

MINING & TRADE Review



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MINING

## Perekezi presents mining corruption risk assessment to parliament

#### **By Wahard BETHA**

Perekezi Consultants, a mineral sector consulting firm, has presented before the Parliamentary Committee on Natural Resources and Climate Change (NRCC) its assessment on corruption risks in mining sector mainly on energy transition minerals. With funding from United States Agency for International Development (USAID) under the Just Energy Transition (JET) Perekezi is conducting a project to promote transparency and accountability in mining sector.

In an interview at the meeting, Perekezi Consultants Managing Partner Chikomeni Manda said the meeting with the parliamentarians was to remind them of their oversight role in ensuring that no corrupt practice occurs in the mining sector.

Manda said: "We brought the issues about transparency and accountability in the mining sector as part of our project which is looking at the potential of corruption in energy transition minerals."

"Probably you heard about the world changing from fossil fuels to clean energy so we are implementing this project to ensure that parliament, media and Civil Society Organizations (CSO) are playing their oversight roles very seriously to ensure that mining activities are happening transparently without any forms of corruption."

"Under this project, we developed a corruption risk assessment. We are not saying there is corruption going on but there is a risk, and we want the loopholes closed."

The assessment identified mining stages of higher corruption risk potential namely: license granting process; operational and compliance; renewal and expansion of applications; application submission and initial renewal and; disposal and cancellation stages.

The report says mitigation measures to prevent corruption occurrences within the sector includes: ensuring integrity in the Mining Licensing Process to enhance transparency, accountability and efficiency of the process.

The assessment also calls for collaborative efforts to address the identified risk vulnerabilities and promote sustainable development in the mining sector.

Perekezi consultants also incorporated Malawi Extractives Industry Transparency Initiative (MWEITI) to present before the committee some of the strategies being implemented by the body in the fight against corruption in the extractives sector.

MWEITI Secretariat official Leonard Mushani presented a number of strategies including: EITI reports; development of Beneficial Ownership Disclosure (BOD); Contract Transparency (CT) study which comes up with contract portal and; establishment of MWEITI Anti-Corruption Strategy.

In his remarks, NRCC Chairperson Werani Chilenga welcomed the development but urged for more involvement of parliament in producing MWEITI reports.



Manda: We brought the issues about transparency and accountability

Chilenga said: "Our take on the fight against corruption in the mining sector is that we are already an oversight body for government as parliament but what we need as a committee is that we should be involved in EITI issues."

"They are already doing their job in producing reports but those reports have never come to parliament. We want those reports to be vetted by parliament so that by the end of the day members of parliament should have copies to show to their constituencies,"

Malawi became a member of EITI in 2015 and to-date it has produced six reports.

### UNEP Handbook inspires stakeholders to enhance safety of mining communities

#### By Modester MWALIJA

In response to the growing concerns about safety in mining communities, key stakeholders including the Chamber of Mines and Energy, civil society organizations working in extractives and mining companies have adopted the Awareness and Preparedness for Emergencies at Local Level (APELL) Mining Handbook developed by the United Nations Environment Programme (UNEP) in order to enhance emergency preparedness and uphold safety of mining communities.

APELL programme is a process which helps people prevent, prepare for and respond appropriately to accidents and emergencies. The APPELL Handbook, launched in 1988, sets out a 10-step process for the development of an integrated and functional emergency response plan involving local communities, governments, emergency responders and others. This coordinated effort aims to address the potential hazards associated with mining op-

erations, ensuring that local communities are well-prepared to handle emergencies. Coordinator of the Chamber of Mines and Energy, Grain Malunga, underscores the vital

role of coordination with local authorities and community leaders. He says "this collaboration ensures that risks are well understood and mitigation measures are effectively implemented."

Highlighting the proactive approach in identifying and evaluating hazards related to mining operations, Malunga explains that the Chamber organizes annual visits to mines to appreciate operational procedures and risks.

<sup>a</sup> These visits enable a first-hand understanding of the mining processes, allowing a comprehensive evaluation of potential risks and the development of appropriate mitigation strategies," Malunga states.

Coordinator for Natural Resources Justice Network (NRJN) Kennedy Rashid, emphasizes on the environmental, health, and socioeconomic hazards that mining can cause if done irresponsibly.

He says NRJN works diligently to educate communities about these risks and promote responsible mining practices.

Rashid points out the collaborative efforts through platforms like the Open Government Partnership, which address governance issues in the mining sector.

"We work together to ensure adherence to labour, health, and environmental management standards," he says.

Rashid explains that the CSOs have established action groups in mining hotspots which are equipped with skills in human rights, natural resources governance, and environmental management.

"This grassroot approach ensures that communities have the oversight and advocacy capabilities needed to engage effectively with mining companies and government agencies. These action groups play a vital role in monitoring mining activities, raising awareness about potential risks, and advocating for the rights and safety of community members.," he says.

Innocent Ndovie, Human Resources Manager at Akatswiri Mineral Resources says the company evaluates the specific risks including land subsidence, chemical spills, dust emissions, and extreme weather conditions through comprehensive assessments and continuous monitoring.

