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2022



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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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Mine Entra: ITS GOOD TO BE BACK



RS Dzingiso

THE CLEAR PERSPECTIVE

Welcome to Zimbabwe's biggest mining, transport and engineering exhibition, Mine Entra which is back after 3 years of hiatus due to the Covid-19-induced lockdown.

The country's largest international mining exhibition which this year attracted exhibitors from as far as China and the United Kingdom will run under the theme Explore. Extract. Expand: Towards Sustainable Mining Value Chains, highlighting the role of the exhibition as a conduit for creating platforms for dialogue and engagement for mining industry stakeholders.

Mining Zimbabwe is exhibiting for the third time at Mine Entra. We are excited to meet our audience in real-time and get to hear their mining experiences first-hand.

Mining Zimbabwe magazine like the renowned motivational speaker Garrison Keillor said, is a gift you can "open again and again" because it is filled with everything you so desire to know about the mining sector. It is enchanting to those who are/ would want to venture into the mining sector.

Satisfaction comes in different ways, Mining Zimbabwe at this time of the year is committed to gratifying every miner's appetite by bringing all service providers on board who offer quality and reliable services to this most treasured sector in Zimbabwe.

Mining Zimbabwe endeavours to see the Zimbabwean mining sector flourish and we are also eager to see certain policies being implemented to create a friendly environment for the miner and all stakeholders. Mining experts believe that the small-scale and artisanal mining sector is the future of the African mining industry, therefore it is of paramount importance if the government initiates necessary steps to promote small-scale indigenous miners in the country to secure their growth and development.

Mining Zimbabwe at this juncture would like to extend greetings to all Mine Entra Exhibitors, our audience and partners for taking part in this year's Mine Entra. It is our pleasure and appreciation to rub shoulders with you exchanging ideas and thoughts. Enjoy the read!!!



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ASM impress as gold deliveries increase



Ms Henrietta Rushwaya, President of Zimbabwe's largest mining body representing Artisanal and Small-scale miners, ZMF

The Artisanal and Small-scale mining (ASM) sector continues to show its significance in the achievement of the US\$4 billion gold industry by 2023 as the sector's gold deliveries to the country's sole gold buyer and exporter Fidelity Gold Refinery (FGR) increased by just over 114 per cent during the first half of the year compared to the same period last year.

Over the past five years, on average, the ASM sector has been accounting for over 60 per cent of annual gold deliveries to FGR becoming a significant player in ensuring that the country's US\$12 billion

annual mining income is achieved.

According to the FGR figures received by this publication, gold deliveries during the first half of the year increased by 57.5272 per cent to 15 796.7193 Kgs from 10 027.9283 delivered in 2021 with Small-scale miners accounting for 10 478.3106 kgs from 4 874.44415 kgs delivered last year, while large scale miners accounted for 5 498.4087 kgs from 5 153.4868 kgs delivered the previous year.

Gold deliveries in June however decreased by 5.20227 per cent to 2 805 kgs from 2 959.0733 kgs delivered in June 2021. ASM

deliveries however increased to 1 968.0192 from 1 833.4697 delivered in June 2021 with the large-scale deliveries decreasing significantly to 837.1151 from 1 125.6036 delivered in June of the previous year.

In May 2022 total deliveries to FGR increased by 79.5403 per cent to 2994.7512 from 1668.0102 kgs delivered in May 2021, with small-scale miners accounting for 1 939.0712 kgs from 783.8105 kgs delivered in May the previous year while large scale miners delivered 1 055.6800 kgs from 884.1997 kgs delivered the previous year.





ZMF Mashwest leadership at a Mine site visit in Kadoma

FGR figures show that in April 2022 gold deliveries increased by 3.71761 per cent to 1621.9712 kgs from 1563.8339 kgs in March while Large scale producers' deliveries decreased by 14.1343 per cent to 859.4400 kgs from 1000.9122 kgs produced in March.

The statistics show that overall deliveries to Fidelity in April decreased by 3.24925 per cent to 2481.4112 Kgs from 2564.7461 kgs delivered in March.

During the first quarter of 2022 gold deliveries jumped 92 per cent to 7.695 tonnes from 4.016 tonnes in the comparable period of 2021.

The March 2022 gold output spiked 39 per cent to 2.564 tonnes from 1.8 tonnes achieved during the comparable period following the 5 per cent mining incentives put in place by the central bank.

Of the 7.695 tonnes delivered during the

first quarter of 2022, small-scale miners delivered 4.949 tonnes against 2.746 tonnes from large-scale miners.

Large gold producers delivered 11,2 tonnes to Fidelity in 2021 whilst small-scale producers contributed 18,5 tonnes. The highest tonnage of gold was delivered in the fourth quarter when small-scale miners delivered a record 7,6 tonnes, whilst primary producers weighed in with 3,1 tonnes.



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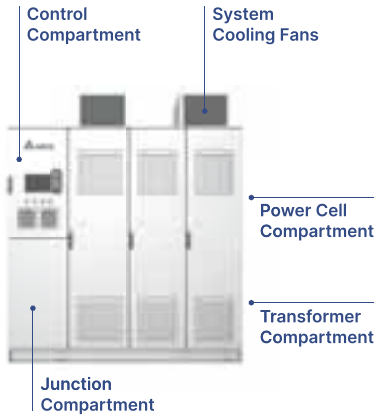


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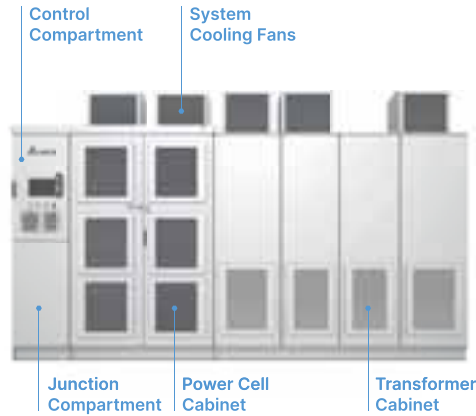


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Selection Guide

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 0: In-line design

Input Voltage
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 D: 6.6 kV
 F: 11 kV

Output Voltage
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 D: 6.6 kV
 F: 11 kV

Output Current
 036 A
 070A
 100 A
 140 A
 215 A
 250 A
 350 A

Bypass Cabinet
 N: No

Optional Cabinet
 F: Filter Cabinet
 N: No

Series	Input voltage	Output voltage	Current	Power (kW)	System model	Width	Depth	Height (w/o fan)	Height (w/ fan)	Weight (approx)	
	V	V				mm		mm		mm	kg
MVF23 Compact Series	3.3 kV	3.3 kV (18-Pulse)	36 A	160kW	MVF23AA036NNSS	1 210	1 250	2 328	2 868	2 100	
			70 A	315kW	MVF23AA070NNSS	1 210				2 300	
			100 A	450kW	MVF23AA100NNSS	1 610				3 100	
			140 A	630kW	MVF23AA140NNSS	1 610				3 200	
			215 A	1000kW	MVF23AA215NNSS	1 910				4 700	
	6.6 kV	6.6 kV (36-Pulse)	36 A	320kW	MVF23DD036NNSS	2 310				3 700	
			70 A	630kW	MVF23DD070NNSS	2 310				3 800	
			100 A	900kW	MVF23DD100NNSS	2 710				5 100	
			140 A	1250kW	MVF23DD140NNSS	2 710				5 200	
			215 A	2000kW	MVF23DD215NNSS	3 010				6 200	
MVF20 In-Line Series	11 kV	11 kV (54-Pulse)	36 A	530kW	MVF20FF036NNSS	3 410	1 400	1 400	1 400	9 800	4 400
			70 A	1060kW	MVF20FF070NNSS	3 410					5 200
			100 A	1500kW	MVF20FF100NNSS	3 910					6 800
			140 A	2100kW	MVF20FF140NNSS	3 910					7 550
			215 A	3400kW	MVF20FF215NNSS	4 660					11 500
			250 A	4000kW	MVF20FF250NNSS	6 400					12 000
	3.3 kV	3.3 kV (18-Pulse)	350 A	5600kW	MVF20FF350NNSS	7 600	13 100				
			250 A	1125kW	MVF20AA250NNSS	3 700	4 000				
			350 A	1600kW	MVF20AA350NNSS	4 800	5 000				
	6.6 kV	6.6 kV (36-Pulse)	250 A	2250kW	MVF20DD250NNSS	5 000	8 300				
			350 A	3200kW	MVF20DD350NNSS	6 600	9 800				

kW rating is based on Normal Duty (110% O/L) applications with average motor PF = 0.85 and motor efficiency = 95%
 Normal Duty (ND) is sufficient for Variable Torque (VT) applications at Altitude (<=1000m) and Ambient Temperature <= 40°C

Zim best destination for battery metals - Prospect Resources



Australia Stock Exchange-listed mining and exploration junior Prospect Resources is confident that the exploration of battery and electrification metals such as cobalt, lithium, manganese and nickel in Zimbabwe can bring extremely significant results.

Rudairo Mapuranga

According to a company report signed by Prospect Resources Corporate Development Manager Mr Nick Rathjen, the firm is highly motivated that Zimbabwe is the best mining destination for battery and electrification metals that are targeted towards the world agenda to go green.

"Zimbabwe is highly prospective for targeted battery and electrification metals," Rathjen said.

"It has easily accessible skills, established logistics and infrastructure, including African Development Bank & World Bank funding the refurbishment of Kariba Hydroelectric Power Station.

"Significant in-country knowledge, experience and relationships provide a solid foundation from which to assess and progress potential projects ▪ Prospect has identified high-value targets across Zimbabwe and the Sub-Saharan region.

"LCT pegmatites prevalent in targeted areas," the points from the presentation read in part.

This has come after the government of Zimbabwe announced its position that it is determined to benefit significantly from the popularity of lithium and other battery metals as it eyes becoming the world's biggest "white gold" producer after 2023.

With the world superpowers committed to phasing out new gasoline and diesel engine vehicles by 2040, the recent growth in electric vehicle (EV) adoption has fueled a global boom in lithium, cobalt, manganese and nickel production.

Lithium-ion batteries play a significant role in electrification by enabling the transition to clean energy and the growth of e-mobility. With a growing number of devices running on electricity, The world is facing a new challenge. The growing need for batteries consumes enormous amounts of critical metals, such as cobalt, lithium, manganese and nickel.

According to the Deputy Minister of Mines and Mining Development Dr Polite Kambamura, the government's thrust is to overtake Australia as the biggest lithium producer in the world.

He said that the value addition of lithium is important as the country seeks to maximize and get a true value for its lithium.

"We look forward to becoming a world leader in Lithium production. Government's main thrust is on local Lithium value addition and beneficiation," Dr Kambamura said.

Prospect Resources recently completed the sale of its 87 per cent interest in the Arcadia Project to Huayou International Mining (Hong Kong) Limited, a subsidiary of Huayou.

The Transaction comprised cash consideration of approximately US\$377.8 million. Following payment of US\$26.8 million in Zimbabwean capital gains tax and US\$8 million to Sinomine in relation to the termination of the offtake agreement between Prospect and Sinomine, US\$342.9 million in net proceeds were received by Prospect on completion.

Prospect intends to retain a cash balance of between A\$30-40 million to progress battery and electrification metals projects with a primary focus on Zimbabwe, and secondary focus on the broader sub-Saharan African region.

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The desire to expand the Mining sector highlights the Chamber of Mines Annual Conference



A robust yearning to realize the growth and development of the mining sector as a leading force in the country's economic revival highlighted the discourse at the Chamber of Mines Zimbabwe Annual General Conference 2022 held in Victoria Falls.

Rudairo Mapuranga

The conference demonstrated that all stakeholders from both the government and private sector are determined to contribute to the growth, development and sustainability of the mining industry towards the government set US\$12 billion annual revenue by 2023.

