group milled 362 500 tonnes of ore at an average grade of 2,28g per tonne and an average recovery of 82 per cent.

The mining operations are forecasted to produce 983 kg (31,603oz) gold for FY21.

In 2018, Dallaglio took over Eureka Gold Mine which is along Dande River in Guruve after it had been lying moribund for over two decades and immediately started installing state-of-the-art equipment and erecting new structures.

Eureka is currently the biggest single employer in Guruve District with more than 400 workers and has contracted many local companies and established international firms to improve its operations.

Being close to the district centre and small town of Guruve, it has already had an important impact, with staff houses built

in a new suburb in the centre, and the ripple effect of the investment now has footprints in every part of the district in direct and indirect employment.

Finance minister Mthuli Ncube in his 2021 mid-term budget and economic review statement, said at its peak, Eureka Gold Mine produced 1, 5 tonnes of gold per annum.

"Cumulative gold output for the first quarter of 2021 stood at 4 311kg, about 13 per cent of the annual target and lower than the comparable period in 2020, largely weighed down by low deliveries from artisanal and small-scale gold James

President Mnangagwa tours Eureka gold mine flanked by Minister Chitando & James Beare

According to Mashonaland Central Minister of State in the president's office Hon Monica Mavhunga, Eureka mine has proven to be a key player in the growth and development of the province as well as being important to the transformation of the economy of Zimbabwe to become an upper-middle-income economy by 2030.

"The impact on the resuscitation of Eureka gold mine has inflicted smiles on many and the social-economic life of the people of Guruve is set to improve. Exceedingly delighted that the mine has employed over 500 people with over 64 per cent of them being locally based. The company has also embarked on serious transformative programs for the local community under its corporal social responsibility," Mavhunga said.

Eureka Mine, which employed over 400 workers at its peak, producing about 1,5 tonnes of gold per annum, had been idle for the past 20 years, an investment of nearly US$50 million by Dallaglio Investments, which purchased the mine from Delta Gold in 2018 and went on to re-design the mine and install new plant and equipment.

Eureka Gold Mine will initially operate as an open-pit mine and the ore body has been explored to a 650-metre depth producing 1.3 grams per tonne with the hope that as they mine deep, the grade will increase.

With the Cleaner and Greener Future Beckoning, What Should Zimbabwe Do with its Hydrocarbon Resource Potential?

Lyman Mlambo, Chairman of the Institute of Mining Research

Lyman Mlambo

The United Kingdom is currently hosting the 2021 United Nations Climate Change Conference in Glasgow (COP26). It is, therefore, appropriate to revisit the debate on the proposed ban of fossil fuels. According to www.debatingeurope.eu (retrieved on 31 October 2021), fossil fuels are the main cause of climate change. The Intergovernmental Panel on Climate Change (IPCC) firmly believes banning use of fossil fuels and shifting to renewable energy is the only way to save the planet. Banning fossil fuels will reduce massive land degradation, mitigate the destruction of biodiversity, reduce the destruction of oceanic ecosystems and pollution of both drinking water and the air we breathe. This will reduce diseases and mortalities and hence save on health expenditures as well as reduce the costs of climate change mitigation in line with the Paris Agreement. However, there are many negative repercussions from banning fossil fuels for a country like Zimbabwe and other countries that still have significant deposits of these resources. Examples include millions of job losses, increase in the cost of energy in the short term (as fossil fuels are relatively cheaper to produce than renewable energy), and the potential to cause political and civil unrest given the number of livelihoods dependent on the fossil fuel industry. In all this, it is generally the poorer nations and the poorer global citizens who will be most affected.