Ndovie describes their emergency response plan as thorough and multifaceted as its mitigation strategies include advanced dust control technologies, proper handling of hazardous materials, and regular equipment maintenance.

"It includes risk identification and assessment, specific response procedures, communication protocols, resource allocation, and regular training and drills. Coordination with local emergency response teams and community leaders is maintained through regular meetings, joint drills, and community forums," he elaborates. He said in order to ensure compliance with the APELL process, the company adopts its

He said in order to ensure compliance with the APELL process, the company adopts its guidelines and engages all relevant stakeholders in its trainings planning process.

"We conduct comprehensive on-board training, annual refresher courses, and specialized training for our emergency response teams with continuous improvements approach that involves regular reviews and updates based on feedback and evolving best practices," he explains.

This coordinated approach not only ensures that the mining industry can respond effectively to emergencies but also fosters a safer and more resilient environment for communities around mining operations. By working together and continuously improving their strategies, these stakeholders are paving the way for a more sustainable and secure future in the mining sector.



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### EDITORIAL



### We are thankful to stakeholders for the 15-year journey

It is 15 years now since the first issue of the then Mining Review which later rebranded to Mining & Trade Review was published.

As reported in our lead article, there are the stakeholders in the minerals sector that have kept the newspaper alive despite their own challenges.

The Ministry of Mining was the first to support this publication despite its own budgetary constraints, which attracted other stakeholders in the industry, mainly resource firms.

It is a symbol of goodwill from these stakeholders to support this publication that showcases the potential of Malawi's mining sector when they are going through a lot of challenges.

As reported in our lead article, the challenges are ranging from delays by Government to sign Mine Development Agreements (MDAs); slow pace is issuing mineral licenses; political interference; lack of necessary infrastructure and market hiccups for local producers including cement manufacturers.

We urge the government to address these problems to enable these players thrive which will enable the whole mining sector including businesses that are offering services to the industry such as Mining Review Publication to develop.

The mineral sector will not grow if we keep taking ages to conclude a single MDA for a resource firm.

We will create a fertile ground for corruption by taking ages to process mineral licenses and other relevant permits.

Political interference is another evil that needs to be checked. It was sad that after a transfer of power from the People's Party to Democratic Progressive Party in 2014, all oil and gas prospecting licenses for the six blocks in Malawi were suspended for over a year which was retrogressive as there was no activity in the upstream petroleum sector.

On lack of electricity from the national grid in potential mining areas, we feel the problem can easily be solved if the national power production increases. Importing electricity through the newly constructed Mozambique-Malawi interconnector should be the immediate solution. Sound price discrimination measures should be put in place so that the heavy industries that are seeking adequate cheap power should bear the cost of this imported electricity other than the poor household consumer.

The government also needs to strategically intervene in the cement market with deliberate measures to promote local production other than imports.

We feel by addressing these problems that these investors are facing in Malawi, Government will attract more investors and make the sector vibrant.

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### Mining regulatory authority awaits board appointment • Mining Company in pipeline

#### **By Wahard BETHA**

he Ministry of Mining says the long-awaited Mining and Minerals Regulatory Authority has now started functioning but what has remained is the appointment of the Board of Directors to make it fully operational.

Minister of Mining Monica Chang'anamuno told *Mining* & *Trade Review* in an interview that by the end of this month, the Ministry will finalize listing names of Board Members and submit to the Office of President and Cabinet (OPC) for approval.

The Authority has started operating under the new Mines and Minerals Act of 2023 which has been operationalized as published in the Government Gazette on June 28, 2024.

Chang'anamuno said: "Therefore, what we are waiting for is the appointment of the Board and then the Board is going to recruit the Director General."

"Let me also say that now all the issues to do with regulations are going to be expedited."

The Authority will be responsible for: receiving and processing license applications for mining companies; granting, revoking and amending licenses under the Act; approving taxes and; monitoring, inspecting and enforcing compliance by licensees with licensing conditions granted under the new Act.

Apart from the Authority, the Minister also disclosed that the Ministry is finalizing establishment of the state-owned mining company.

Chang'anamuno said what has remained for the company to start working is the recruitment of the members of staff.

She explained that all these initiatives are being implemented to ensure that the mining environment is conducive to hold be and foreign investors.

to both local and foreign investors. Chang'anamuno said: "On the mining company, we are working hand in hand with OPC as well as Department of Human Resources Management and Development (DHRMD) so that we should have the staff."

"All the paper work and everything else has been done,



Chang'anamuno: We are waiting for appointment of Board

and we are glad that the budget for this year has given us resources for the operationalization of the mining company." The state-owned mining company will play a major role

in exploiting the country's natural resources and managing the extractive sector.

The Company will also have the opportunity to generate revenue for the state, enable government to exercise greater control over the sector, help improve local technologies and skills and manage exposure of energy transition risks.

Besides pursuing its own investments in strategic minerals, the state-owned mining company is expected to partner private mining companies in various mining projects.