Mining players at the conference from both the Large scale and small scale praised the government for creating a conducive operating environment which has boosted their operations with notable growth in gold, nickel, coal, lithium, diamonds and platinum sectors.

The Conference, which ran under the theme, "Consolidating growth drivers for the mining industry" attracted mining executives, bankers, professionals and service providers to the mining industry.

President Emmerson Mnangagwa who was the guest of Honour at the event commended the mining industry stakeholders for the rise in capacity utilization where the gold sector rose by 86 per cent, diamonds by 51 per cent, coal by 21 per cent, lithium by 83 per cent, nickel 13 per cent, and platinum 13 per cent in the first quarter of 2022 compared to the

comparable quarter last year (2021).

"This is highly commendable, well done to you all," President Mnangagwa said.

Key Conference Takeaway

The conference which was attended by both small-scale and mainly large-scale mining companies' representatives proffered solutions that are urgent for the development of the mining industry in Zimbabwe.

Despite the growth witnessed in the sector, miners are of the view that a long-term solution should be taken to witness the growth of the industry, especially in electricity provisions, monetary policy and policies to do with extraction and marketing.

Large-scale miners concerns

Speaking at the conference Chamber of Mines CEO Dr Isaac Kwesu called on authorities to intensify the role out of policies that will help operators scale up production and drive new investment for the achievement of the US\$12 Billion mining industry.

"In 2021, the operating environment for the mining industry was predominantly challenging on the back of the loss of value on the surrender portion of export proceeds, inadequate foreign exchange allocations, fragile power supply, capital constraints and high-cost structure.

"A significant number of mines are facing

foreign currency shortfalls to meet their operational requirements.

"With most mining companies in expansion mode, they now require more foreign currency to fund the capital projects including setting up beneficiation facilities," Kwesu said.

Speaking at the same event Chamber of Mines President Mr Collins Chibafa said the coal industry is facing a myriad of problems that may lead to further power problems. He called on authorities to address the serious challenges that can disrupt the whole mining value chain.

"As reported last year, Your Excellency, the growth potential of the coal sector continues to be faced by unique challenges of suboptimal pricing framework and foreign currency shortfalls being predominantly a non-exporting sector. While engagements with Authorities on the matter are still ongoing, we feel the issues largely remain unresolved, which may threaten the power supply situation of the country in the medium to long term," Chibafa said.



Chamber of Mines CEO Isaac Kwesu

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Chibafa also said that the Chamber of Mines was engaging Zimbabwe Electricity Supply Authority (ZESA) for it to prioritize mining companies for available power to maximize production.

"Mining companies, specifically those not connected to dedicated power lines, continue to face power outages resulting in production shortages and output losses. We continue to appeal for prioritisation of mining companies for available power," Chibafa said.

He also said that the current foreign currency retention thresholds remain the elephant in the room which needs to be addressed.

"A significant number of mines are facing foreign currency shortfalls to meet their operational requirements. With most mining companies in expansion mode, they now require more foreign currency than they are allocated. The additional foreign exchange requirements are needed to fund the capital projects including setting up beneficiation facilities. We believe retention levels of at least 80% are optimal for the mining industry, given the capital intensity of mining businesses. The Chamber of Mines will remain engaged with your government, Your Excellency, for a more optimal solution to foreign exchange management," Chibafa said.

ASM concerns



ZMF President Ms Henrietta Rushwaya

Zimbabwe Miners Federation (ZMF) President Ms Henrietta Rushwaya called on the Justice Ministry to complete the amendment of the Mines and Minerals Bill to ensure that mining policies are beneficial to ASM progress.

The ASM sector has been calling for the government to speed up the amendment of the Mines and Minerals Act which has taken over a decade. The current Act disadvantages small-scale miners who at times are outlawed and arrested despite their economic contribution significance.

Rushwaya said the delay in the tabling of the act before parliament is affecting the ASM sector negatively.

"Honourable Minister can you bring this matter to the Justice Minister that the Attorney General's office is delaying unnecessarily in ensuring that policies to do with mining are put in place and this is greatly affecting our sector," Rushwaya opined.

Rushwaya said the new mineral policy should take a leaf from Tanzania and Zambia's handling of the small-scale and artisanal mining sector to come up with robust legislation that can oversee a transformation of the ASM sector.

"There are case studies which have been carried out in Tanzania where they have primary mining licenses issued specifically to indigenous Tanzanians.

"In Zambia, they have got a three-tier system where you have artisanal mining licences which are issued to miners who occupy and use less than 5 hectares of land. Small, Medium and large scale miners have three different mining licensing regimes which are issued to the three different participants," Rushwaya continued.

The ZMF President said in the short term if the delay of the amendment persists, it was important for the Ministry of Mines and Mining Development to issue a statutory instrument that empowers ASM growth and development.

"Our expectations from the government are that we should have a statutory instrument that empowers miners, and that we migrate from Environmental Impact Assessment to Environmental Management Processes.

"We are also looking at the strengthening of the Artisanal and Small-Scale Mining desk to a department which focuses on the ASM sector," Rushwaya said.

Gold industry

After reviewing factors that might hamper the achievement of the US\$4 billion gold target, the Chamber of Mines Chairperson for Gold Producers, Mr Qubeka Nkomo said the gold industry requires over US\$1 billion in funding in the next 5 years to sustain growth and development.

Speaking at the conference Nkomo said for the country to unlock the potential of

the gold sector for sustainable economic development, adequate funding, adequate foreign exchange allocation, adequate and affordable electricity and other factors including a conducive operating environment and systems are pivotal for the sector's contribution.

Nkomo also said the government through the Ministry of Finance should review the contentious foreign currency retention thresholds for gold miners to help the industry grow and suggested that the retention should not be below 80 per cent.

"The gold industry requires in excess of US\$1 billion in the next 5 years to sustain growth and development of the sector and achieve output targets. The Local financial market has limited capacity to finance such huge capital requirements on the back of liquidity challenges and indeed where available such finance is very costly.

"The current 60 per cent foreign currency returned by gold producers is not enough to meet other operational requirements and expansion projects. Meanwhile, the 40 per cent surrender portion which is liquidated at the interbank rate is unfairly compensated due to the disparities between the interbank rate and the hugely inflated parallel market rate which is applied by most suppliers.

"Statistics from gold producers show that the optimum retention that allows gold producers to achieve their production target and expansion project is approximately 80 per cent.

"Foreign investors are demanding gold producers to use their gold as security to secure funding, some are raising concerns about the current retention framework which they say is not supportive of additional capital injections into the gold industry. Therefore, there is a need by the government to relax the marketing arrangements and allow gold producers to export their gold and use it for capital raising while also reviewing retention levels," Nkomo said

Nkomo also said that the gold industry has the potential to produce 60 tonnes of gold which will be nearly double what was produced last year (31.5 tonnes) if bottlenecks affecting the growth of the sector are addressed.

Government to Miners

President Mnangagwa called on the mining industry to prioritize issues of Environmental Social and Governance (ESG) for communities to fully benefit from the minerals mines in their areas.

"It is a mining expectation that mining houses now begin to green their operations through responsible mining towards low carbon emissions and sustainable mining.

"Sometimes as I fly around I see many places where miners would have dug holes without rehabilitation. So please don't invite the government to create draconian legislation to force you to green and maintain your areas of operation."

"Further the emerging Environment, Social and Governance thrust in the mining sector, now demands that mining houses create real benefits for the communities in which they are operating. Over and above supporting livelihoods, it is also necessary for you in the sector to invest in the protection of the environment, while building long-term community resilience. In this endeavour, capacity building for mining sector professionals in Environment, Social and Governance must be given due attention,"

President Mnangagwa said.

He said growth in the mining sector will also be anchored on increased investments in new technologies and operations that are in line with the Government's thrust on value addition and beneficiation.

"Gone are the days of exporting products in their raw form. The focus should now be on unlocking value from our rich mineral resource base for sustainable socio-economic development.

"However, beneficiation in mining cannot be achieved by a business-as-usual mindset. It requires the development of backward and forward industrial linkages within the mining sector, and across other sectors of the economy," President Mnangagwa said.

President Mnangagwa also called on the mining sector to be a "model employer" by rewarding employees at "favourable levels".

Government pledge for growth

President Mnangagwa said the Government will continue to "timeously" address bottlenecks encumbering investment through the implementation of various macroeconomic policies and

measures in support of business and the local industry.

"This includes availing fiscal incentives, road rehabilitation and development, upgrading of airports, expansion of power generation capacity as well as dam construction, among others.

"In this spirit, just this week, my government reviewed regulations that were negatively affecting the coal sub-sector.

"As a listening President, I invite stakeholders in mining to come forward with proposals that can vault your sector to greater success."

The President directed Zesa Holdings' electricity distribution company, ZETDC, to provide electricity to new mining companies that have set up projects across the country.

"I want to tell ZESA that minerals are found in areas that do not have the grid and the grid must go where the minerals are. The availability of power is one of the critical factors that drive mining sector growth, particularly as we gear the local mining industry towards moving up the mineral value chain," said President Mnangagwa.



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COLLIN CHIBAFA

INTERVIEW:
CHAMBER OF MINES PRESIDENT

KS Thank you for taking the time from your busy schedule to speak to us. May I have a brief introduction of yourself?

CC: I am a Chartered Accountant, having trained with PWC. I have spent over 20 years working within the mining sector.

KS: Your view on the status of the mining industry?

CC: The mining industry has generally continued the strong growth recovery post the Covid-induced lock-downs of 2020. Compared to Q1 2021, we have witnessed increases in output across all key minerals in the first quarter of 2022, with an 86% increase in gold, 83% for lithium, 51% in diamonds, 21% for coal, 13% for nickel and 13% for PGMs. The strong output performance is largely due to the ongoing expansion projects as a result of the favourable commodity prices. However, the mining industry is still performing below its full potential with capacity utilisation currently estimated at around 80%, weighed down by foreign currency shortfalls, fragile power supply, capital constraints and a high-cost structure.

KS: Despite protests and suggestions that 60/40 gold retention is not working for gold miners, the government hasn't budged. Has the Chamber of Mines given up the fight for gold miners?

CC: We cannot afford to give up. The Chamber of Mines continues to engage and lobby the RBZ and Government for an optimal foreign exchange framework for the mining industry. While the retention has remained at 60/40, we have seen some changes namely, allowing miners to pay a proportion of the royalties and taxes in local currency and the introduction of an incremental export incentive scheme that results in mining companies retaining 80% of export proceeds about a set threshold. In addition, for mining companies that are listed on the Victoria Falls Stock Exchange, the retention on incremental incentives is set at 100%. We will continue to engage and lobby for improved retention levels to ensure mining companies are able to sustain and expand their output.

KS: The world is going green and Zimbabwe is a significant player as it hosts some of the highest world lithium deposits and significant deposits of Copper. We do not seem to have local takers of these minerals. What's your take on local players pulling resources together to form Joint ventures to mine Lithium for example?

CC: As a Chamber, we stand ready to support investors into the mining sector. The mining sector is open for anyone to invest in and contribute in maximizing the contribution of the sector to the socio-economic development of the country. It is my personal desire to see more Zimbabweans pulling their resources together to take advantage of the various opportunities that exist.

KS: Simple equipment like steel ropes used on skip cages is not being manufactured locally. Does the Chamber encourage value addition to reduce the import bill in the mining industry?

CC: The Chamber of Mines has, for a long time, at the forefront to promote linkages between the sector and local industry. The Chamber also has a Joint Suppliers and Producers Committee to spearhead and promote linkages and local content in the mining sector. In addition, most mining companies have introduced various initiatives to promote local manufacturers through Local Enterprise Development programs that have seen manufacturing companies growing from infancy to become suppliers to the mining industry. We continue to urge foreign-owned mining companies operating in the country to ensure they utilise local skills where these are available, from the exploration to the operating stage of their operations.