A recommended article for readers to check is one written by Michael Lynch, a Distinguished Fellow at the Energy Policy Research Foundation and President of Strategic Energy and Economic Research. The article, which was published online on 24 March 2021 by Forbes Media LLC (and accessed by this author from www.forbes.com on 31 October 2021), is entitled Don't Ban Fossil Fuels: Absolutism In Climate Change Policy Is A Vice. Discussions on the dynamics in the hydrocarbons sector vis-à-vis the cleaner and greener future are now frequent in Zimbabwe, especially among environmental Civil Society Organizations. In one discussion this author had with a colleague, the latter's main point was that Zimbabwe is going against the winds of time and technology by promoting the construction of coal-fired thermal power plants. There was an agreement to some extent, but policymaking is not that simple because it affects the lives of people, particularly that it could have negative impacts on their welfare. Zimbabwe, under the USD12 Billion Mining Industry Roadmap, launched in October 2019, is projecting hydrocarbons to contribute USD1 billion by 2023.

This article briefly visits the debate on whether or not Zimbabwe should consider the possibility of stopping exploration, development, extraction and use of fossil fuels, given the amount of known and potential resources the country has of coal, oil, natural gas and coal-bed-methane gas (CBM). The author, in his 2018 book published by the Friedrich Ebert Stiftung (FES) on Extractives and Sustainable Development II: Minerals, Oil and Gas Sectors in Zimbabwe, briefly highlights the hydrocarbons resources in the country. Coal discovery and extraction in Zimbabwe is relatively recent compared to developed countries. Coal deposits in Hwange were discovered in 1894. Later several EPOs for coal were granted in the Save-Limpopo Basin following the publication of the Geological Survey Bulletin on coalfields in the southern area of the country in the late 1940s to the 1950s. Coal resources are estimated to be around 13 billion tonnes at 13.50% ash content. Several companies are exploring for coal-bed-methane gas (CBM) in Lupane, Hwange, Sengwa and Gwaai areas. Just recently Government signed a Joint Venture agreement with an Australian company Jacqueline Resources (Pvt) Ltd for the exploration and development of coal-bed-methane gas around the Sengwa Coalfields and Gwaai River. A very conservative estimate for CBM gas resources is over 500 billion cubic metres at 95% purity level. The country has not started extracting CBM or conventional gas. Mobil Oil exploration in the 1990s concluded potential for oil occurrence in the Zambezi Valley, and there is renewed interest by the Government with the advent of Invictus Energy in Muzarabani. The question pitting economic growth and the environment is not new. It is one of the central questions in environmental economics and sustainable development discourses. However, the level of debate specifically on the use of fossil resources has been heightened by the climate change dynamics experienced in the last few decades. Many countries including Zimbabwe have experienced shifts in climatic seasons or significant changes in their climates, frequent droughts and flooding. Zimbabwe has had a fair share of these, resulting in food insecurity and direct destruction of lives and properties. The movement towards a cleaner and greener economy is global given the nature of the impact of pollution and global warming. Water and air pollution are transboundary. The debate has also drawn accusations between the global north and the global south. The developed countries owe their industrialization to, among other factors, the use of fossil energy. It is not controvertible that developed countries are more responsible for these environmental problems the globe is facing than the developing countries, which is why the ongoing COP26 should channel more resources to the global south for mitigation of the impacts of climate change. A ban on fossil fuels is essentially targeting the developing countries which still have significant resources of fossil fuels.

The question then is: Should Zimbabwe consider stopping exploration, extraction and use of its fossil resources, in light of the global trend towards cleaner energy? In the FES book alluded to earlier, the author defines a natural resource and that sheds some significant light on whether or not fossil deposits in Zimbabwe are still resources and the implications of that on this debate. A natural resource possesses three characteristics: (i) it naturally occurs; (ii) demand exists for its use; and (iii) there is appropriate technology to exploit it. The last two characteristics are not constant, which makes natural resource a dynamic concept. For example, uranium was not a resource until towards World War II when there was demand for and technology to exploit uranium in the production of nuclear weapons. It is also possible for natural resources to lose their resource status when either demand or technology changes. This is what we might be witnessing in the future in the hydrocarbons sector as electric cars replace petroleum-powered cars, and renewable energy technology develops. With no technological advancement that eliminates emissions from the use of fossil fuels, the demand for hydrocarbons will inevitably go down and eventually disappear. That will render all hydrocarbon deposits in Zimbabwe neutral staff or useless material.