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#### MINING ARS ANNIVERSARY AMIDS NDUSTRY W



Chang'anamuno during her visit to Songwe HIII in Phalombe where she pledged to conclude MDA for Mkango Resources

#### By Marcel CHIMWALA

Mining & Trade Review has clocked 15 years in news publishing. Despite the newspaper playing a major role in creating awareness on mining issues, our analysis indicates that Malawi's minerals sector is dogged by a host of challenges that are obstructing growth of the potential sector whose contribution to gross domestic product (GDP) remains rooted at a staggering one percent.

The challenges that *Mining & Trade Review* has reported over the years range from de-lays by the Government to sign Mine Development Agreements (MDAs) with foreign mining investors; slow pace is issuing mineral licenses; political interference; lack of necessary infrastructure for development of mining projects; lack of access to financing for medium scale and artisanal and small scale miners (ASMs); slow pace in formalising ASMs and market hiccups for local producers including cement manufacturers.

#### **Delays in signing MDAs**

n 2009 when the first issue of the then Mining Review which later rebranded to *Mining & Trade Review* was published, Malawi saw Kayelekera Uranium Mine in Karonga coming into production as the first ever large scale mine in the country. ASX-listed Paladin Energy through its local subsidiary Paladin Africa operated the mine with the Malawi Government as a minority shareholder with 15% shareholding. Unlucky for Malawi, the mine was put on care and maintenance in 2014 to preserve its longevity due to sustained low uranium prices in the wake of the Fukushima Nuclear Disaster in Japan which re-sulted in the closure of some nuclear plants in so doing negatively impacting on the market demand for the yellow cake.

With production halted at Kayelekera, Malawi is left without a large scale mine in operation despite hosting proven mineral deposits that can support large scale mining operations. Over the last 15 years, the Government has only concluded MDA negotiations for the Kanyika Niobium Mining Project in Mzimba.

The Malawi Government is for some years now continuing negotiations for MDAs with ASX-listed Lotus Resources to resume mining at Kayelekera and Mkango Resources to start rare earth production at Songwe Hill in Phalombe. Analysts say these delays in finalising MDAs are a major stumbling block to the growth

of the minerals sector in Malawi.

But Government says it is not concluding the MDAs with the two companies because they are seeking tax incentives unlike Globe Metals. Minister of Mining Monica Chang'anamuno said: "The process has taken a bit longer

as the Government is ensuring that the agreements favour and benefit Malawians and that they are not raw deals like some agreements before.

"For your information Government does not want to rush into signing an agreement that would hurt Malawians and the economy of the country. "However, as government we are determined to conclude the negotiations as soon as

we reach a win-win situation. But Coordinator for Chamber of Mines and Energy Grain Malunga backed the compa-

nies in seeking tax incentives. Writing in his Technical File column in *Mining & Trade Review*, Malunga said: "It

should be emphasized that investment incentives that are granted in projects with marginal profits can go a long way in building history of mining through attracting more min-"It is not enough to talk about investment subsidy or governments losing potential rev-

enue through tax incentives without understanding mining project risks.

'In order to believe that government negotiates in good faith for the benefit of its citizens, there is need to be transparent in all contract dealings.

#### **Delays in issuing mineral licenses**

Players in the sector have also complained about delays by the government in issuing various mineral licenses and permits.

Speaking on behalf of private resource firms during this year's Malawi Investment Forum in Lilongwe, Chairman of leading mining and mineral consulting group Akatswiri Holdings Hilton Banda urged State President Lazarus Chakwera to ensure that bureaucratic procedures for acquiring licenses and signing agreements are simplified in order to do away with delays of mining projects.

This is a young sector, and its challenges are enormous, and therefore, we will continue to count on Government's support to realise the full potential of this most promising sector," said Banda, hinting that with the current projects' projection, mining will be contributing 10% to GDP by 2030 if challenges in the sector are addressed.



Potential project: Drilling works at Kangankunde Rare Earths Project in Balaka

#### **Political interference**

Over the years, Mining & Trade Review has also unearthed acts of political interference in the sector. Chief among the issues is the recent review of the Mines and Minerals Act 2019 to replace it with the 2023 Act.

Our investigations revealed that politicians bulldozed the Bill to formulate this new Act without consulting key stakeholders including the Chamber of Mines and Energy in Malawi (CMEM), Civil Society Organizations (CSOs) and Artisanal and Small Scale Mining (ASM) groups.

Malunga confirmed in an interview that the Ministry of Mining did not engage the

Chamber even any member of the group in formulating the Act. Malunga said: "We were not engaged. My views are well known. Malawi is a country with a Mining Regulatory Authority with no clear mandates for Geological Survey Department and Department of Mines." In a separate interview, ASM subsector consultant Chikomeni Manda concurred with

Malunga of not being engaged describing the development as undemocratic.

Manda said Malawi is a democratic country which should have been giving all stakeholders and players in the industry an equal opportunity to participate in formalization of any document.

He said: "Lack of consultations deprived the citizens of a chance to contribute important issues which were left out in the Act."

try. What Government did should have never happened in a democratic country like Malawi."

Natural Resources Justice Network (NRJN) Programs Coordinator Joy Chabwera said missing of the CSOs during consultations means the Government is not serious with the sector as the organizations ensure that the law benefits all players in the sector.