KS: Which metals have the most exciting prospects and potential in Zimbabwe?

CC: The country's traditional minerals including PGMs, gold, ferrochrome, nickel and diamond continue to anchor the sector while emerging minerals including lithium provide a base for a diversified mineral sector.

KS: Zimbabwe is currently on the verge of getting a new Mines and Minerals Act what three things would you want to see removed or amended from the Act?

The government afforded the Chamber an opportunity to submit proposals for changes to the Draft Amendment Bill. Most of the Chamber proposals were incorporated in the Draft Bill and our expectation is that the Final Act will result in a modern, easy-to-interpret mining regime that guarantees the safety of mining investments and encourages capital inflows into the mining sector.

KS: What are the reasons that you would give a prospective foreign investor who is

interested in investing in Zimbabwe's mining sector?

CC: My advice would be that they should not mistake noise for useful information. By this, I mean that mining is a long-term investment decision. As a potential investor, they should not only consider the constant reports from various quarters some of whom are not operating in the country to that of the major mining companies that are operating in the country. Though not Switzerland, the operating environment for business has improved. As a Chamber, we believe we have a role to play in engaging the government for an improved fiscal and regulatory environment.

KS: What would you say are the long-lasting solution to power challenges for Mines in Zimbabwe?

As an industry, our view is that the power supply situation can be resolved by addressing some domestic structural bottlenecks that continue to weigh down the electricity value chain. We believe there are several electricity projects across the country which are at different levels of implementation. The thermal power value chain has huge scope to anchor the electricity supply in the country. Quick wins at the Hwange Power station are paramount. Refurbishment of the 6 old units and completion of the 7 and 8 units can easily improve the power supply in the country. These can be complemented by addressing challenges threatening the survival of the coal sector (the critical feedstock). These challenges include low coal prices and acute foreign currency constraints. The country also needs to develop and implement a plan for self-sufficiency in power generation. The SADC region is facing a power deficit and it is important for the country to set a timeline by which it will be self-sufficient. The country's development cannot be premised on importing a critical input such as electricity when it has abundant sources that could be developed in this regard.

KS: Besides mining business what does Mr Chibafa enjoy doing?

CC: I read and enjoy photography, mainly portraiture.

Calls for Zim to invest in battery metals intensified



As the stampede for the adoption of clean energy and the creation of Li-ion batteries intensifies, the call for Zimbabweans to invest in battery metals has grown as economists are eyeing the country to benefit and satisfy the world's growing demand for Battery technology.

Battery metals are the raw materials used in the production of batteries such as lithium, nickel, cobalt, manganese, copper and graphite. These battery metals are increasingly used in batteries for electric vehicles, consumer electronics, and other applications.

According to experts the transfer to electric vehicles will not be possible without tons of new sources of copper, nickel, cobalt, manganese and lithium

Speaking to Mining Zimbabwe, Parliamentary Portfolio Committee on Mines and Mining Development Chairperson Hon Edmond Mkaratigwa said it is very critical for the youth in Zimbabwe to be actively involved in world trends especially investing in battery metals. He said the metals have a big role in the world's future therefore the youth should be active so that the country will not be left behind.

"The youths of Zimbabwe are naturally the

future of the country. Those metals have a big role in the future globally. The Zimbabwean youths should be courageous to venture into ordinarily uncharted waters and tap into the national vision of a desired middle-income economy by 2030. This is done by taking part in nation-building by identifying government programmes in all sectors of the economy and taking part. Initiating new approaches is also acceptable especially since youths are getting more and more exposed to the international community and rich opportunities. The youths must also not fear to try and test what they learn in lecture theatres and what they dream, into practice. So basically, they should be forthcoming and interactive with the government system and processes, so that they access what is available while also seeking to perfect the existing, in our process of growth as a country," Hon Mkaratigwa said.

According to the Deputy Minister of Mines



Dep Minister Polite Kambamura

and Mining Development Dr Polite Kambamura, the government's thrust is to overtake Australia as the biggest lithium producer in the world.

He said that value addition of lithium is important as the country seeks to maximize and get a true value for its lithium.

"We look forward to becoming a world leader in Lithium production. Government's main thrust is on local Lithium value addition and beneficiation," Dr Kambamura said

Australia Stock Exchange-listed mining and exploration junior Prospect Resources is confident that the exploration of battery and electrification metals such as cobalt, lithium, manganese and nickel in Zimbabwe can bring extremely significant results.

According to the company's Corporate Development Manager Mr Nick Rathjen, the firm is highly motivated that Zimbabwe is the best mining destination for battery and electrification metals that are targeted towards the world agenda to go green.

"Zimbabwe is highly prospective for targeted battery and electrification metals," Rathjen said.



Ben Mbanga

According to one of the country's renowned economic experts who is also the Chairperson of Associated African Nickel Resources Ltd ("AANR"), Ben Mbanga, there should be a huge appetite by the country to tap into battery metals as the popularity of the minerals is on the rise. Mbanga suggested that pension funds can be used in the adoption of this clean energy revolution.

Mbanga indicated that AANR is on an expansion drive and is looking to spread its wings across the nickel value chain as it will help the company tap into the ever-growing Li-ion battery in line with the global shift towards clean energy alternatives.

"AANR is therefore focused on clean Nickel Sulphide deposits in Africa to yield traceable, sustainable EV-Battery Grade

Nickel Sulphate and Cobalt Sulphate (99.5% pure). This has seen the company advancing rapidly in exploring for nickel and other Li-Ion Battery technology required metals to advance the world's increasing demand for green energy," he said.

Rising and promising young mining prospector Mr Nyasha Magadhi called on the youth in Zimbabwe to consider crowd-funding to fund lithium and copper projects in order to protect the future of Zimbabwe as the world is moving to clean energy.

He said it is important for young people who are Zimbabwe's future to lead in copper, lithium among other metals' investments for the country to benefit from the popularity of clean energy future that continues to rise with Electric Vehicles (EVs) considered the future in the transport sector when the world is prioritizing green energy.

"Zimbabwe is blessed with minerals such as copper, cobalt, nickel and lithium which are very critical in the world's transformation towards a clean energy future.

"As the youth, we should start projects to mine these metals which are sought after in the green revolution, crowdfunding is the best thing we can do, we can start with as little as US\$100 per person in our 50s or 100S and the project thereafter funds itself. It is possible, that many successful companies out there have more than 1000 shareholders but are doing just fine. We can do it, we can be the pioneers in Zimbabwe if it was never done."the 21-year-old Magadhi said.

Mineral Economist Lyman Mlambo said the youth in Zimbabwe should take charge to take advantage of the green energy future through investing in battery metals.

"The shift from fossil to green energy is consistent with youth empowerment. As they say, the future belongs to the youth. It may take 3-5 decades before the hydrocarbons (fossils) are phased out completely from the energy sector. Such a revolution, therefore, needs to be championed by young entrepreneurs who can carry the business agenda into the future. Business incentives in the sector must be directed towards the youth. Green energy is an intergenerational equity issue identical to investment in the youth." Mlambo said.

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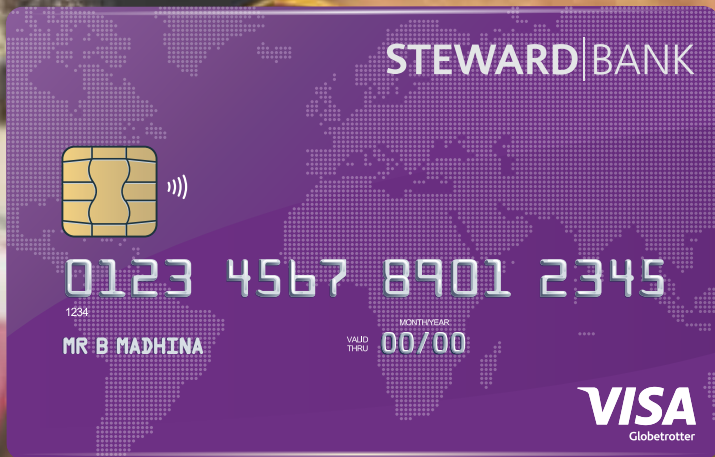
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A portrait of Edmond Mkaratigwa, a man with a mustache wearing sunglasses, a dark blue suit, a light blue shirt, and a striped tie. He is standing outdoors in a field with trees and parked cars in the background.

EDMOND MKARATIGWA
CHAIRMAN MINES AND MINING DEVELOPMENT PORTFOLIO COMMITTEE

As Zimbabwe heads for the December 2023, 12 Billion dollar Industry deadline it is critical that the industry is kept abreast of developments and also informed about what is being done about the challenges in the sector.

I spoke with a man on the verge of making history with the Mines and Minerals Act. A man who needs little to no introduction to those in the mining circles. A man tasked alongside his team to lead in the law-making process related to the sector, to conduct enquiries and hearings on matters of interest to the mining sector among others.

He is Hon Edmond Mkaratigwa the Mines and Mining Development Parliamentary Portfolio Committee Chairman. Hon. Mkaratigwa is a hands-on electrical Engineer, a businessman, and a politician who holds a Master's Degree in Energy and Sustainability from the University of Cumbria, United Kingdom. Here is how the interview went

What are the duties of the Mines and Mining Development Portfolio Committee?

The Mines and Mining Development Portfolio Committee is the delegate of the Committee of the Whole House which is generally the National Assembly in this case. The Committee is established in line with the Standing Rules and Orders of the Parliament of Zimbabwe. That is to represent the sectoral interests in Parliament, to lead in the law-making process related to the sector, to conduct enquiries and hearings on matters of interest to the sector among others. Basically, we carry on with the broader Parliamentary mandate as enshrined in the Constitution but our work is narrowed to the Mines and Mining Development sector to ensure focused attention, easy capacitation for the task and a manageable responsibility and accountability framework.

What have been the committee's 5 most received complaints?

The Committee has received a number of complaints and these include disputes in the sector. Relative to the mine disputes were issues around claims boundaries, ownership disputes where there are double allocations and inheritance issues where the owner of the mine died while in a syndicate or some kind of agreement and the family fails to claim their share of business due to poor contract drafting.

Other complaints were on pollution of the environment by miners in communities they operate without compensation, exploitation of resources without environmental reclamation arrangements and infrastructure destruction by mining firms without maintenance of the same. Basically, lack of community benefits from mining proceeds topped while mineral pricing and payment arrangements have also been among the key complaints.

There is concern regarding growing disputes across the country. What has the committee done to have this addressed and what is being done to PMDs who have disputes growing under their watch?

Disputes have been growing and as a committee, we have conducted an inquiry in the gold sector to establish the facts on the causes of such and we presented the report to the House of Assembly. The PMDs largely needed more support from the Government because some of the challenges were a result of the challenges in the institution than individual. Problem individuals were being dealt in line with their employment codes and procedures and you might have seen the Ministry of Mines requesting miners to submit their documents to the PMDs throughout the country, meant to unblock some of the weaknesses that were in the system and manifesting in the different provinces.

There was an issue raised whereby the committee noted there was not really a way to know if some mines are being honest about what they are producing. Has the committee devised a way of getting estimates of what a mine produce?

The Committee recommended to the Ministry and some of the recommendations are already being implemented. You can see that there are monitors deployed in the different mines by government, to perform the government watchdog role for the sake of transparency and accountability. That is a good start and these people require to be empowered further technically for them to be able to perform their duties more effectively. The Ministry therefore has a good estimate of the production taking place at all major mines. In the Artisanal and Small-Scale Mines, Fidelity Printers is buying most of the gold and there are also mechanisms that support accountability at the moment, so there is a fair improvement in record of estimates of production in the country.

Do you foresee the country attaining the 12 billion Mining Industry by 2022?