However, it is important to note that the stage described in the above paragraph has not yet been reached. We still have about two decades or more before fossil energy can be phased out completely. Therefore, Zimbabwe's coal, oil, natural gas and coal-bed-methane gas are still natural resources by any economic or legal measure. The demand still exists and the technology being used in their extraction and use is the most appropriate existing at the moment. Cleaner energy product industries are still in their nascency in most countries, particularly developing ones. The wisest thing to do, when the long-term market outlook for a resource is dim, is to accelerate its production, move volumes and gain maximum economic benefit as soon as possible. The situation that Zimbabwe faces in the hydrocarbons sector demands that approach. Most developed countries have exhausted their fossil deposits, but Zimbabwe has a great potential for new discoveries, and hence the need to expand and accelerate exploration and development of these deposits, and extract them within the next decade or so.

Should Zimbabwe consider stopping exploration, extraction & use of its fossil resources, in light of the global trend towards cleaner energy?

The argument for accelerated exploitation of hydrocarbons should also be viewed from an equity perspective. Natural resources belong to every citizen of Zimbabwe in the present and future generations. It would be unfair to the current citizens to miss the development opportunities that hydrocarbons offer because their exploitation is halted by reason of advocacy ahead of the market itself. That would be economically and socially imprudent, in the author's view, given the level of poverty and regional development disparities that need to be addressed currently. Thus, there is the intragenerational equity argument, which says, Zimbabwe needs to exploit any coal, oil and gas deposits to alleviate poverty and regional development disparities in the current generation. When we consider the fact that future generations are co-owners of these resources, the argument becomes bigger. Prudence demands that depletable resources should be used to develop new alternative capital forms that are capable of yielding income streams that extent into the long-term. This is how the future generations claim their part in the current minerals being depleted. This is the demand for inter-generational equity. How can a government watch while re-sources get sterilized without exploiting them or decides to sterilize them instantly by listening to advocacy for immediate stoppage to their exploitation? Future Zimbabweans will have the right to demand of this generation why they will have to inherit useless materials when opportunities had actually existed to convert them into some useful economic bequest.

There are also two interesting aspects about this issue: (i) the developed countries (the global north), which are mainly driving the agenda to stop use of fossil fuels, have already used the same fuels to develop their economies and secure the welfare of their future generations; and (ii) the global north is actually the one currently investing into fossil resource exploitation in the global south. Some things are apparent here. Developed countries have largely exhausted their fossil resources. With the cleaner future beckoning (which would per se be good for everyone), the north, prudently, has seen an opportunity to further secure its future by accelerating investment into extraction of the extant fossil resources in the south and convert the proceeds into alternative cleaner capital. The best way for Zimbabwe, since we need that investment to develop, extract and use our fossil resources, is to craft win-win contracts in this subsector, including closure scenarios. That requires competent contract negotiating teams on our side, which is probably one area where we are lacking greatly. That also requires transparency and accountability so that there is multi-stakeholder oversight on these contracts and their implementation, as well as how the resultant revenues are used.

The real question is not whether or not we should consider stopping extracting coal, oil and gas resources, but how we should manage their extraction (contracts) and how we should use the revenue from their extraction to build national wealth. We have to be more cautious in this sub-sector than we are in other sub-sectors that are not so threatened. The government should not be overexcited about the big potential revenue figures from this sector and jump into the consumption mode, but should understand that poverty and regional development disparities are extreme, and that the future is very long and so are its corresponding needs. Those countries which have done well in managing oil revenues have basically ensured broad-based development and investment into the future through creation of local or offshore funds that could generate interest going into the future. They have also allocated a large portion of the proceeds into development of infrastructure and other alternative forms of capital (economic diversification). There are still many countries in the world that are mainly dependent on oil and other hydrocarbons, and they cannot afford to come to an abrupt stop in use of these resources. Thus, the real option to consider for Zimbabwe is accelerated extraction of its hydrocarbons, use them to meet its current energy deficits, use the income to facilitate economic transformation and creation of long-term investment funds. The question of when and how Zimbabwe should stop the extraction of hydrocarbons is largely irrelevant.

