

Rwandan Mining Regulator Unveils Three-Year Mineral Exploration Campaign

A holistic approach to responsible mineral resource management in the country.

BY RWANDA MINES, PETROLEUM AND GAS BOARD

Rwanda, a country with a rich endowment of mineral resources, has not fully explored its mineral reserves in depth until recently. This is set for a significant change with the Rwanda Mines, Petroleum and Gas Board (RMB) initiating a groundbreaking three-year mineral exploration campaign. This initiative aims to establish a detailed estimation of the country's mineral resources, elevating them to the level of inferred resources suitable for pitching to potential investors.

Rwanda's journey in understanding its mineral wealth began in the post-independence era, around 1962, and continued up to 2020. During this period, extensive geological surveys were conducted, providing a foundational understanding of the country's mineral landscape. These surveys revealed a wealth of diverse minerals present in Rwanda, including the 3Ts (tin, tungsten, and tantalum), gold, lithium, beryl, rare earth minerals, and various gemstones.

The ongoing exploration campaign, running from 2023 to 2026, is a critical part of the government's strategy to modernize Rwanda's mining sector. This campaign is designed to transition the sector towards greater professionalism. It dovetails with other key areas of RMB's focus, including mineral extraction and beneficiation, mineral value addition and mineral trading, all of which collectively aim to transform mining in Rwanda into a more professional, mechanized, and economically impactful industry.

The ongoing mineral exploration covers the entire country and targets various types of minerals.

This aligns with global market demands and Rwanda's strategic vision to optimize its natural resource potential.

RMB's geosciences mineral laboratory is playing a vital role in carrying out the campaign as it offers comprehensive mineral sample testing, analytical services, and data analysis for exploration activities.

Recent mineral exploration campaigns have further unveiled the rich tapestry of mineral deposits within Rwanda, known affectionately as 'the land of a thousand hills'. The explorations have confirmed the presence of various valuable minerals, notably lithium, which is often referred to as 'the white gold of the energy transition' due to its immense value and significance in the battery industry and renewable energy.

With the global shift towards electric vehicles and sustainable energy solutions, Rwanda's lithium reserves will be a strategic asset, positioning the country as a significant supplier in this emerging market.

The ongoing mineral exploration campaign by RMB is not just a standalone endeavor but complements a series of exploratory activities already underway by various private entities to establish the mineral reserves. This includes both local and international mining companies.

A prime example of such activities is the lithium exploration project by Trinity Metals Group, valued at RWF3 billion (\$2.35 million), in Rwamagana District. This project underscores the increasing interest in lithium. This initiative in Rwamagana is a testament to the potential that Rwanda holds to become a key player in the global lithium market.

Rio Tinto, the world's second-largest



A miner extracting cassiterite at GAMICO Bashyamba Mine

mining group, is also actively engaged in exploration activities in Rwanda. Their focus spans across the 3Ts with a special emphasis on lithium exploration in Nyanza and Huye Districts, in the Southern province. Rio Tinto's involvement brings not only its vast experience and expertise in mining but also shines a spotlight on Rwanda's untapped mineral resources.

The involvement of major international mining companies signals confidence in Rwanda's mining sector. RMB continues to foster a more dynamic and competitive mining industry that encourages further investments.

RMB's focus on various stages of mineral handling – from exploration and extraction to value addition and trading – indicates a holistic approach to responsible mineral resource management in Rwanda.

The data from the ongoing exploration campaign will help to attract more investors and enable more efficient and effective planning and management of mining activities, leveraging our country's mineral wealth for economic growth and development. **P**

Recording Industry Progress And Opening Up New Opportunities In Mining

Trinity Metals Group’s \$30 million investment, specializing in the 3Ts and lithium, and employing 5,000 Rwandans, is a milestone.

BY PETER GELETA, CEO, TRINITY METALS GROUP

Trinity Metals was officially born at the end of May 2022. It entailed the ownership of Trinity Nyakabingo Mine Limited (formerly Eurotrade International Limited), Rutongo Mines Limited and Musha Mines Limited (formerly Piran Rwanda Limited) under the merged entity, Trinity Metals.

All the shareholders are represented on the established Trinity Board, including the Government of Rwanda (through its nominee Ngali Holdings Ltd) who have a 5% shareholding in Trinity Metals and 25% in Rutongo Mines.

Over the past two years, over \$30 million has been invested into growing, mechanizing and modernizing Trinity Mines.