Yes, actually the country is poised to exceed the target. There is already evidence that the country has managed to achieve the target and also exceeded it. A lot is happening and continues to happen in the sector that it is undoubtedly success story.

You are well set to be the first Mines Parliamentary committee chairman in post-independent Zimbabwe who may preside over the successful amendment of the Mines and Minerals Act. What do Zimbabweans wish to see added and or removed in the new Act?

We are hugely in the tracks to ensure the amendment is successful as planned and this is a deliverable that we are not relenting on due to its centrality in unlocking many blockages bedevilling the Zimbabwean socio-political environment and the broader economy. Zimbabweans have wanted the Computerised Cadastre System added, the relationship between the farmer and miner fully defined for co-existence, an improved version of the dispute handling mechanism, corporate social responsibility or community benefit in local exploitation of local natural resources among many others. Basically, there is need for consolidation of the natural resource ownership and management in the country, for the benefit of all and for sustainable national development.

There have been clashes from the issuance of land between RDCs across the country and the Mines Ministry and it's still ongoing. Does the parliament have a solution in place to fix the problem?

These are land use disputes and these have to be defined fully in our legislation. There are overlaps in our laws and that warrants amendments of a host of laws towards legislative harmony. These laws have been too fragmented hence some are conflicting yet appearing to be championing the same vision. As Parliament, we have the solution and as the Committee particularly, we have highlighted these issues in all platforms where opportunity presented itself and where we created the opportunity, but the speed of implementation has been very slow as is usually the norm with the wheels of government, although at the moment, our position has remained that it should be business unusual. In our arsenal is the legislative role and we are ready to amend

the relevant laws and we have represented our sectors and stated what they need at the moment, which is the laws that speak to their current challenges like the amendment to the Mines and Minerals Act still in the mill.

What has the committee achieved since you took over Chairmanship?

The Committee redefined itself to pragmatism that is more results oriented, getting to extremes for a cause and being strategic to achieve cooperation towards the common national agenda, in our differentiated role. We have therefore engaged government and there has been improvement in deliveries of gold for example, to Fidelity Printers and Refineries. The Committee also initiated, conducted, completed and presented an internationally acclaimed self-assessment exercise pre-Kimberly Diamond Certification assessment. That enabled us as a country to address our challenges together with the civil society, the executive and Parliament. In that respect, Zimbabwe proved willing to comply with international frameworks within the spirit of continuous improvement and re-engagement and that was taken as a lesson to our neighbouring countries and others globally. The Mines and Minerals Amendment Bill is work in progress and we are still believing that it is going to be our key achievement. We have also done much in addressing conflicts in the sector, which we commend ourselves as having achieved in dousing those fires significantly. The Committee also shares in the joys of achieving the \$12 Billion Mining Vision as we monitored and evaluated the progress and addressed challenges we have seen along the way, towards achievement of government policy goals. A lot has been done and I can say we are doing much.

Safety has been of concern in small-scale mines. What are the committee's recommendations for safe and responsible mining?

The Committee has recommended for the formalisation of the sector and also, the use of the government-initiated equipment purchase scheme for the sector so that it moves away from too much reliance on rudimentary ways of mining. The sector also requires capacity building which is ongoing and that should continue so as to save life. Decentralised emergency management systems including by the private sector should continue to be promoted to ensure early response.

Miners and mine workers across the country appreciate your committee's enquiries and many wish the visits are increased and be more frequent. How many times per year do you conduct these visits, how should miners or mine workers request a visit and is there a chance of the committee increasing the visits?

The visits are mostly determined by the issues that need to be understood further, for national action. The visits can be as many but usually, we respond to a need from the people we so dearly represent. Resource availability also comes in while due to the number of national issues given the expanse of the country, sometimes we also have to prioritise and focus on what is achievable within set timeframes. Miners and mine workers can request Parliament through petitioning Parliament where there is an issue of importance that warrants attention of the institution. In addition, engaging parliamentarians enables the matter to get space in the committee's agendas. Further, airing issues through other representative bodies such as miner's associations, fast tracks feedback to the Committee, which can trigger the desired action. The Committee is always ready to engage, listen and represent.

Large-scale Miners have for some time raised alarm about the 60% USD and 40zwl retention saying it is just not working for them and is stifling production. What is parliament doing about this?

Parliament has always remained open to get details of modalities that work. If you remember well, we stated during the time the 60/40% was achieved that, we must continue to engage until we get to where we desire. The best way is to get some new position papers so that we have basis that justifies the new demands so that we represent while fully equipped. Parliament has raised these issues but the sector has also largely not been forthcoming of late. We are ready to hear what our constituents have in mind and as part of what they

think works best for them and the national interest, for the broader good of all today and in the future.

Semi-precious miners have for years complained about the slow process in the export of their gemstones which they say a simple export of a handful of stones takes between 2 weeks and a month to get export clearance from the MMCZ. Is this not a catalyst for smuggling and what can parliament do to ensure the process is sped-up like it is in neighbouring Zambia?

That is a catalyst for smuggling, opting for other alternative countries by investors and discouragement of investment in those minerals locally. The Committee has not shied away from interrogating those issues. We actually set as our first priority, ensuring efficiency and effectiveness in the sector and we have really surfaced most of these issues, including after getting hard evidence from private practitioners in the sector. It is still appalling to note that there are still such delays as in our approach, those are part of the fundamentals that can be dealt with internally without the need for external resources. A change in work culture is key for national development and that has been emphasised at the outset of the New Dispensation led by H. E. the President Cde. Dr. E. D. Mnangagwa. In our committee following its reconstitution, we identified such gaps and tried much to address that including cutting unnecessary time wasted in some procedures as well as through reduction of over-centralisation and increasing recruitment. Much has been done in that regard, to the extent of being granted a budget allocation through our intervention.

a while, but no longer anymore, and so far, the gods are favouring us, as the country is now poised to build itself from within and by itself with the support of her friends and allies. The market of lithium is part of the coalescence of the market in our favour as much as we see the opportunities with diligence.



Portfolio Committee on Mines at Blanket Mine in Gwanda on a fact finding mission



Mkaratigwa at Cam and Motor mine

Zimbabwe may see a dramatic increase in lithium production as world giants have taken over Bikita and Acardia Lithium. With several countries committed to phasing out new gasoline and diesel engine vehicles by 2040, the recent growth in electric vehicle (EV) adoption has fuelled a global boom in lithium production. What is parliament doing to ensure Zimbabwe is the first priority for lithium products by 2040 when the world finally stops making gasoline engines?

Parliament is one among three and its role is complementary to overall government targets. Zimbabwe is open for business and the country has opened up to national and international players. There is a market

for all to see and we are inviting innovations from all and we can support those that need support to tap into the niche areas of their choice. Parliament has jointly called on the people of the world to take advantage of the opportunities that we have whilst they are still available. We have also recommended our universities to adapt a new model of higher education that inculcates a business mind and the creation of wealth, and we are happy that this is taking place. Zimbabwe will wait for a while, but no longer anymore, and so far, the gods are favouring us, as the country is now poised to build itself from within and by itself with the support of her friends and allies. The market of lithium is part of the coalescence of the market in our favour as

much as we see the opportunities with diligence.

Artisanal Small-scale and foreign individuals and companies are paying the same mining fees to conduct mining business. Will we see a different pricing tier system in the new Act?

The new Act cannot regulate fees as these will change time and again, hence requiring continuous updating while lawmaking is a long-term and costly process. Fees are gazetted through statutory instruments and administrative directives and lawmaking require the whole of government and citizenry's participation. As a country, these fees may appear uniform but there could be reasons at the moment, to motivate investment by all, accepting certain costs, for the sake of certain short-term, medium-term and long-term benefits. Zimbabwe has been laying the foundation and it is now building the blocs for the superstructure, acknowledging the support from all willing locals and internationals, hence it is strategically embracing and maintaining relations in all and with all that share the national vision as laid out by the government and through His Excellency, the President of Zimbabwe, Cde. Dr. E. D. Mnangagwa.

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What if Corporate Social Responsibility is not the best option...



Corporate Social Responsibility (CSR) or Corporate Social Investment (CSI) have been embraced at the confluence of capitalism and socialism. Throughout the years, companies have variously embraced this aspect. Sincerity is measuredly seen in implementation of these concepts but they have been advanced as options towards balancing between natural resource exploitation and concerns of communities surrounding these mine sites.

At the bottom of the phenomenon of Corporate Social Responsibility or Investment lays a strategy for existence of the corporates. The strategy is not voluntary but preemptive and a fight against the consciousness of a class that feels left-out, exploited and poor. This group of people has the mindset suspicious of those who have managed to create wealth through investments in the various sectors of the economy and in this case, the mining sector. It is not everyone who can be in business and more-so, become a miner. Even so, there is need to interrogate this matter further, towards finding a lasting solution for developing countries and in particular Zimbabwe.

Zimbabwe in trying to deal with this challenge once took an extreme position through the indigenization laws. In this direction many after a particular time backtracked and questioned the efficacy of that approach in the country, led by the civil society organizations. It was viewed as retrogressive. In the same sense today, many are wishing for the former approach over more liberal approaches which can be market based or voluntary and based on individual firm's values and convictions as well as the need to survive any foreseen risk that may emanate from negative actions against the firm, as a result of community dissatisfaction.

Where does the solution to this conundrum lay? The key challenge has roots in many aspects. First, the delay by government to adopt a mechanism that can sustainably grow its own crop of new miners through a supportive legislative framework. In this regard, Zimbabwe until now, is reliant on an archaic legal framework and in some instances, the practice is already by far ahead of the law. The situation can be brittle even though tackling the matter can also open a can of

worms, that can break already achieved gains. The Mines and Minerals Amendment Bill is providing a chance for solution seeking. Its contents have been debated only in terraces and not in the mainstream legislative formulation framework for a while, hence no solution in sight, though in sight. It offers room for reconsideration of our paths, if we are ready and sharing the same sentiment.

The next aspect revolves around nature of the country's orientation as part of the social system that builds national culture. The fact that communities demand to benefit from the natural resources extracted from their settings does not really imply that the miner has rendered all other mining opportunities in the country inaccessible through his or her engagements. Of course, it is correct that where one mines, another cannot mine at the same time. Nevertheless, the key question is, are all resource rich areas already fully exploited in the country.

Continued On The Next Page>>

If not, why is that most of the rich people who know that there are minerals, are not motivated to mine, yet demand those mining, to plough back to their communities. The answer may be laying in our education system and the culture of being workers still dominant in the broader local citizenry and those abroad. Failure to review appropriate laws hopefully is also not attributable to weak comprehension of the necessity to incorporate the new thinking, transformed from that of the 1960s, towards economic growth from within and by selves. The thinking is buttressed by the view that most people involved in modern mining are not even trained for the task as the trained are looking for jobs elsewhere.

In ending for now, is the increased call for corporate social responsibility or investment due to levels of poverty being witnessed in communities where mining activities are taking place? Is it a result of feeling for those without by those in the mining sector or those concerned with the plight of the communities? These are all important questions but the real issue is also for us to face our own realities. Among these realities is acceptance of our strengths and weaknesses and then we

can build our foundations from there. Capital exists within the country and among our people, but many are not risk takers. Risk takers are an important human capital in our societies or from worlds abroad, but the culture can also be deliberately motivated, created and cultivated.

The culture of alms is as old as humanity and that is entrenched in our communities, but is it the best of the cultures, towards national economic empowerment. This cannot be a one-day adventure and equally Corporate Social Responsibility or Investment is not the best approach but a wedge in the absence of the best. Pragmatism is the arena in which Corporate Social Responsibility or Investment dwells as it seeks to consider concerns from various stakeholders, but it remains voluntary and ultraistic, hence difficult to use in dealing with poverty and for planning towards sustainable poverty reduction unless adequately coordinated and based on verifiable indicators as measures of progress towards the set goals.