He said: "CSOs were not consulted at all. It is also unfortunate to learn that mining companies were also not even engaged and these companies are complaining maybe they see some areas in the Act that are not in their favour.'

Among other things, the new Act has introduced the Mines and Minerals Regulatory Authority whose governance roles appear similar to those of the Departments of Mines and Geological Survey.

It has also given powers to the Minister of Mining to decide on whether Government should acquire minority shareholding in a large scale mine and the amount of stakes while the old Act spelt clearly that Government can acquire up to 10%

Mining Sector Consultant Peter Chilumanga commented that the Malawi Government needs to learn from other countries in the region when formulating laws in order to excel in the extractive sector.

Chilumanga said: "Obviously most of the countries have clear cut and transparent laws and policies with regard to fiscal issues."

"The investment fiscal regimes guidelines are specific and not based on a determination of one person.'

"What is wrong in putting it as was in the old Act and in synchrony with Africa Mining Vision and Southern Africa Development Community (SADC) regimes?"

#### Shortage of infrastructure

Another issue we have reported on over the years as choking the development of mining projects is the shortage or poor condition of public infrastructure in mining areas.



Kayelekera is the only large scale mine that operated in Malawi

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Exploration at Kasiya Rutile-Graphite Project in Lilongwe which is world's largest rutile deposit

For example, though it has a valid mining licence, Chinese firm MAWEI Mining is fail-ing to start minng heavy mineral sands in Mangochi-Makanjira due to the site's lack of access to electricity and lack of proper transportation models to ferry the minerals to the seaports to get them to the world market.

The company requires approximately 3MW to kick-start the project and 10MW for the rest of the mine life, and there is also a need to operationalize lake transport services from Makanjira to Chipoka to connect to the railway to Nacala for exporting. Former PRO for Ministry of Mining Christopher Banda reportedly said in an interview: "MAWEI Mining obtained the mining license in 2017 and when we inquired why they remained dormant they cited rains, insufficient power and transportation constraints as key setbacks.

Heavy mineral sands have highest potential to boost revenue generated from local extractive sector as these type of minerals are in a class of ore deposits which are an important source of zirconium, titanium, thorium, tungsten, and rare-earth elements, which are also fairing good on the market."

Besides Makanjira Heavy Mineral Sands Project, there are a number of mining projects that require electricity from the national grid including Songwe Hill Rare Earths in Phalombe, Kayelekera Uranium in Karonga and Kanyika Niobium in Mzimba.

Speaking at the National Mining Investment Forum in Lilongwe, Director of Energy Services in the Ministry of Energy Joseph Kalowekamo said that all existing and planned mining projects that were assessed by the Ministry of Mining were visited by Ministry of Energy to appreciate their energy requirements.

He said the projects were then included in the power demand forecast that Ministry of Energy has produced covering the period from 2022 to 2042.

'Currently, our installed generation capacity stands at 555MW, of which 402MW is from hydro and 101MW is from solar and then there is 52MW from diesel power generation. The mining sector demand stands at 246 MW," said Kalowekamo.

Commenting on the issue in the panel discussion at the Forum, Malunga stressed on the pressing need for additional resources highlighting that the country does not have enough energy to drive the mining sector.

We need more hydropower generation to be fed to the national electricity grid," said Malunga

The Ministry of Energy is projecting planned investments of approximately US\$3.5 bil-lion to meet the estimated energy demand by 2040. These investments include the development of hydro, solar, wind, and gas power plants.

Besides energy hiccups, lack of transport infrastructure is another challenge as many mining sites are located in remote areas which are not covered by the national transport network.

Speaking at the Mining Investment Forum, Minister of Transport and Public Works Jacob Hara spelt out the need for collaboration between mining companies, the Ministry of Mining and the Ministry of Transport to come up with plans that can benefit the two sectors

Hara said: "We need to address the mentality that the government owe us good roads. Everyone should be responsible for providing the good roads through the road tolls and we can have special arrangements with the mining companies focusing on maintaining the roads that they use frequently.

'Malawi's decision to join the Central Corridor Transport Facilitation Agency shows government's determination to address challenges in the mining sector and elevate transportation infrastructure to new heights."

With ambitious plans to revitalize rail networks and enhance road connectivity, Malawi is heading to the new era of economic growth and development for the betterment of its citizens and the broader international community.'

#### Local cement market hiccups



Fruits of mining: Cement Products constructed a clinic for rural community at Njereza in Mangochi



Fruits of the industry: Globe Metals & Mining donated desks to Kanyika Community Day Secondary School in Mzimba

With the Electricity Supply Corporation of Malawi (Escom) struggling to meet energy demand, heavy industries such as cement manufacturers opt for coal to power their machines. However, this alternative is also proving unsustainable for the cement producers as they

are failing to import coal from Mozambique due to foreign exchange shortages. Local coal miners are also failing to meet the demand of the industry as they are strug-gling to acquire loans to expand their operations with coal blacklisted by a number of financial institutions as environmentally destructive.

"We may have to stop our cement plant indefinitely as we try to get coal," said Chairman for Cement Products Limited Aslam Gaffar, whose company has a clinker plant and

cement mill in Njereza, Mangochi with a limestone mine in nearby Maera Village. Shayona Cement Corporation, which has its factory and limestone mining operation in Kasungu, is also struggling to import coal and other raw materials due to foreign exchange shortages.