Trinity Metals is now one of Rwanda’s largest private employers, employing 6,300 employees of whom 99% are Rwandan nationals and 98% are from the local communities where the mines operate; 13% of the workforce are women and there is a target of ensuring at least 30% of the workforce comprise of women in the near future.

establishing a Safety Management System aligned with the ISO Framework.

The company is currently updating the Environment and Social Impact Assessments of each mine using an internationally-accredited third party consultancy. The assessments will be completed by the end of Q1 2024.

A very exciting part of the company’s growth opportunity lies in its lithium exploration program at Ntunga on the Musha concession. In the years before the Covid-19 pandemic, a significant investment of \$3.5 million was spent on exploration drilling at Ntunga.

The company is very optimistic about the potential and a further investment of \$1.7 million was committed for a deeper exploration drilling program which commenced in November 2023. We are the first company to drill below 300 meters in Rwanda.

By the end of Q1 2024, the drill program should have been completed and initial indications are very positive and the company is confident that the results will prove that there is a big enough resource to invest in a feasibility study for the development of the mine. The advantage of the Ntunga deposit is that it contains tin, tantalum and lithium which could be extracted using the same mining process.

Trinity Metals is 100% aligned with the Rwanda Mines, Petroleum And Gas Board’s (RMB) vision of mechanizing and modernizing the mining industry with the aim of becoming a significant global mining producer of critical minerals. We are very appreciative of the strong partnership and support we receive from RMB, and are confident that Trinity can lead the way in transforming the industry. **📍**

TRINITY’S MINES:			
	RUTONGO MINE	MUSHA MINE	NYAKABINGO MINE
Mining concession (ha’s)	9,960	6,094	1,600
Mining License	25 years (2015)	25 years (2014)	25 years (2015)
Employees	2,400	2,200	1,700
Metal	Tin (cassiterite)	Tin (cassiterite), Tantalum (coltan), Lithium potential	Tungsten (wolframite)
Current Production (tons per month)	70	30	95
Future production	200 (2028)	50 (2026)	180 (2025)

Since the formation of Trinity Metals in 2022, the mines have increased annual production by 70% and, significantly, there are plans to expand the operations further.

We are proud of the fact that Nyakabingo Mine is the largest tungsten producer in Africa.

At each of the mines, declines are currently being developed with the aim of opening up new mining areas which will more than double current production levels. There are also plans in place to invest in the construction of modern mineral processing facilities at each of the mines, the first of these plants will be operational in mid-2024 at Nyakabingo Mine. Aside from the increase in production, the introduction of the plants will have a positive impact on the environment with efficient processing of the legacy tailings depositions.

The safety of people has been a priority for Trinity and since the company’s inception, we have seen a huge improvement in the safety performance. In 2023, the mine recorded a lost-time injury frequency rate (LTIFR) of 0.63, a vast improvement on the 1.77 rate in 2022. A 0.63 LTIFR compares favorably with global mining standards. The company is

Reflecting On 2023 Milestones And A Look Ahead

Last year solidified Rwanda's position as a prime African mining investment destination and a burgeoning hub for mineral value addition. What will 2024 hold?

BY RWANDA MINES, PETROLEUM AND GAS BOARD (RMB)

In 2023, Rwanda's mining sector marked a year of remarkable achievements. The first eleven months saw a sharp increase in mineral export earnings reaching \$999 million and representing a 46.3% increase compared to the same period in 2022.

The stellar performance in mineral export earnings was accompanied by the launch of a flagship three-year mineral exploration campaign and the completion of a comprehensive GIS inventory for industrial commodities. Collaborative efforts were evident in the joint assessment of industrial and construction materials with international partners.

Thanks to the One Stop Center, RMB streamlined the license application process, coupled with improving compliance with health, safety, and environmental standards. This conducive environment attracted major international mining companies, including Rio Tinto, signaling global confidence in Rwanda's mining sector.

The sector now boasts a stable, competitive and transparent regulatory environment – a key factor in attracting foreign investment and fostering local entrepreneurship in mining. Untapped lucrative opportunities still abound for investments in setting up refineries for lithium and tungsten as well as establishing modern facilities for cutting and polishing gemstones.

The year witnessed the arrival of Power X, a modern coltan refinery in Bugesera's industrial park, joining two existing state-of-the-art facilities: the Gasabo Gold Refinery in Masoro, boasting world-class refining



A worker at the gold refinery

technology, and the LuNa tin smelter in Karuruma. These new developments cemented Rwanda's commitment to transforming its mineral endowments, attracting further investment, and propelling the country towards becoming a leader in sustainable mineral processing.