Otherwise, Corporate Social Responsibility in Zimbabwe is another façade that keep

societies expectant of crumbs which will never meaningfully economically transform societies but usually achieves the opposite. Real transformation is in genuine ownership which we continue to evade where laws are taking long to buttress certainty of such thoughts towards ownership and reversal of any negative overlaps among the different sectors of production in our overall economy. Within such a thinking framework, the question remains: Is Corporate Social Responsibility or Investment the last of our thought process initiatives towards community empowerment and local wealth creation? Definitely no!

[Ph.D. Candidate of Energy Innovation and Chairperson of the Parliamentary Portfolio Committee on Mines and Mining Development & 2Ph.D. in Disaster Management and Public Administration. Published ideas are entirely views of authors and cannot be attributed to their current institutional positions].

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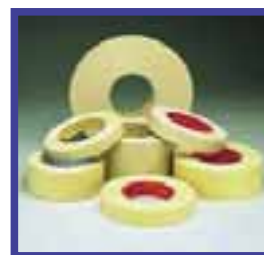
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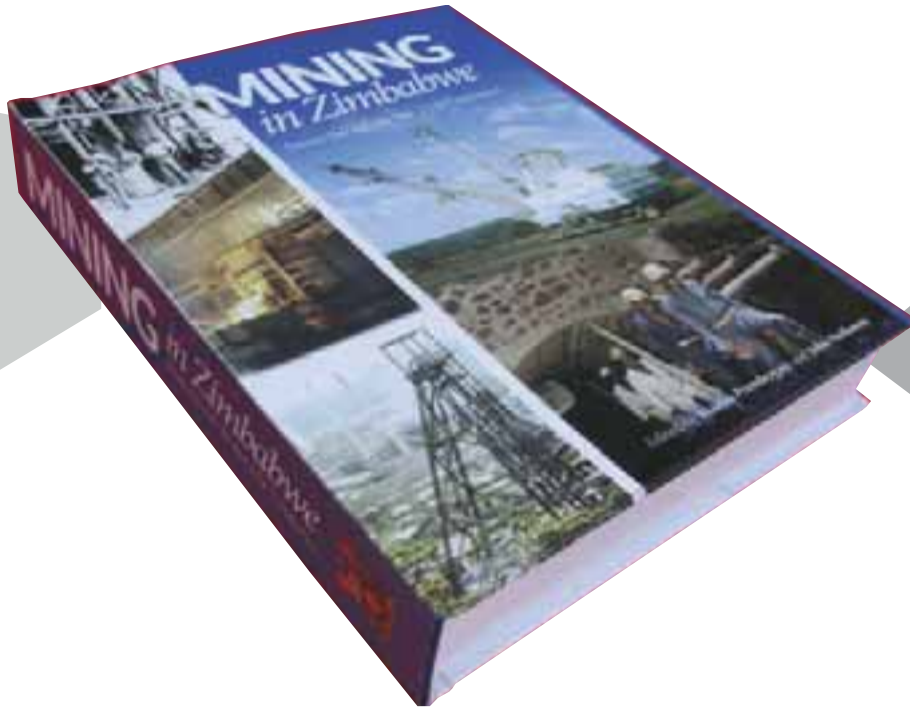
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Improving LHD productivity in bord and pillar platinum mines to improve operational efficiencies



Abel Makura

This article presents a Value Creation Model used to visualise the reinforcing loop of the ore cleaning process in a mechanised bord and pillar platinum mine and how the system can improve by creating value from productive units (Load, Haul and Dump units and ore conveyance system) used in moving the blasted material.

Abel Makura

From the developed model, the decision-makers (managers) are able to select the key value drivers to be focused on to create value, deliver it to the stakeholders (processing plant and subsequently smelting plant) and sustain it. The ore handling process underground consists of four subprocesses that are loading the ore, hauling the loaded ore, tipping of the loaded ore onto the belt and conveyance of the ore to the Run of Mine Silo. The model uses variables with size dependant on the amount of ore moved and the number of days per month which subsequently feeds into annual production. The model slightly deviates when a long tramming distances of LHDs start to manifest or the roadway conditions become adverse for efficient operation of equipment. Implementation of the model is happening at Unki Platinum Mine in line with the Burning Ambition for Anglo-American PLC. The generated model introduces cost savings through the reduction of fuel and lubricant usage, reduction of engine hours on equipment and extension of operating life of equipment as well as increased throughput.

1. Introduction

The aim of this paper is to use systems thinking to manage the key aspects of the ore handling process of a mining company to improve the productivity of the productive units i.e. the Lhd. I present an analysis into the main value drivers for production which are the rate of production on one side and operating hours on the other side. The model allows those in decision making to understand and appreciate that managing of ore movement through the default method of increasing the number of units with a view to increase throughput is a flawed way of improving the process. In as much as such a move a provide temporary reprieve and relief, it is not a sustainable and cost effective way of getting value as it will reach a point when the operating costs would be above the budgeted margins. In chapter two, a review is done of the capability of the units used to clean blasted ore at the mine and the importance of the lashing process to the whole mining process, while in the third chapter, the constraints in the lashing cycle are explained with the low hanging fruits analysed which have the means of deriving value in the critical activity of lashing. It looks at identifying the input variables that have a large effect on the outcome and focusing on them to determine the most realistic outcome. Chapter four shows the theory being put to practice where the modelling is done of the value drivers combined together with the outcome predicted within acceptable degrees of confidence. Chapter five concludes the results of the modelling including the maximum possible output that can be achieved by the Lhds in a given day when

all operating parameters are optimised and the corresponding benefits.

IMPORTANCE OF LASHING Lashing in bord and pillar

Lashing is the critical activity in the mining cycle in a bord and pillar mining method as it is the final process in deriving value from the mining process. In other words it is the purpose measure of the whole mining process as it delivers ore to the customer which is the processing plant. It also is important in the sense that it creates the pathway for the other activities in the mining cycle to create the ore such as support and face drilling. Lashing also termed cleaning helps maintain a safe working environment underground through the opening and maintenance of clear airways for air to flow.

Equipment used



At Unki lashing is accomplished using low profile diesel-powered Load, haul and dump (LHD) units fitted with the rubber tyres. Two types are mainly used and these are the Sandvik supplied LH208L and the GHH supplied SLP8.

Performance Targets / KPI's

	Target Mar-19
Availability	85%
MTBF	50 Hours
Tyre Life	Hours
Oil Usage per month	300 litres
Productivity (Tonnes / Hour)	50t*
Equipment 1st Life	20,000 hrs
Spares Availability	98%
Ave Trimming Distance	150m

theoretically is 18 operating hours x 50t/h giving an output of 900t(9 hours per shift with the other hour being used for travelling). Both Lhd types have the capacity to do the required 50m tonnes per hour.

However the productivity of the units averages 37t/h hence the reporting to the use of extra units to cover the deficit. However this increases the operating costs on energy as more fuel is used causing inefficiencies in the system

Table 2 : LH208L Specifications

APPLICATIONS

The Sandvik LH208L is an 8 tonne LHD designed to work in low profile rooms and pillar mining and extra low profile reef mining.

- Back heights as low as 1.4 m
- Low profile mine production and development
- Extra low profile mine development
- Extra low profile mine production with the Sandvik LZ100L Dumper

Capacities

Trimming capacity	7 711 kg	17 000 lb
Break out force, SR	121.6 kN	27 337 lbf
Break out force, SR	125.2 kN	28 151 lbf
Tipping load	20 859 kg	45 975 lb
Standard Bucket with GET	3.1 m ³	4.1 yd ³

Main Dimensions

Total length (excluding GET)	8 590 mm	338 in
Maximum width	2 780 mm	109 in
Height without canopy	1 388 mm	55 in
Height with canopy	1 500 mm	62 in

Bucket Motion Times

Raising time	4.0 sec
Lowering time	3.0 sec
Dumping time	3.7 sec

Speeds Forward & Reverse (Level / Loaded)

1st gear	4.0 km/h	2.5 m.p.h.
2nd gear	8.2 km/h	5.1 m.p.h.



SLP8 Production Forecast - Unki Mine

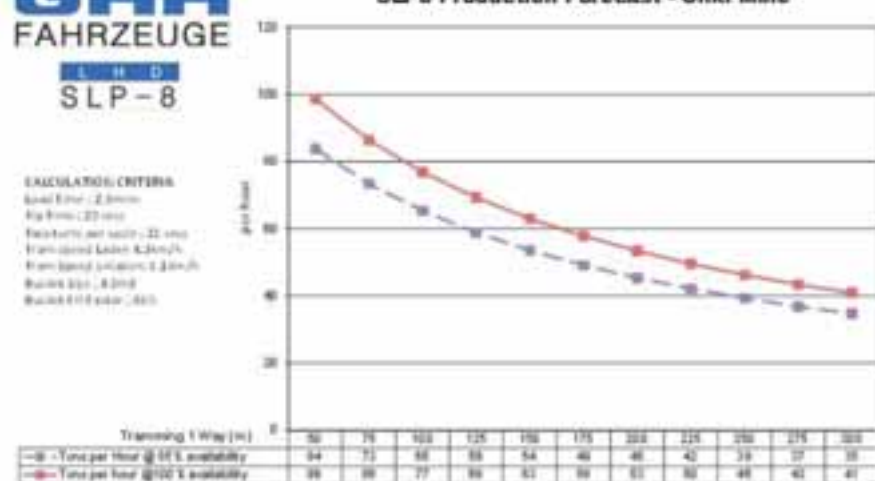


Figure 3 : Sandvik LH208L

Cleaned ore is transferred onto the belt through grizzlies with apertures of size 300mmx300mm and aided by a 21kw rock breaker which breaks off oversized rock. The ore is transferred via chutes onto a 1050mm strike belt which travel at 1.8m/s and has an hourly capacity of 180t/h. The strike belt feeds onto a main 1200mm conveyor belt which travels at 2.5m/s and has a maximum capacity of 700t/h. The mine has 12 Self Directed Work Teams (SDWTs) and each team has a monthly target of 24 000tonnes per month which

translates to a daily target of 800 tonnes. Every team operates with 3 shifts A, B and C one being on day shift, another on night shift and the other off duty on a 6-3 continuous basis. The duration for every shift is 10 hours and blasting is done @0700hrs with a re-entry period of 2 hours. To achieve the daily target of 800 tonnes most teams resort to the use of 2 LHDs as one is usually unable to cope. The target productivity per LHD is 50 tonnes per hour with a target utilisation of 75% which

Productivity Curve (Metric Units)

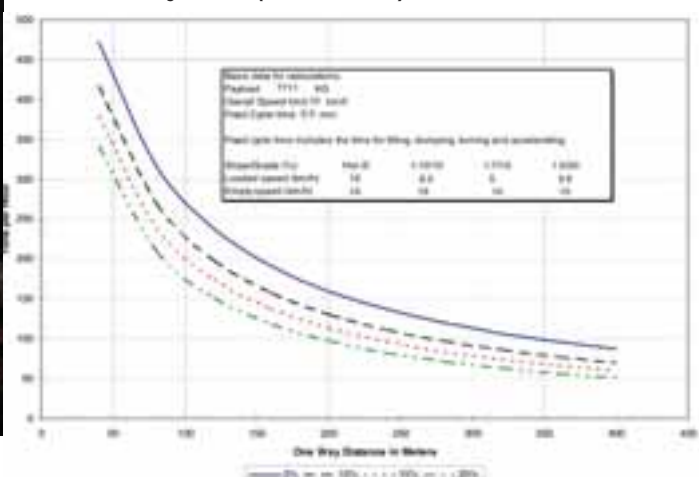


Figure 4 : LH208L Productivity Curve

MINING PRODUCTION PROCESSES AT UNKI

The production process flow map is shown in Figure 5 The production cycle starts with support of cleaned faces using 1.5m or 2.2 m resin bolts. The process is achieved through the use of a Fletcher Bolter which is either dry or wet drilling depending on ground conditions with the latter being used in competent ground and the former

TECHNICAL FOCUS

in poor ground. After support follows face preparation where the supported bords are marked in preparation for drilling which then immediately follows and is done by Sandvik drill rigs DD211L. After drilling, then follows charging when the drilled holes are loaded with explosive charges which are then connected at end of the 24hrs and blasting is carried out. Re-entry is done after the elapsing of 2 hours and when the mine environment is declared safe, lashing then commences using LHDs.