Australian researchers improve gold extraction process, eliminate cyanide use

The Curtin research team used low concentration of a strong oxidising agent, known as potassium permanganate to enhance the leaching rates for gold ore.

Researchers from the Curtin University in Perth, Australia, have improved their glycine leaching technology to enhance gold extraction process.

The glycine leaching technology has been improved by the researchers by significantly enhancing the leaching rates for gold ore using a low concentration of a strong oxidising agent, known as potassium permanganate.

Upon assessing various oxidants for the new alkaline glycine gold leach system, the research team observed the most successful results with potassium permanganate.

According to Curtin University Western Australia (WA) School of Mines: Minerals, Energy and Chemical Engineering professor Jacques Eksteen and Dr Elsayed Oraby, the addition of potassium permanganate to the process could address the problems associated with leaching gold with glycine (in the absence of cyanide).

These problems include the need for higher temperatures, glycine concentrations and oxygen addition levels.

Eksteen said: "Traditionally, leaching or separating gold and other precious metals from an ore deposit or e-waste materials requires the use of cyanide – a highly toxic chemical compound that is known to have detrimental effects to the environment and to the human body.

"Industrially, it is very expensive to detoxify cyanide, but it still does not eliminate the risks associated with transporting, handling and processing the chemical."

Eksteen noted that the research team added low concentrations of potassium permanganate to the alkaline glycine system that resulted in leaching of 85.1% of gold from the ore deposit (similar to the extraction by cyanidation) at ambient temperature and using a substance known as a benign reagent.

Oraby said: "Researchers at Curtin University have spent years developing a new leaching process and our work broadens the use of this patented technology, making it more suitable for extracting gold deposits.

"We believe this new process will bring many benefits to gold extraction industries, which from an environmental point of view, is a much friendlier extraction method."

In order to commercialise the new process, the Curtin team is working with minerals industry partner, Mining and Process Solutions (MPS).

Newmont and Caterpillar form strategic alliance to achieve zero-emission mining

Newmont Corporation has entered a strategic alliance with Caterpillar Inc. to deliver a fully connected, automated, zero carbon emitting, end-to-end mining system. Together, they will collaborate to create a safer, more productive mine.

Building pathways to decarbonization is essential for the future of mining. Newmont's surface and underground mining fleets are responsible for approximately 40 percent of the company's carbon emissions. Building a new model for surface and underground mining is critical to delivering on Newmont's emissions reduction targets.

Newmont will also be supporting Caterpillar's validation of evolving features and functionality within the MineStar suite to be deployed across Newmont's surface and underground assets globally. This deployment facilitates centralized production and asset management.

"Caterpillar is committed to providing transformational advancements in safety, sustainability and technology," said Jim Umpleby, Chairman and CEO of Caterpillar Inc. "We share Newmont's dedication to a reduced-carbon future, and we're honored to work together on this industry-leading effort."

Under the agreement, Newmont plans to provide a preliminary investment of $100 million as the companies set initial automation and electrification goals for surface and underground mining infrastructures and haulage fleets at Newmont's Cripple Creek and Victor (CC&V) mine in Colorado, U.S.A. and Tanami mine in Northern Territory, Australia. The goals include:

Introduction of an automated haulage fleet of up to 16 vehicles at CC&V planned through 2023, with a transition to haulage fleet electrification and implementation of Caterpillar's advanced electrification and infrastructure system with delivery of a test fleet in 2026. Actions include validating first-of-a-kind battery electric haulage technology in the years prior to full production of autonomous electric haulage equipment.

Caterpillar will develop its first battery electric zero-emissions underground truck to be deployed at Tanami by 2026. The deployment includes a fleet of up to 10 battery electric underground haul trucks, supported by Caterpillar's advanced electrification and infrastructure system. This includes first-of-a-kind battery electric haulage technology for underground mining in 2024, the introduction of battery autonomous technology in 2025, with full deployment in 2026.