In alignment with this professionalization, RMB marked the operationalization of a modern Geoscience laboratory in Kicukiro District, further emphasizing Rwanda's commitment to scientific and technological advancements in mining. This facility houses advanced equipment for mineral analysis and testing.

Unbeknownst to many was the presence of gemstones in Rwanda ranging from amethyst, ruby and sapphire to tourmaline, quartz and many more. Rwandan gemstones

and pieces of jewelry from locally-sourced minerals started to be sold across various outlets, including duty-free areas at the Kigali International Airport (formerly Kanombe International Airport), thus expanding the market reach of these precious commodities.

Cementing its position in the global mining stage, Rwanda also engaged in a joint declaration with the European Investment Bank on critical raw material value chains.

The sector's growth has had a ripple effect on the local economy leading to the creation of numerous jobs, contributing to poverty reduction and economic empowerment, especially in rural areas where mining activities are predominant.

These milestones, collectively, reflect a year of significant growth and development in Rwanda's mining industry, setting a solid foundation for future advancements and sustainable growth.

Yamina Karitanyi, CEO of the RMB, highlights this progress, saying, "The foundation laid in 2023 through an investment-friendly ecosystem, enhanced compliance with safety and health standards, strategic partnerships, and technological advancements sets a promising stage for 2024. Our focus will remain on fostering sustainable practices and contributing significantly to Rwanda's economic growth."

At the opening of the sixth edition of Rwanda Mining Week, Prime Minister Dr Edouard Ngirente stated that the government recognizes the potential of the mining industry as the country's economic backbone, particularly in revenue generation and job creation. He added that "the government is exploring viable solutions to support mine development to ensure increased production, safety and environmental conservation".

Looking forward, RMB is focusing on sustainability to set a benchmark for mining practices in the region, in Africa and globally. This is complemented by the ongoing multi-stakeholder collaboration to support a fully-fledged integration of green mining technologies into mining operations across Rwanda's mining landscape, to continuously enhance efficiency. 

The Macroeconomics Of Rwanda's Mining Sector: Insights, Outlook And Challenges

This flourishing and dynamic sector showcases immense and promising potential for exponential growth and sustainable development, with abundant reserves yet to be tapped into, and a continual influx of substantial investments from both domestic and international sources.

BY RWANDA MINES, PETROLEUM AND GAS BOARD (RMB)

Rwanda's national economic tapestry is woven with diverse threads, and one strand is the mining sector. While bringing in mineral export revenues, the sector is also a chief contributor to the national treasury, in 2022, contributing beyond RWF27 billion (\$21 million), and accounts for one of the major contributors to off-farm job creation and fueling robust infrastructure development to further accelerate Rwanda's socioeconomic progress.

The mining sector holds substantial significance to the country's GDP, contributing 3% to the national economy.

The sector is transitioning towards mechanized mining operations, utilizing advanced technologies and capitalizing on the country's strategic geographical location.

Through the revenue sharing scheme, the revenues generated through mining activities help finance critical sectors such as education, healthcare, and infrastructure, thereby enhancing the living standards of Rwandan citizens. The focus is on mining host-communities. In this regard, between 2019 and 2023, around RWF2 billion (\$1.5 million) has been injected into this program.

Sustainable practices in mining

Rwanda's mining sector steadfastly upholds sustainable practices, with a strong focus on environmental, social and governance principles (ESG), namely through ensuring the safety and health of miners and those around mines and quarries, environmental

conservation, benefits to local communities, minimalizing land disturbance and footprint as well as the transparent legal and regulatory framework.

This collaborative approach includes adopting strategies to reduce environmental harm, cutting down the sector's carbon footprint, and prioritizing the safety and health of workers in mines and quarries.

RMB also has deployed mining engineers throughout the country who regularly conduct inspections of mines and quarries to offer technical support to mining operators in their location as well as inspect compliance with laws, regulations and standards.

As part of gender mainstreaming in the sector, several companies are establishing on-site early childhood centers to provide convenient childcare, allowing mothers to easily care for their infants during work hours. In the same vein, it is also mandatory for mining companies to designate rooms for women and well-equipped first-aid facilities across all mining operations to ensure swift and accessible assistance to employees in case of emergencies.

Economic outlook

The future of Rwanda's mining sector appears promising. With an ongoing three-year mineral exploration campaign to establish reserves of the inferred mineral resources and other initiatives to professionalize and modernize mining operations, the sector is expected to contribute even more significantly to the national economy.