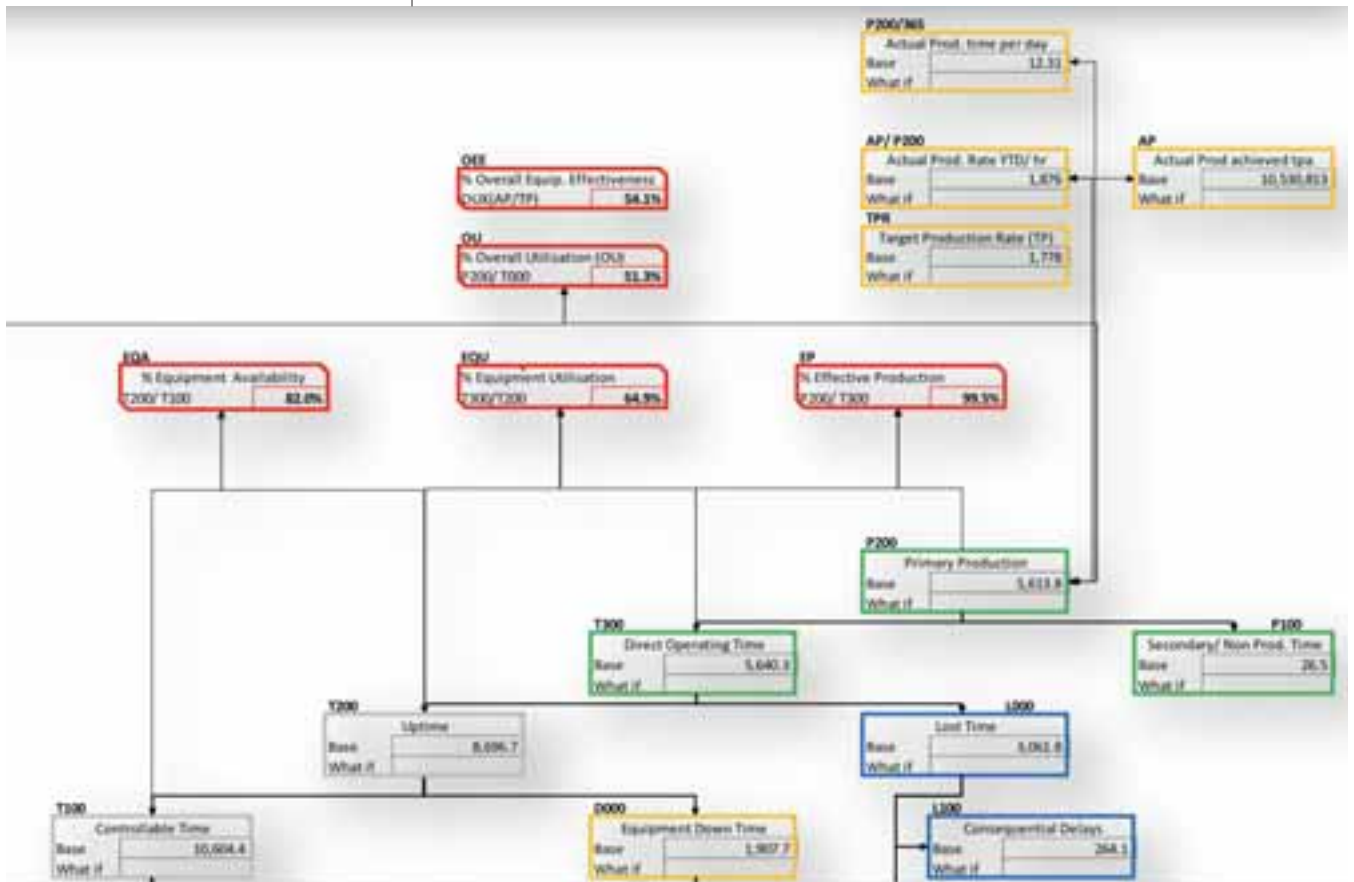
Review of the literature



Figure 6 : Value Driver Tree for Lashing

mining value chain Cambitsis (2012) looks at a VDT as a visual representation of a business model in a manner that links the value metric to the items that influence

aims or outputs which essentially are (i) the VDT model of each activity/stage that helps people to understand the dependence between the variables,



The use of Value Driver Tree across the value metrics. Use of VDTs has five

- (ii) key value driver analysis which identifies the critical drivers that have the largest impact on productivity and
- (iii) variance analysis to analyse the aspects that have the largest impact on performance viz actual vs budget vs benchmark,
- (iv) capacity analysis and lastly
- (v) what if scenario analysis. The VDT model used in this paper was derived from time and motion studies which were undertaken in the mine on the lashing process using mining cadets who were tracking LHD release times from workshops, loading and cycle times, trammig distances, blast fragmentation and breakdowns on the machines. Parameters like bucket sizes were also varied on the machines with a view to see the impact of such a change.

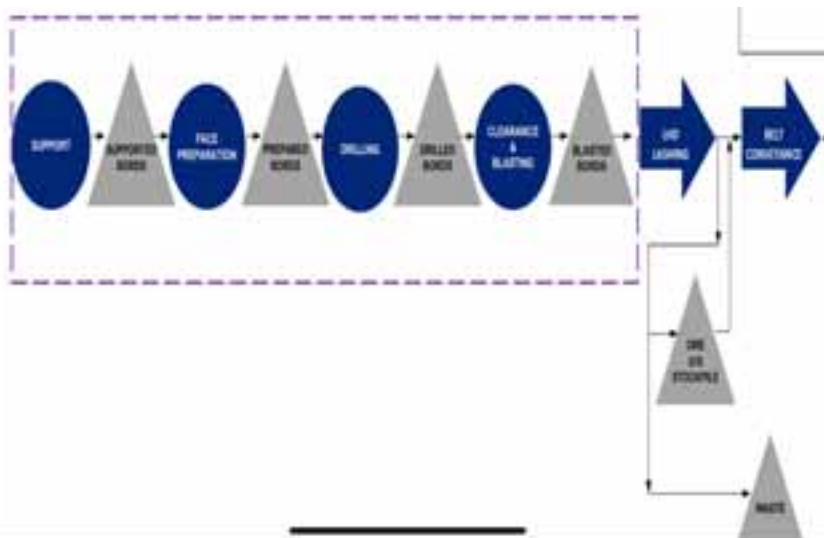


Figure 5: The mining process flow map



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Mix of value drivers

Various parameters that affect the lashing process were taken note of and listed. The method of selection was based on the theory measures of the lashing activity. Their effect on the tonnes produced was measured and the averages used in the analysis. For example tramming distances varied in all the teams and the best and worst case scenarios had their results compared. The table below shows all the value drivers and their corresponding effect on the tonnes delivered or produced per team per day.

Conclusions

The productivity of the LHDS was studied and found to be highly dependent on the rate of loading and the direct operating time. The rate of loading can be improved by (i) changing the design of the bucket through changing the bucket size from 3.1m³ to 3.5m³, (ii) reducing the cycle times through reduction of tramming distances from a current average of 200m to less than 147m, (iii) improving the fill factor by improving blast fragmentation to >95% passing through 300mm*300mm. Direct operating time can be increased by reducing lost time at changeover by staggering the shifts of LHD operators so that hot seating is done. Blast re-entry time can also be minimised by introduction of exclusion zones within the mine where certain areas not affected by blast can be granted immediate re-entry so that the sections are cleared well in time. Machine availability improvement

T100 NO OF DAYS IN MONTH (no of)	30	30	30	30	30
LHD AVAILABILITY (%)	84%	84%	84%	90%	90%
T200 UPTIME (No of days)	25.2	25.2	25.2	27	27
D000 DOWNTIME LHD DOWNTIME (No of days)	4.8	4.8	4.8	3	3
D200 SCHEDULED MAINTAINANCE (No of days)	2.0	2.0	2.0	0.0	0.0
D100 UNSCHED MAINT & OPERATIONAL STOPS (No of days)	2.8	2.8	2.8	3.0	3.0
D100 UNSCHED MAINT & OPERATIONAL STOPS (hours/day)	2.4	2.40	2.40	2.57	2.57
L300 DELAY SHAFT CLEARANCE (hours/day)	1.0	1.0	1.0	1.0	1.0
L300 DELAY RE-ENTRY (hours/day)	1.0	1.0	1.0	1.0	1.0
L300 DELAY DAY-SHIFT DOWN/DISCONNECT/TEST FOR GASSES	1.0	1.0	1.0	1.0	1.0
L300 DELAY WATER DOWN/BAR DOWN/ROUTE INSPECT (hours/day)	1.0	1.0	1.0	1.0	1.0
L300 DELAY SHIFT CHANGE OVER (hours/day)	0.5	0.5	0.5	0.5	0.5
T300 DIRECT OPERATING(LASHING) TIME (hours/day)	17.1	17.1	17.1	16.9	16.9
MAXIMUM AVERAGE TRAMMING DISTANCE (metres)	147.0	159.0	171.0	147.0	147.0
BUCKET SIZE (m ³)	3.1	3.1	3.5	3.5	3.5
FILL FACTOR %	70.0%	80.0%	90.0%	90.0%	90.0%
BUCKET CAPACITY (tonnes)	4.3	5.0	6.3	6.3	6.3
AVERAGE HAULING SPEED FULL (m/minute)	75.0	75.0	75.0	75.0	75.0
AVERAGE HAULING SPEED FULL (Km/hr)	4.5	4.5	4.5	4.5	4.5
AVERAGE HAULING SPEED EMPTY (m/minute)	88.3	88.3	88.3	88.3	88.3
AVERAGE HAULING SPEED EMPTY (Km/hr)	5.3	5.3	5.3	5.3	5.3
LOADING TIME (mins)	2.8	2.8	2.8	2.8	2.8
HAULING TIME WITH FULL LOAD (mins)	2.0	2.1	2.3	2.0	2.0
TIPPING TIME (mins)	0.4	0.4	0.4	0.4	0.4
HAULING TIME WITH EMPTY (mins)	1.7	1.8	1.9	1.7	1.7
TOTAL CYCLE TIME FOR ONE LOAD (mins)	6.7	7.0	7.3	6.7	6.7
M2 BLASTED PER BLAST (m ² /blast)	35	35	35	35	35
TONNES PER BLAST (t/blast)	229	229	229	229	229
T300 TIME TO CLEAN A 12M BORD (hours)	5.9	5.4	4.4	4.1	4.1
T300 P101 TONNES/HOUR (WHILST LASHING) (tph)	39	42	52	56	56
P101 LASHING (tpm/LHD)	18,487	20,240	24,672	26,567	26,567
P101 LASHING (tpd/LHD)	616	675	822	886	886

from 84% to 90% will also greatly improve immediately move in to cover a machine the lashing and this can be achieved by that goes on breaking. providing swing machines which



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Over US\$34 million in funding for the Zulu lithium project



Chinese-owned Suzhou TA&A Ultra Clean Technology company has agreed to provide a pre-funding amount of US\$34,644,385 ("Pre-Payment Amount") to enable the construction and commissioning of a large-scale pilot plant at London Stock Exchange-listed commodity miner, Premier African Minerals' Zulu Project.