Together, Newmont and Caterpillar plan to validate equipment, infrastructure, technologies and processes to transform both surface and underground mining, focusing on safety, automation, decarbonization, optimization, data and asset management across Newmont's global operations.

New concrete plant features connected aggregates terminal, self-sufficient production lines

SBM Mineral Processing has erected a high-performance stationary concrete mixing plant with two self-sufficient production lines and connected 6000 m³ high-silo storage for primary and secondary aggregates in an installation time of just under ten months.

The recycling centre for building rubble and mineral residues sits on a 3.6- hectare site with its own railway siding. A wide variety of source materials are accepted, professionally separated and processed, and fed into sensible construction recycling in the greater Lausanne area in Switzerland.

As an important addition, the regional transport, demolition and recycling companies cooperating at the site have invested in an efficient concrete plant with an attached central high-silo storage facility for the high-quality RC granulates produced on site and primary materials supplied by rail from the region.

The new plant of Béton Granulats Ouest Lausannois SA (BGO) plant will fulfill important tasks within the regional circular economy. With a targeted annual production of around 100,000 m³ of all common concrete types according to Swiss standards and a large number of individually adjustable recipes, BGO fully meets the requirements of regional customers and scores with high availability and short distances. The same applies to the storage facility with its estimated annual turnover of around 300,000 tonnes of primary and secondary materials.

In addition to providing concrete aggregates, the high silo warehouse with a total capacity of 6,000 m³ also supplies regional construction companies with certified recycling building materials or raw aggregate grains. In the medium to long term, the operators have set a target of 60 percent recycling in production and handling.

The production processes and the local conditions required an integrated planning and realization of the concrete production and the upstream aggregate storage. For the BGO concrete line, the choice fell on two LINEMIX3500 ST stationary concrete mixing plants installed in parallel, while the aggregate side is based on the LINEMIXST 5760 stationary SBM aggregate store.

Both plant lines were precisely adapted to the customer's requirements along a specification sheet. This included the specific charging and loading options, the installation of three mixer/pump washing stations with integrated residual concrete recycling and, in particular, the central control/monitoring of the largely automated processes from a central command room. Thanks to 3D planning, it was possible to precisely determine all details of the plant technology. Only the enclosed charging and feeding conveyors, as well as the five binder silos with a total storage volume of 850 tonnes (8 chambers), are located outside the winter-proof insulated building shell, which safely guarantees the year-round operation of the concrete mixing plant and aggregate terminal.

After thorough preparation of the subsoil with more than 40 bored piles, some of which were more than 50 metres deep, and the construction of the foundations by the customer, SBM's own assembly teams began the parallel assembly of both lines in May/June 2020.

Demanding warehouse logistics

A total of 30 storage silos, each with an active volume of 200 m³, are fed via eight conveyor belts. The block train and truck unloading points, which are about 40 metres away, are pulled off via a common belt, to which the washing plant for recycling grains is connected. Another conveyor takes off three external bunkers, which are fed from the stockpile by wheel loader. At a height of around 15 metres, two reversible distribution conveyors then feed the individual grains into the concrete silo chambers equipped with level sensors.

The gravels for the truck loading are volumetrically metered via 22 discharge belts and are fed onto a separate collecting belt. For the production of mixed gravel, a continuous mixer was installed directly in front of the truck loading facility positioned on the side of the silo construction.

All 30 chambers are equipped with dosing conveyors for the fully automatic, recipe-precise composition of the concrete aggregates, which guide the individual granulations to the downstream weighing units consisting of a total of three conveyor belts. Afterwards, the weighed components reach the aggregate pre-silos above the two mixers in the BGO plant via separate feeding belts.

In total, no less than 75 conveyor belts are installed in the aggregate store for silo feeding, the material footing and delivery to trucks or the concrete plant.