These challenges dogging the cement producers have led to a decrease in cement production hence the government resorts to issuing import licenses for cement to traders to address the shortfall.

But Mining & Trade Review investigations have revealed that importation of cement has not entirely helped in normalising the situation on the market as traders are selling the foreign brands at the same price with local brands of similar strength yet in a normal situation the foreign brands would have fetched higher prices taking into account transport cost and surcharge. Such a situation has resulted in a general rise in the prices of cement.

#### Slow pace on formalisation of ASM activities



Small scale miners need to be formalised

Artisanal and Small-scale mining (ASM) in Malawi remains informal but Government is taking steps to formalise the activity by facilitating formation of ASM cooperatives, which can be easily reached with training programmes and loans for financial capital.

Director of Mines in the Ministry of Mining Samuel Sakhuta told Mining & Trade Review in an interview that the Ministry has facilitated the formation of over 18 cooperatives in different parts of the country.

"We are trying our best so that we control this practice of illegal mining and make sure that the best methods and recommended tools are used," he said

He said the Ministry is continuing its routine programme of training, teaching, advising, monitoring and inspecting the small scale miners on proper mining methods to minimize accidents that have also resulted in deaths in ASM hotspots.

'It is through these cooperatives that the Ministry is planning structured training. Our officers will continue training small scale miners on proper mining methods as they need to use recommended and appropriate equipment to minimize accidents associated with ille-

gal mining," he said. But the ASMs interviewed by Mining & Trade Review said they are not satisfied with the pace of the formalisation process which they described as slow.

MD for Maleta Gems and Jewels urged the Ministry of Mining to expedite the process, and establish a loan fund for ASMs.

Maleta said that it is painful to the ASMs to see that the mining sector is not being financially supported by government yet other economic sectors are heavily supported technically and financially citing agriculture which is enjoying substantial support through projects like the Agricultural Commercialization (AGCOM) and the National Economic Empowerment Fund (NEEF).

"It pains to read, hear and see that our counterparts in small-scale agriculture are heav-ily supported technically and financially, talk of extension workers/officers, AGCOM with its billions of kwachas to support the cooperatives and recently NEEF, nothing is being done to small scale miners other than hearing from the government that mining is the main thing and touted to replace agriculture in the coming years. How do we achieve this with-out investing in the mining sector?" he questioned. For Mining & Trade Review, it has been a fruitful 15 years of putting to light pertinent

issues to help the sector grow. The journey continues!

## Ministry beckons diaspora community to invest in Malawi minerals sector

**By Wahard BETHA** 

he Ministry of Mining has urged Malawians living in diaspora to invest in Malawi's mineral sector which offers abundant investment opportunities.

Speaking during a virtual meeting which the Ministry organized to engage Malawians living abroad, Minister of Mining Monica Chang'anamuno said the Ministry has developed and continues to develop incentives favorable for investors.

Chang'anamuno encouraged Malawians in diaspora to consider forming partnerships in large-scale mining investments besides exploring various opportunities available in Malawi's mining industry.

She said: "I want to assure you that the Malawi government is committed to creating a conducive environment for investment, with transparent regulations, efficient permitting processes, and support for responsible mining practices."

"We are actively working to streamline procedures, enhance infrastructure and strengthen governance to facilitate and safeguard investments in our mining sector."

"This forum, therefore, serves as a platform for dialogue, knowledge sharing, and networking, where we can exchange ideas, forge partnerships, and chart a course towards maximizing the potential of Malawi's mining sector."

"I would like, therefore, to encourage you to explore the opportunities available in Malawi's mining industry, whether in minerals such as uranium, rare earth elements, or gemstones."

Chang'anamuno said the government is open to partner with any potential investors interested to invest in any of the country's minerals.

She said: "We are eager to partner with investors who share our vision of sustainable development and are willing to engage local communities to ensure mutual benefits and longterm success."

"Together, we can harness the potential of Malawi's mining sector to drive economic growth, create employment opportunities, and contribute to the prosperity of our nation." "I look forward to engaging with you further and building fruitful partnerships that will benefit both investors and the people of Malawi."

The virtual diaspora meeting was held under the theme of 'Investing in Malawi's Minerals' as one way of spearheading the MW2063 Vision which is a blue print for national development and wealth creation.

Chang'anamuno said the virtual meeting is one way of implementing the Agriculture, Tourism and Mining (ATM) Strategy expounded by the State President Dr Lazarus Chakwera.

She said: "We are resolute and committed to unpack this through various interventions



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Chang'anamuno captured with her team

until we realize the dream of transforming Malawi."

"Our country boasts of a wealth of mineral resources, and we recognize the importance of attracting foreign investment to drive sustainable growth and development." "Investing in the mining sector in Malawi offers not only the potential for financial returns but also the opportunity to contribute to our nation's economic diversification and job

creation." The virtual meeting was also graced by Principal Secretary in the Ministry Joseph Mkandawire; Director of Geological Survey Department Stanley Nyama; Chief Inspector of Environment Mphatso Chikoti and Mining Surveyor Hillary Bandawe.