Rudairo Mapuranga

According to Premier African Minerals CEO George Roach, Suzhou TA&A has pledged to dispense an initial US\$3 Million into the commencement of the pilot project

"Upon the signing of the Agreement, US\$3,450,000 has been made (paid) immediately to Premier to commission the securing of the pilot plant. The remaining balance of the Pre-Payment Amount will be paid in one lump sum following completion of the transaction documents. Both Premier and Suzhou TA&A have agreed to use their best endeavours to complete the definitive transaction documents within one month of the Agreement failing which on written notice by Suzhou TA&A, Premier will be required to immediately refund the amount of

US\$3,450,000 to Suzhou TA&A from existing funds held by Premier," he said in a statement.

Repayment of the Pre-Payment Amount will be made by Premier from all residual funds from invoices raised by Suzhou TA&A from each monthly Accounting Period following the deduction of agreed Deductible Expenses incurred at the Zulu Project (being all costs and expenditures incurred including government royalties) and management fees to be paid to Premier, until such time as the Pre-Payment Amount has been fully refunded.

"Zulu Lithium Private Limited ("Zulu") and Zulu Lithium Mauritius Limited ("Zulu Lithium") will provide Suzhou TA&A with security over all existing assets including all the mining claims, and all other assets, company shares and inventory including SC6. To the extent that above security fails to cover any outstanding amounts under the Pre-Payment Amount, Premier has agreed to cover this shortfall by way of a cross-company guarantee.

"Repayment through invoices raised by Suzhou TA&A for shipped SC6 should commence no later than 31 March 2023 at

a minimum rate of 4,000 tonnes per month on a rolling average basis following first Concentrate Production ("Supply Commencement Date"). If the Supply Commencement Date does not occur by 31 March 2023 or there is a substantive delay in the subsequent supply of SC6, then Premier shall pay interest to Suzhou TA&A at a reasonable interest rate that represents Suzhou TA&A's actual funding cost for the delay. If the Supply Commencement Date does not occur on or before 30 May 2023, then Suzhou TA&A may terminate and seek repayment of the Pre-Payment Amount.

"Zulu and Zulu Lithium has the right to repay the Pre-Payment Amount at any point."

Marketing

Under the Agreement, Suzhou TA&A will have the right to acquire the first three years of production of SC6, or until such time as the Prepayment Amount has been repaid in full, whichever occurs later ("Term"). The Term of the Agreement can be increased by a further three years, subject to the mutual agreement between the parties.

The sale of SC6 will be priced at a discount conditional on the approval of the Minerals Marketing Corporation of Zimbabwe on the first 50,000 tonnes of SC6 shipped ("First Delivery") or until the Pre-Payment Amount has been fully liquidated, whichever occurs first. Following completion of First Delivery, the parties will agree to negotiate a discount based upon market conditions for the remaining Term. The purchase price will be subject to a floor price until such time as either the Pre-Payment Amount has been fully repaid or 31 December 2023.

Following successful payment of the Pre-Payment Amount, Suzhou TA&A shall have the right of first refusal to match any offer from another interested party to acquire SC6 from the Zulu Project should the parties not agree to a renewal of the Term. This right is subject to standard regulatory requirements, Commercial Best Practice, and the reasonable agreement of commercial terms.

Related Party Transaction

Following completion of the subscription agreement by Suzhou TA&A (the "Subscription") as announced on 8 March 2022, Suzhou TA&A is interested in 13.38 per cent. of the issued share capital of the Company. Accordingly, as Suzhou TA&A is currently interested in more than 10 per cent. of the issued ordinary share capital of the Company, the Agreement is a related party transaction for the purposes of Rule 13 of the AIM Rules. As previously announced, as Dr Luo Wei was nominated by Suzhou TA&A as a director of the Company, he is not independent for the purposes of the AIM Rules and the Agreement has therefore been considered by the Independent Directors (being the Board other than Dr Luo Wei).

The Independent Directors of the Company consider, having consulted with the Company's nominated adviser, Beaumont Cornish, that the terms of the Agreement are fair and reasonable insofar as Shareholders are concerned. The Independent Directors have in particular taken into account that the Agreement provides the immediate funding to enable the construction and commissioning of a large-scale pilot plant at Zulu which the Independent Directors believe provides a significant opportunity at a time when

Spodumene prices are expected to remain high given current supply-demand imbalances. The Agreement also provides funding without the issue of any ordinary shares and therefore avoids dilution to shareholders at the current time.

Furthermore, in current market conditions, the Independent Directors do not believe that alternative funding would be currently available on acceptable terms to the Company.

The Independent Directors have taken into account the technical assessment and pilot plant proposal prepared by Stark International Projects Ltd ("Stark") and which is based on a relatively straightforward ore sorting and flotation circuits without the need for any large-scale chemical processing to isolate and produce the lithium-bearing spodumene. The Company has a fixed price contract with Stark for the pilot plant, and an economic assessment has been prepared by Bara Consulting (Pty) Ltd (based on the updated scoping study as announced on 16 August 2021) which also reflects that the mineralisation for the pilot plant is near surface. Based on this technical work, the Independent Directors are of the view that while the funding under the Agreement is secured on Zulu and is guaranteed by the Company itself, repayment to Suzhou through production at Zulu can be made

in a timely way.

The Pilot Plant

The pilot plant to be commissioned will utilise state-of-the-art sensor-based ore sorting technologies that will facilitate the separation of run-of-mine material into components and in so doing, likely increase available capacity in the flotation recovery circuits, where lithium minerals are recovered. Ultimate production and recoveries are a factor of many variables, and the pilot plant is likely to assist in dealing with these variables due to the inherent flexibility of the use of multiple ore sorters. Stockpiles of tantalum, petalite and Mica/lepidolite-rich material will facilitate further test work and flow sheet development to ensure that this material is truly inventory for later profitable recovery.

The pilot plant has a nameplate throughput of up to 190 ton per hour, however, it is planned to run at a more conservative 140 ton per hour at inception. At this rate and based on a 3-year life of the pilot plant operations only, excluding plant upgrades, tantalum recovery, petalite production and any other revenue, a series of sensitivities indicate a robust project and an assurance that Premier will become cash generative from the time of first shipment.

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MINE EMPLOYEES

Personal Accident Insurance

While most mining companies have adopted a "Zero Injury" policy and have installed good safety and health operational systems, employee injuries still occur even outside the company premises.

Personal Accident Insurance provides cover in the unfortunate event that an employee is injured, permanently disabled or dies due to covered accidental causes on a 24-hour worldwide basis whether they are on duty or at home.

The main benefits under this insurance policy are:

a. Death Benefit

The policy pays out the tax-free insured limit which is usually a multiple of the current gross earnings at the time of death or a certain stated limit.

For example, an employee with gross earnings of USD2,000 a month dies due to a covered incident, if the policy has a 3 years current earnings limit, their estate or

nominated beneficiaries would get USD72,000. If however the policy is a stated benefit policy with a limit of USD50,000, their estate or nominated beneficiaries would only get the limit stated.

The payment of the death benefit will be subject to the structure of the policy as some will pay via the mining company to the beneficiaries or payment direct to beneficiaries via the Master of High Court once the estate of the deceased is registered.

b. Permanent Disability Benefit

The policy pays out a percentage (%) of the death benefit where an employee becomes permanently disabled due to the occurrence of an insured event. For example, if an employee is injured at work and loses some fingers and the medical report determines that they are 10% disabled, the policy will pay out 10% of your death benefit.

c. Temporary Total Disablement Benefit

The policy pays out weekly earnings for an injured employee who is recovering at home usually for a minimum of 52 weeks. This enables the mining company to continue paying their employee whilst recovering but more importantly to hire a temporary employee to continue with their duties.

d. Medical Expenses Shortfall Benefit

The policy provides cover for medical expenses incurred due to the insured events. For example, if a road accident occurs and the employee is hospitalised the policy will pay for any medical expenses shortfalls (if they have an underlying medical aid) or fully (if they have no medical aid) up to the limit insured.

Talk to us today about Personal Accident Insurance cover for your mining operation. Tichaona Chihambakwe Head Business Development and Marketing - Firstlink Insurance Brokers.



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Association of Mine Managers of Zimbabwe Eureka Gold Mine visit



Delta Gold is happy with the relationship they have with their contract mining partner J R Goddard Contracting (Pvt) Ltd. This was revealed during the Eureka Mine, Association of Mine Managers Zimbabwe (AMMZ) technical visit last month.

Rudairo Mapuranga

According to Eureka Gold Mine, Mining Manager Mathias Gadze operations at one of the biggest gold mines in Zimbabwe are entirely outsourced to JRG who are also working with other contractors. He said the relationship between Delta Gold and JRG was strong and important to the objectives of the mine.

“We are now going into completing the first year of our relationship with our partners, particularly JRG and I would say this partnership is like a marriage. We understand each other despite the issues that are always there to be solved. Certainly, we look to have a very long robust relationship with JRG.

“Our mining operations are entirely outsourced to JRG, they provide all the equipment and do the mining, all the drilling, busting, loading and rolling. They have also partnered with KW Blasting

which does their drilling busting. They get explosives bulk emulsion locally that's basically the key input into the mining process. We have got a fleet of ten 50-toner 773 Cat dump trucks and on support equipment, we have dozers, graders and water cuts. We mine our ore in 5m benches but our waste is 10m. We blast an average two to three times a week. We blast ore and waste differently with a 1.2 powder factor in our ore but for our waste, it is 1.1. Our mine is generally very dry, we don't struggle with water except of course during the rainy season when we have to deal with rain inflows. The little we pump out from our pit, we use most of it on our roads,” Gadze said.

According to its current geological report, Eureka Gold Mine will produce nearly 23 million tonnes of ore in 2027 with gold production expected to be 1.8 tonnes in that month. In 2028 the mine expects to produce 11 million tonnes of ore with gold production expected to be a record 2.2 tonnes. However, in 2030, the mine expects its gold production to decline to 868 kgs from 1.9 tonnes in 2029. Last year the mine produced 537 kgs and is expected to produce slightly over 1.3 tonnes this year.

“We mine an average of 120 000 tonnes of ore and 450 BCM of waste, so on average

we are just 0.5 million in terms of BCMs, for a year we average 9.5 million tonnes ore but the peak is 22 million tonnes.

“The pit diameter is around 600m. We are advancing, we are sitting on the plus 10 years life of a mine. In terms of open-pit mining up to 300m depth based on the current resource model. There is work going we are confident is going to have an upside in terms of grade and life of mine, beyond that 300m economics permitting we will have another 300m of underground mine.

Local Geology

The main lithologies are Granodiorite and Archean Greenstone. Granodiorites are the main host for mineralization Gold mineralization is confined to quartz veins having E-W strike and dip ranging from 40 to 65 degrees S. The main reef varies in thickness from narrow stringers a few cm wide, up to zones that are 1.2 m wide characterized by multiple quartz stringer veins (sets). The main ore shoot plunges SSW, parallel to the nose of the folded granitoid. There are three main types of Ore: Streaky, Zebra and Molly. Minor Schist ore is also present.



Association of Mines Managers of Zimbabwe members pose for a photo

CRUSHING

Ore from the pit or ROM pad is screened by a 750x750mm static grizzly and passes into the 200-ton ROM bin. Ore to the jaw crusher regulated by 3 ross type chain feeders and a Nordberg vibrating grizzly (110mm). The monthly throughput averages 100,000 tonnes. The coarse ore stockpile has a live volume of 50,000 tonnes. Ore from the coarse ores stockpile feeds to secondary and tertiary crushing by 5 VSD Vibro-feeders (2 online) which are interlocked with the tertiary feed bin. Ore is screened by a double-deck screen (50mm top deck, 15mm bottom deck). The feed to the 15mm tertiary feed screen is regulated by a Vibro-feeder with a VSD and is interlocked with the crusher cavity level. Material going to fine ore stockpile is - 15mm at 220tph. Sampling of the fine ore is done using both manual and automatic sampling. The fine ore is fed onto a 30000t fine ore stockpile (live volume 10000t).