For guaranteed availability and, in particular, for high delivery flexibility, both LINEMIX 3500 ST in the BGO plant are designed as fully independent concrete mixing lines. The heart of each line is a BHS twin-shaft mixer with 3.50 m³ of hardened concrete/batch and a maximum output of 122.5 m³/h of hardened concrete per mixer. High-pressure cleaners in the mixers and concrete hoppers ensure fast recipe changes with the highest product quality. Separate scales dose binder, water and admixtures from the 18,400-litre admixture store (12 tanks). Both mixer lines are prepared for colour or fibre dosing and the installation of a hot-water heating system.The Dorner control systems are also independent, right up to the double command station directly next to the two concrete delivery units. In addition to a quick overview of all plant statuses, running and pending batches, the video monitoring of mixer, concrete delivery and other neuralgic plant areas ensure a high level of operational safety, even without a large number of personnel. **HEG**

Caterpillar's new battery-powered mining loader fully charges in less than 20 minutes

Caterpillar's new electric Cat R1700 XE LHD offers 100 battery-electric propulsion, producing zero exhaust emissions. Additionally, the portable Cat MEC500 Mobile Equipment Charger fully charges the R1700 XE in less than 30 minutes using a single charger or in less than 20 minutes using two units. The machine's batteries can also be charged while remaining on the R1700 XE to maximize available run time.

The R1700 XE electric platform brings a new level of production capability in Caterpillar's electrified product range. Multiple design features are carried over from the R1700 platform to reduce overall operating cost, improve component durability and reliability, and maximize availability and productivity. An aggressive digger, it features Autodig for optimal loading and improved traction control for maximum tire life.

Borrowing the front linkage geometry from the R1700, the R1700 XE offers matching lift and tilt breakout force for electrified machines of 24 190 kg (53,330 lb). Advanced hydraulic performance and load-sensing pumps with controllable flow deliver a 13.2-second raise/dump/lower hydraulic cycle time and 323 kN (72,613 ft-lb) rimpull and drawbar. The electric LHD vehicle offers 15 tonnes (33,069 lb) payload, 18 kph (11.2 mph) fully loaded top speed and 2.5 hours of aggressive run time between charges.

Five bucket sizes, including a bolt-together bucket option, with capacities ranging from 5.7 to 7.5 m3 (7.5 to 9.8 yd3) match material density needs to various loading, hauling and dumping conditions. Offering optimized balanced between productivity and bucket life, the full range of Cat ground engaging tools (GET) includes modular Weldon, bolt-on half arrow, and Durilock mechanically attached shrouds, heal shrouds and wear plates.

The R1700 XE comes from the factory ready for Cat MineStar for Underground technology to further increase operating efficiency and productivity. Scalable levels of remote operation from line of sight to fully autonomous are available to increase production efficiency and operator safety. Standard Product Link Elite delivers machine health monitoring to improve uptime availability.

Serviceability and durability

Intrinsic to the battery-electric vehicle design, the R1700 XE has fewer parts for reduced maintenance, and it shares strong parts commonality with the R1700, requiring less parts inventory. Modular design of key components, like the HVAC system being modular in design, better component positioning, and a light, modular structure delivers servicing ease.

Leveraging the R1700's heavy rear structure design lends to long-term durability for the new battery-electric loader. Offering respective 250 kW (335 hp) and 226 kW (303 hp) rated peak power output, the highly efficient switch reluctance traction and auxiliary motors both offer long, 15,000-hour service intervals. Electrical connections are sealed to lock out dust and moisture, while wire harnesses are covered for protection. Coloured and number-coded wires facilitate easy diagnosis and repair.

Field tested and validated, the thermally stable Lithium Iron Phosphate battery system powers the electric R1700 XE LHD, delivering fast charging capability and reliable performance. The Caterpillar-engineered cooling system with new chilling cores for battery cooling maximizes performance and cell life. Enabling efficient electronic diagnosis of machine performance and key diagnostic data, the Cat electronic technician (ET) delivers quick and effective maintenance and repairs.

The Cat R1700 XE underground battery-electric LHD, on display at MINExpo 2021, will be commercially available in select markets starting in the first quarter of 2022.