The meeting also included different presentations from the Ministry explaining on issues involving the Mines and Minerals Act as well as investment opportunities in the extractives sector.

Standard Bank Plc (Malawi) Head of Business and Commercial Banking Graham Chipande unpacked issues of financial interventions that the Bank is implementing to support the sector.

Chipande said: "Malawi's mining sector holds immense potential for driving economic prosperity, job creation, and infrastructure development." "The private sector plays a crucial role in the development of Malawi's mining industry,

contributing significantly to the country's economic growth and development." The virtual diaspora meeting follows a successful inaugural 2024 Mining Investment Forum that Malawi held in Lilongwe.

### Lilongwe City Council issues warning against illegal sand mining

#### By Modester MWALIJA

The Lilongwe City Council has issued a firm warning to residents and unauthorized miners to cease illegal sand and gravel mining activities on council grounds without proper approval.

This announcement comes as part of a broader effort to protect the city's environment and enforce local regulations stringently.

In an official statement, Lilongwe City CEO Dr. Macloud Kadam'manja stressed the seriousness of the issue saying, "any person or vehicles found excavating and loading sand illegally within the city will be guilty of an offence and liable on conviction to a fine or imprisonment".

The Council's announcement further detailed that starting from July 9, 2024, it would begin actively apprehending illegal sand miners. Confiscation of excavated heaps of sand found within city premises without proper approvals will also be enforced.

Kadam'manja said: "The Council will not hesitate to take action against those who violate these regulations."

"The Council's directive is a clear indication of the increased enforcement measures that will be implemented. Residents and illegal sand miners are urged to adhere to these regulations to avoid severe penalties."

"The Lilongwe City Council encourages all residents and businesses to comply with the new regulations and seek necessary approvals before engaging in any sand or gravel mining activities. The Council remains committed to working with the community to promote sustainable development and environmental stewardship."

Illegal sand mining has significant environmental impacts, including soil erosion, habitat destruction, and water pollution. The Lilongwe City Council's stringent measures aim to mitigate these effects and promote sustainable practices within the City. By enforcing these regulations, the Council hopes to protect the City's natural resources and ensure a healthier environment for all residents.

The City Council also does not allow quarry mining in the City but some residents are still indulged in the activity in several sites.



### An overview of Acid Mine Drainage (AMD) and its Effects on the Environment

cid Mine Drainage (AMD) is highly acidic water containing elevated levels of dissolved metals. It is an important environmental issue at international scale in so many areas where mining has taken place and mine wastes are the largest volume of materials handled in the world. Acid mine drainage may be present in all of these locations. Acidic drainage is caused by the oxidation of sulphide minerals exposed to atmospheric oxygen. Acid Mine Drainage is commonly associated with the extraction and processing of sulphide-bearing metalliferous ore deposits and sulphide-rich coal, acidic drainage that can occur wherever sulphide minerals are excavated and exposed to atmospheric oxygen. The most common sources of acid mine drainage are metals such as coal, zinc, lead, copper, silver, and gold arising from mining. They are released during exploration, processing/operation and closure through Mine dewatering, waste dumps and also disposal of tailings. The processes leading to acid mine drainage includes geochemical and microbial activities/reactions during weathering of sulphide minerals-pyrite (fools' gold) that are mostly found in coal, and overburden of mine materials. These are facilitated by solubility of metals due to low pH, oxidation of sulphide minerals through bacteria, air and water plus formation of sulphuric acid that increases the acidity. However, AMD can be worsened as a result of large-scale disturbances in the earth common in mining while other areas being transportation corridors and construction sites

#### 1. Effects of Acid Mine Drainage (AMD)

Throughout the world acid mine drainage is found in areas where mining is taking place. In most advanced countries, the mining industry's wastewater is monitored and they are held to strict standards, but in other parts of the world, there is little to no monitoring or restrictions on the mining industry and so they dump whatever and wherever they like and this may lead to protests and fighting between concerned citizens and the mining companies. Sometimes the people win and the mining company either pays a fine or has their licence suspended. In other mining areas, nothing is done and the pollution continues. Acid Mine Drainage is a by-product of the mining process (usually from abandoned mines, though in operating mines as well) and pollutes groundwater and waterways world wide. In mining settings, the technique which is most commonly used to ascertain the possibility for acid mine drainage is through geochemical sampling/assessment of various materials from the mine. This sampling maps the variability of specific geochemical parameters as well as acid generating characteristics

#### (a) Acid Mine drainage affect water resources.

• It causes precipitation of Ferric Oxide/hydroxides that causes a colour change to

orange in water bodies and rocks

- It releases toxic/heavy metals into streams due to increase in weathering of minerals.
- It leads to increased acidity and depletion levels of oxygen
- When acid mine drainage gets into water supplies, it can result in a wide range of serious health complications that include everything from nervous system damage to high blood pressure. When a person consumes water that contains elevated levels of toxic heavy metals, their health can worsen significantly in a short period of time

#### (b) **Biologically**

- It leads to low oxygen content and Ph endangering aquatic life
- · Precipitation of iron hydroxides causes increased turbidity and decreased photosynthesis.
- On biological resources it causes elimination of aquatic plants leading to a change in channel flow
- Corrosion of pipes, metals and also degradation of water supplies.