MILLING

Ore from the fine ore stockpile is fed to the mill feed bins by 5 constant speed Vibro-feeders (2 duty). Ore to each mill is controlled by a Weightometer. The two

milling circuits are identical. Ore size is 80% passing 8mm for optimum grinding. The mills are 2200kW, 14X22 feet overflow discharge ball mills with a design tonnage of 75tph with 63.5mm steel balls. The monthly throughput is an average of 100,000 tonnes. Milling throughput per day is measured by a flowmeter and density metre system. Mill discharge is fed to 12 cyclones (8 duty, 4 standby) at a rate of 260t/h by 2 cyclone feed pumps (duty/standby). Sampling for metallurgical accounting is done on the mill feed, cyclone overflow and cyclone underflow. P80 for the cyclone overflow is 75microns which is fed to the CIL circuit. Underflow is split and one goes to the KCDX30 Knelson concentrator with a cycle time of 45 minutes per batch via a 2mm gravity scalping screen. Concentrates deposited to the C22050 Consep Acacia reactor for intensive leaching and tails go to the mill discharge hopper. Leachate goes to electrowinning.

CIL and REDUCTION

Overflow from both mills fed to the hybrid CIL circuit (2X550m3 pre-leach tanks and 7X1100m3 CIL tanks) via the distribution box where liquid sodium cyanide (25%) is

dosed using an online cyanide analyser (TAC-1000) at 45% solids, 250tph. The residence time for the circuit is 33.3hrs. Carbon is fed to CIL 7 and moves counter-current to the slurry. A total of 100t of carbon is optimum for the circuit.

Oxygen is supplied via sparge air and hydrogen peroxide (pre-leach 1 and CIL 2). Carbon harvesting is done from CIL 1, a total of 2.5t per carbon harvest batch. Harvested carbon is transported to a 2.5t carbon harvest tank, acid wash column then elution column. AARL elution is employed with 2hrs heat and soaking at 125°C (0.1% cyanide and 3% caustic soda), then a 4hr transfer stage to the electrowinning circuit (58m3). There are 2X80m3 electrowinning tanks. One elution is mixed with one ILR batch for one 12-hour electrowinning batch. Electrowinning is conducted using 4 Kemix cells (6 cathodes and 8 anodes) at 950mA and less than 4V. Gold sludge is washed off the cathodes using a pressure washer, decanted and calcined at 450°C. Calcine is fluxed (25% borax, 12% silica, 10.5% soda ash & 2.5% nitre) and then smelted at 1200°C for 2.5hours to get gold bullion which is then shipped to FGR.



Bikita Minerals' heavy machinery for high productivity



When Mining Zimbabwe visited the Sinomine Resource Group-owned Bikita Minerals we were astounded by an impressive fleet of Bell B30E and B25 dump trucks alongside Volvo EC480DL crawler excavators, CAT dump trucks, a Liebherr bulldozer and other heavy equipment.

The Mining fraternity descended on the small town of Bikita to witness the groundbreaking Ceremony of the Bikita Minerals Spodumene project. The company has the potential to emerge as a key player in the rise and popularity of the battery manufacturing industry and it was inspirational to see the miner was well equipped with resources capable of catapulting Zimbabwe into the top 3 global lithium producers.

Bell B30E articulated truck

The Bell B30E articulated truck features

customer-focused advancements and high-level automated machine protection. The B30E platform has been specifically engineered to handle future emissions requirements and take ADT innovation into the next era.

Bell B30E Features

Targeting fuel operating costs, the B30E features optimized engine power and fuel consumption with software that controls retardation, cooling and charging of accumulators. Other E-series improvements also include Allison transmissions and changing the front suspension to an A-frame layout for a more independent ride. This series has an automatically engaged inter-axle differential lock (IDL) which gives the truck full automatic traction control, and a sensor identifies when an axle loses traction and engages the IDL function.

The Bell B30E has limited-slip differentials in each axle so the cross locking of wheels is automatically achieved with no operator interaction. With Fleetm@tics® Onboard diagnostics as a standard feature, the system can store up to 72 hours of machine operation, and there are proactive advance warnings for the hydraulic system. Cab improvements include a full-color screen and automotive mouse interface to control the sealed display unit. The Isringhausen seat has its own suspension and dampening system to reduce whole-body vibration and deliver a more comfortable ride.

Additional features include keyless ignition, HillAssist, Bin Tip Prevention, Auto Park Application, standard Turbo Spin Protection and standard On-Board Weighing.





VOLVO EC480DL

Operating weight 47,300 - 53,100 kg
 Gross power 270 kW
 ...at engine speed 1,700 rpm
 Bucket capacity 1.77 - 3.8 m³
 Lifting capacity, along undercarriage 15,670 kg
 ...at reach / height 6 / 1.5 m
 Max. digging reach 13,260 mm
 Max. digging depth 9,170 mm
 Breakout force, SAE J1179 (Normal) 230 kN
 Breakout force, SAE J1179 (Boost) 251 kN
 Tear out force, SAE J1179 (Normal) 160 kN
 Tear out force, SAE J1179 (Boost) 174 kN
 Overall width feet inches 3,440 mm
 Tail swing radius 3,800 mm



TECHNICAL SPECIFICATIONS FOR Bell B25D ADT

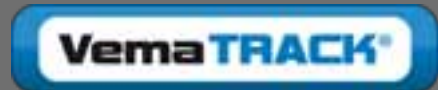
Key features:
 Gross Power: 205 kW
 Gross Torque: 1 120 Nm
 Rated Payload: 23 200 kg



Breaking ground: President Mnangagwa operating a Sany excavator at Bikita Minerals



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Pomona Quarries acquires Zim's largest hydraulic hammers from Pelgin

In an endeavour to increase production and reduce noise pollution at its quarry mining operation in Pomona Harare, one of the country's biggest quarry extractors Pomona Stone Quarries has acquired an EPIROC HB 3600 hammer from Zimbabwe's official Volvo dealer, Pelgin Consulting Services.

Rudairo Mapuranga

Pelgin Managing Director Mr Gary Moorcroft handed over the EPIROC HB 3600 hammer to Collin Campbell of Pomona Stone Quarries at a ceremony held at the quarry extraction site in Pomona. An EPIROC HB 3600 hammer is one of the biggest hydraulic hammers in

the country.

Although high efficiency has always been the focus in designing Epiroc hydraulic breakers, the HB 3600 units enjoy even greater efficiency than their predecessors in the heavy breaker range. Better utilisation of the hydraulic input from the carrier has been achieved through innovative technology and the highest manufacturing standards.

According to Campbell, Pomona bought the hydraulic hammer from Pelgin to reduce noise pollution usually caused by blasting as well as to improve on hammering speed.

"We were getting a lot of complaints from our neighbours, so this hammer will help reduce noise pollution and increase hammering time," Campbell said.

The simultaneous purchase of the Volvo EC480DL Excavator is a perfect carrier for this large hammer. This Volvo Excavator is a 50 ton machine and compliments the other Volvo 70 ton excavator that is at Pomona Quarries. This also gives Pomona Quarries flexibility as the Volvo EC480DL can also be used as an excavator by removing the hammer and fitting the supplied bucket which is 2.66m³ in capacity.





EPIROC HB 3600 Featuring Auto Control

AutoControl is a solution which boosts the productive performance of Epiroc hydraulic breakers. The system automatically controls the breaker's output to suit the working conditions and rock hardness, thereby creating the perfect benefit for users: maximum blow frequency for soft materials, and maximum single-blow energy when things get tougher.

Advantages of Auto Control

- helps to achieve consistently high productivity through the adjustment of single-blow energy and blow rate as from the first impact protects both the breaker and carrier unit during idle strokes
- raises efficiency through energy recovery and precise control of piston movement under the most diverse working conditions

- minimises the tendency of idle strokes in soft material

- always starts with reduced single-blow energy

- easy handling with "centring" of the tool

DustProtector II and VibroSilenced

This helps in protecting both the hammer unit and the bushings against damage as well as premature wear. This protective feature, unique with its two stages and only available with Epiroc hydraulic breakers, can optionally be installed on all HB breakers. With VibroSilence With this, it is no coincidence that Epiroc breakers are among the quietest on the market. This has been proven by measurements based on Directive 2000/14/EC, which gives a guaranteed sound power level of 121 dB (A).

WHY VOLVO ARTICULATED HAULERS ARE A CUT ABOVE THE REST

From developing the first series manufactured articulated hauler more than 55 years ago, Volvo Construction Equipment (Volvo CE) is continuing to dominate the field, with articulated hauliers that really pack a punch – delivering optimum performance at the lowest cost per ton.

Committed to innovation and development, Volvo CE continues to evolve its range of articulated hauliers, making them even smarter, more efficient and easier to operate.

Uptime is maximized too, whilst maintenance costs are kept to a minimum, reducing the total cost of ownership.



EFFICIENT OPERATION WITH HAUL ASSIST

The Haul Assist suite of tools is a game-changing solution designed to get the most out of the Volvo Articulated Hauler. Powered by a 10" Volvo Co-Pilot monitor – which is available on a variety of machines from hauliers and excavators to pavers – it provides valuable insight to help customers optimize the efficiency of their haul cycles and boost profitability.

A new addition to Haul Assist, the Tire Pressure Monitoring System enables monitoring of tire pressure and temperature from the comfort of the cab. Inflation pressure having a marked impact on tire wear, proactive monitoring is invaluable to optimize tire life as well as fuel efficiency, machine performance and operator comfort.

Map provides a real-time overview of the on-site traffic to help navigate around more effectively. The whereabouts of every machine and vehicle – irrespective of the type or brand – as well as visitors on site are now visible, so long as they are connected to the map application. Alongside haul roads, Map also shows load and dump zones, and flags single-lane sections, restricted zones and speed-restricted areas, helping to anticipate operating

decisions and reduce unnecessary stops.

Also part of Haul Assist is On-Board Weighing, a proven tool that allows payload information to be viewed in real-time, helping to eliminate carry-back and overloading.

As well as boosting productivity, this also reduces excessive fuel consumption and machine wear and tear.

SMARTER PERFORMANCE

Operator comfort has always been at the heart of design – from the centrally-positioned operator seat offering excellent visibility, through to user-friendly controls.

And a range of automated functions is now offering even more support to enhance ease of operation and performance.

Terrain Memory is a handy feature of the intelligent Volvo drivetrain that identifies and remembers slippery road segments to ensure optimized traction control and off-road mobility. OptiShift enables fast and smooth directional changes, whilst Downhill Speed Control automatically maintains a constant speed when operating on downward gradients; both these, and the Cruise control function, are fitted as standard since 2019 and are

available for retrofit on older haulers.

MAXIMIZING UPTIME, MINIMIZING MAINTENANCE COSTS

Not only easy to operate and highly efficient, Volvo Articulated Haulers are also designed to be easy to service. Daily or even weekly greasing is a thing of the past, required instead every 250 hours on a Volvo Articulated Hauler, the longest time interval in the industry. Add to this long engine service intervals – up to 1,000 hours on Stage V and Tier 4 Final models – and less than half the fluid volume of most of its counterparts when measured over the lifetime of the machine. The result is reduced maintenance requirements and consumables, helping to keep the machine at work while lowering maintenance costs and environmental impact.

The improvements introduced to Volvo Articulated Haulers are delivering both performance and cost advantages for customers. New work-enhancing tools and straightforward servicing are just some examples contributing towards more profitable – and sustainable – operations. All part of Volvo CE's commitment to drive transformation in the industry and achieve its goal to have net zero value chain emissions by 2040.

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