Caterpillar has also introduced the new Cat MEC500 Mobile Equipment Charger, the first of its kind for the underground mining industry. Equipped with a durable skid mount and integrated forklift eyes, the 1600-kg (3,527-lb) charger can be efficiently moved to where the equipment is working via towing, fork truck or overhead lift.

Delivering a charge where it is needed, the MEC500 provides an alternative to expensive static charging station infrastructure, additional batteries, and battery handling and swapping. The mobile equipment charger offers customers charging options and the ability to optimize the mine site's electrical power supply.

The new MEC500 delivers a 500 kW charging and connector capability. It offers a range of 300- to 1,000-volt and up to 700 amp current output. This fast mobile charger can be used as a single unit to deliver a full charge to the battery-electric Cat R1700 XE LHD in less than 30 minutes.

Alternatively, ultrafast battery charging is achieved by connecting two units in parallel to charge the LHD in less than 20 minutes. Its adjustable output voltage and current can trickle charge the battery to maintain optimal performance for the R1700 XE. **HEG**

Caterpillar safety solution for surface mining operations combines smart wearable technology and analytics

Worker safety is the highest priority for all mining operations. The mine's operating success depends on clear communication with each worker at the site, otherwise safety and productivity suffer.

Expanding the Cat MineStar Detect portfolio, Caterpillar is set to launch Connected Worker, a Guardhat-developed safety and productivity solution for surface mining operations, at MINExpo 2021 in Las Vegas. The Connected Worker system combines smart wearable technology with the power of analytics to deliver an added layer of protection against a variety of safety risks at the site.

Scalable to accommodate both small and large operations, Connected Worker improves safety by alerting all connected workers of hazardous situations in real-time, delivering up to a 50 percent reduction in lost-time reportable incidents. The system's ability to track worker location plus enhanced communications through audio, video and image transmission also help to increase mine site productivity. A range of safety, productivity and benchmarking reports, customizable to fit the site's needs, boosts operational efficiency.

The worker safety system consists of three major components: the wearable hardware; software that captures and reports data; and the Internet of Things (IoT) platform that receives reports from the field and pushes out potential safety risks to workers. Creating a safer working environment, Connected Worker helps to detect and report hazardous areas at the mine, unsafe exposure to environmental elements and communicates alerts to affected workers. The system communicates evacuation orders, fall detections, SOS signals and geofence violations.

Multiple wearable options

Increasing system flexibility, three wearable options are available to communicate with workers. A smart alternative to personal protective equipment, the HC1 Hardhat delivers real-time positions through an embedded global navigation satellite systems (GNSS) chip. With the use of Ultra-Wideband (UWB) at the site, the hardhat wearable increases situational awareness indoors by offering 3D-tracking - longitude, latitude and elevation - helping to quickly locate a worker in an emergency. The hardhat features video and audio call, push-to-talk, and offline geofence and recording capabilities.

The TA1 wearable tag delivers tracking GNSS and Bluetooth tracking outdoors. It provides SOS, evacuation and social distancing alerts as well as notifies workers of geofence breaches. Workers can capture images and videos to report hazards, which are automatically shared with the safety control centre (SCC), so teams can quickly develop geofences around the hazard to boost worker safety. A companion hardware for hybrid deployment, the smartphone app for Android devices offers a solution for managing and monitoring team members in an outdoor environment. The app allows field managers to communicate with workers, issue SOS alerts and can be used to capture images and video of hazardous areas for reporting.

The power of analytics

Offering a deeper level of communication and reporting than other systems, Connected Worker creates a safety ecosystem at the mine site, where actionable data is captured and stored for analysis. The SCC allows managers to view worker location and data in near real-time to quickly communicate unsafe situations to workers in the field. All data is captured and stored on a local server or in the cloud, depending on the mine's preferences.

A broad range of customizable reports allows mines to review, analyze and predict hazardous situations to prevent future safety incidents. Among the system-generated reports are: overview reports of selected events; zonal reports of violations and emergency evacuations; location reports with heat signatures designating highly traveled areas at the mines; and sensor reading reports that include temperature, noise, humidity and pressure of the working environment.

Connected Worker will be commercially available in the first quarter of 2022.