#### 2. Prevention of Acid Mine Drainage

Before a mine is selected, a geochemical assessment/sampling can be performed to determine if acid mine drainage is likely and what its effects would be. It must be noted that metal-bearing minerals are abundant in finely-ground mine tailings or fine particles of by-product from mining activities so much so that even tailings with 5% pyrite and arsenopyrite are high enough to produce acid mine drainage.

Acid Mine Drainage (AMD) can be offset or prevented by chemical treatment through the use of calcium oxide and anhydrous ammonia that act as alkaline substances thereby neutralizing the increased acidity by raising the pH. It also causes precipitation of metals present in solution into hydroxides and carbonates

It can also be prevented by passive treatment through creation of wetlands that can aid into removal of metals in solution through drainage acting as filtering process where suspended/flocculated particles are held on to the root system of the wetland plants. Aerobically wetlands facilitate oxidation and precipitation of metals while anaerobically it is a reducing agent for metals to sulphide form. In this way it also aids in neutralization of the acidity as well. The advantage of passive treatment is that it treats effluents without the use of power, which makes them more affordable when compared to active treatment systems.

Creation of open limestone channels also aids in oxidizing and precipitation of metals adding alkalinity to the water containing metals in solution. It is also argued that the best preventive method to treat acid mine drainage is reclamation which prevents air



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#### MINING& RADEReview

by Dr. Grain Wyson Phillip Malunga FIMMM Minerals, Geology, Environment & Corporate Affairs Consultant

MID JULY 2024

MINING

#### Abstract

Substantial deposits of glass sands occur in dambos around Mchinji. Recoverable reserves in six dambos amount to 1.6 million tonnes. Silica percentage for the sand varies from 96% to 99% while the iron percentage varies from 0.12% to 0.2%. The deposits are suitable for the manufacture of good quality glass. The Lake Chiuta sand bar is estimated to have 25 million tonnes of glass sand contain-ing 92.7% silica and 0.62% iron. Further beneficiation will improve the quality of the grand to make it guitable for the manufacture of plats class and only of the

sand to make it suitable for the manufacture of plate glass and amber glass containers. Scrubbing and magnetic separation can lower iron percentage and unlock more production of other glass products.

#### 1.0 Introduction

Mchinji glass sands exist in dambos within Map Sheet 1332D4 of the Malawi Survey Maps. They are within 110 km range west of Lilongwe and about 8 km to the south of Lilongwe - Mchinji tarmac and railway line (Figure 1). The dambos are located at Sankhani, Samphale, Chitapalume, Kafulama, Tsumba, Elenesito (Kanjira), Ngoni, Kapepe, Kadu and Jailosi.

Lake Chilwa Sand Bar has over 92% of its quartz within a grain size of 120 and 30 mesh. Glass sand or silica sand is a natural raw material composed largely of the mineral quartz (60-80% quartz). The sand as raw material should have a grain size of between 0.1 mm and 0.3 mm (130 - 52 mesh size) and a chemical composition of Fe203 (iron oxide) content that does not exceed 0.040 percent The purity of the silica sand determines its calor strength and alarity of the final product color, strength, and clarity of the final product.

#### 2.0 Silica sand deposits

Malawi has two types of silica sand deposits. These are dambo sand and beach sand. Known deposits include Mchinji dambo sand and Lake Chilwa sand bar (Table 1).

The geology of the area around the dambos is characteristic of the Mchinji group (Thatcher and Wilderspin, 1968) which is composed of quartzite, quartz-schist, and pelitic schist (Figure 2). The rocks are either fine-grained or coarse-grained. The fine-grained type is a source of the silica sands found in the dambos.

Mchinji dambo sand is a product of fluvial accumulation at the head of dambo close to

hills made up of quartzite schist and quartzo - feldspathic gneiss (Figure 1). Lake Chilwa sand bar is a 10-20 metre raised beach and about 40 km in length. It is well sorted in the middle containing mainly quartz grains. This section contains about 25 million tonnes of glass sand (Figure 2).

LOCATION	FeO CONTENT (%)	REESERVES
Mchinji Dambo Sand		720,140
Chimwang'ombe	0.12	128,212
Chitapalume	0.16	95,388
Tsumba II	0.19	134,390
Kachusi -Thumba	0.17	185,915
Nabviumi	0.19	36,650
Elenesito	0.20	139,585
Lake Chilwa Sand Bar	0.62	25,000,000

Both the western and eastern sections of the sand bar have very coarse to gravelly sand.

#### 3.0 **Economic assessment**

For this to contribute to industrialization and urbanization, we can utilize the sand directly for production of glass sheet, plate glass and amber containers (Table 2). Further processing can lead to produc-

parts)

Metallurgy

ii. Glass manufacturing (flat sheets and

v. Chemicals (Sodium silicate, silicon

Mulanje

Lake Chiuta





This can be achieved using processing method shown in Figure 3 and reduction of iron content through scrubbing and magnetic separation. Together with iron and steel, glass sheets constitute a major proportion of modern build-

ings. The project may not necessarily promote foreign direct investment as it involves an industrial mineral. It is a good candidate for import substitution of glass products and should be promoted by a State-owned enterprise to create jobs and promote new infrastructure development.



Glass sands are economically assessed through their chemical composition and physical characteristics. The best quality sands have very high silica content and low iron/chromium content. Iron and chromium have a colouring effect. Alumina makes the glass less transparent and makes melting difficult. A good sample should have a maximum Fe2O3 content of 0.06% and a maximum Al2O3 content of 0.1%. In terms of physical characteristics, the sand grains need to be sub-angular and also uniform in size within 0.2 and 0.5mm in diameter. This helps fast and even melt. Table 1 summarises specifications on chemical composition for glass sand as recommended by the Ceramic Society.

From the above chemical characteristics, it can be concluded that Mchinji dambo sand can be used in its raw form as a source for flint containers, sheet and plate glass, and coloured glass (See Table 1).

Table 1: Application of Malawi glass sand in its raw form						
PRODUCT	CERAMIC SOCIETY STANDARD		MCHINJI DAMBO SAND		LAKE CHILWA BEACH SAND	
	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>
Optical glass	99.8	0.02				
Flint containers and tableware	98.5	0.035				
Flint glass	95.0	0.035				
Sheet and plate glass	95.0	0.06	95.0	0.17		
Glass containers and window glass	98.0	0.3				
Green glass	95.0	0.3				
Amber glass containers	95.0	1.0			92.7	0.57



Further beneficiation can easily qualify them to be used for optical glass. **4.0 Conclusion** 

Glass sand will constitute an important component in urbanizing Malawi. This will offer flat sheets complementing iron and steel in the construction of modern buildings and save the environment through less use of burnt bricks. Manufacturing of amber glass containers or bottles will be promoted creating wealth and employment. This will be made possible through public and private sector participation in partnership with a Stateowned enterprise. This arrangement will help promote import substitution and empow erment of citizens through divesture of mature projects.

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## Lilongwe Water Board embarks on construction of service centres

#### **By Harry WITNESS MOMBANYAH**

ilongwe Water Board (LWB) has embarked on a project to construct a number of satellite service centres in the city.

Public Relations Officer for LWB Chisomo Chibwana told *Mining & Trade Review* in an interview that the aim of the project is to enhance service accessibility and operational efficiency.

"These centres will bring services closer to our customers," said Chibwana.

Chibwana said that the Board has already completed the construction of the Area 25 service centre which is in the northern zone, Area 23 service centre in the southern zone and is now engaged in the construction of the main customer service center for the southern zone in Biwi Township.

Chibwana said the Biwi Service Centre will replace its main customer service centre in the building that used to be Kalikuti Hotel, and its purpose will be to serve as the zonal office for the southern zone.

She also said in addition to the above-mentioned service centres, the Board also opened the Lumbadzi service centre in the northern zone in 2022.

"However, this centre is on rented premises and plans are under way to construct," Chibwana said.

The works are being implemented under the World Bank financed Lilongwe Water and Sanitation project.

Chibwana said that the Board will spend about K2-billion Kwacha on the construction of centres and over 100 jobs will be created during construction.

LWB has also recruited additional customer service personnel to man the centres.

However, Chibwana said identification of land ideal for constructing the centres remains the major challenge for the project but said LWB continues collaborating with the Ministry of Lands as well as the Lilongwe city council.

The objective of the Lilongwe Water and Sanitation Project for Malawi is to increase access to improved water services and safely managed sanitation services in Lilongwe City.

There are four components to the project, the first component being water distribution network rehabilitation, expansion and non-revenue water reduction. This component involves investments in priority network rehabilitation to remove bottlenecks, increase hydraulic capacity of the existing network and reduce losses, and network expansion to increase coverage.

Key investments include: upgrading of 142 km of existing distribution network and creation of pressure zone boundaries; construction of 27 km of transmission mains, eight associated pumping stations and four storage reservoirs with a combined storage of 2,600m<sup>3</sup>; and performance-based water loss reduction through improvements in network maintenance, active leakage control, speed and quality of leak repairs and pressure management.

The second component is the priority sanitation improvements. This component will finance various investments to increase access to safely managed household and public sanitation services in Lilongwe. These investments include: rehabilitation and expansion of the sewerage network (107 km); installation of 5,000 new sewer connections; rehabilitation and upgrading of the existing Kauma sewage treatment plant; support to con-



Chibwana: These centres will bring services closer to customers

struction of 8,000 improved sanitation facilities targeting the poor and vulnerable households; sanitation marketing campaigns; and construction of improved sanitation facilities in 10 markets and 10 schools.

The third component is the technical assistance. This component will finance technical assistance (TA) activities designed to support preparation and supervision of all infrastructure investments planned under the project; and to enhance LWB's capacity to plan future investments under the Lilongwe Water Program.

Finally, the fourth component is the institutional capacity strengthening. This component will finance a set of activities designed to: (i) strengthen the capacity of LWB and Lilongwe City Council to implement the project and to provide improved water and sanitation services.

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