Through public-private partnerships, substantial investments are being made in both soft and hard infrastructure enhancing the economic benefits derived from the mining sector.

Challenges facing the sector

Our mining industry brims with potential yet faces some challenges that require strategic solutions to unlock its full potential.

One major challenge is access to financial resources. Our miners need money to operate, but local banks are often hesitant to invest in mining projects. These banking sector actors need more information and reassurance to understand the promising opportunities of this sector and the ways to minimize risks. The government is working on this issue's redressal.

The lack of insurance coverage is another challenge currently facing our mining industry players. Mining companies face risks that conventional insurance doesn't readily cover. We are working with insurers to help them understand the safety measures and responsible practices in place within the industry to convince insurers to offer the protection miners need.

Through engaging with multiple stakeholders, the government is actively working to overcome challenges and fully realize the potential of Rwanda's mining sector. The goal is to transform the sector from a promising prospect into yet another remarkable success story for the country. 

How The Mining Sector Contributes To Community Development Initiatives

It plays a significant role in Rwanda's overall development, contributing to infrastructure, job creation, health, education, and even environmental conservation. It's not just about extracting resources; mining is mandated to build up the communities and nation alongside its operations.

BY GAMICO AND IMC

Every registered mining company in Rwanda develops and implements corporate social responsibility initiatives. These plans detail specific, measurable, attainable, realistic, and time-bound activities that the mining and quarrying companies commit to, ensuring their contribution to the social and economic development of surrounding communities.

Beyond its financial contribution, mining plays a crucial role in job creation. As the country's largest export revenue earner, it currently offers off-farm jobs to over 70,000 people, ranging from miners and engineers to metallurgists, health and safety workers, environmentalists, and geologists.

Revenue sharing is key to distributing the benefits of mining. Over the past four years, over RWF2 billion (\$1.5 million) have been injected into this scheme, directly funding development projects in key mine-hosted communities and districts. For example, mining contributed to building the Ruhunde Health Post in Burera District, a modern facility serving surrounding communities, eventually adding a maternity ward.

This sharing goes beyond individual projects, impacting various areas:

- IDP model village construction: 16 families in Kayonza District gained a safe and secure home.
- Environmental protection: The Gishwati- Mukura National Park received support against illegal mining activities in Ngororero.



- Sustainable agriculture: Improved progressive terraces were built on over 423 hectares in Burera and Rulindo.
- Water access: 59,545 households in Gatsibo, Kamonyi, and Rutsiro Districts gained improved water infrastructure.
- Electricity infrastructure: Construction of electricity lines in Kamonyi District brought power to more communities.


At mining companies' levels, many developmental activities are carried out. For instance, GAMICO, one of the best cassiterite producers in the country, emphasizes gender inclusion as it employs a total of 1,618 people out of whom 1,395 are male representing 86.2% of all workers and 223 are female representing 13.8% of the total workforce.

In terms of education, GAMICO Ltd conducts gender-based violence training and first aid training sessions for its workers, with 625 miners having been trained so far. The mine also offers internships and scholarships to local students.

It prioritizes the health and social affairs of its employees in that all mineworkers are insured by the Community-Based Health Insurance and Rwanda Social Security Board. The mine has a well-equipped first aid room. Additionally, it has established its bespoke saving scheme 'INGOBOKA'

for emergency needs.

Interafrican Mining Corporation (IMC), dealing in 3Ts, is another example of what mining companies in Rwanda do in terms of community development activities. IMC operates in the Southern province, in the district of Muhanga, Kabacuzi sector. IMC has created a road of about 2km, connecting the Nyarusange village of Kamonyi District and Buyoga village of Muhanga District, and is also planning an electric line of 3km that will electrify more than 50 households. The feasibility study of this project has been completed and now awaits implementation.

In terms of environmental protection, IMC has a tree nursery in which 10,000 trees are planted every year to restore the ecosystem that has become degraded due to mining and in areas that are more susceptible to erosion especially hillsides and steep slopes, and along streams and rivers. Land of about 100 hectares has been covered by a tree plantation at IMC mine. 



Acknowledging Collaborative Efforts In Rwanda's Mining Success

The School of Mining and Geology at the University of Rwanda is a beacon of the growth and excellence in the country's mining sector.

BY SCHOOL OF MINING AND GEOLOGY

In the heart of Rwanda's economic transformation, the mining sector emerges as a key player. Its growth, pivotal to the country's socio-economic development, hinges on research, education, professionalism and technology. Recognizing this, the Government of Rwanda established the School of Mining and Geology (SMG) in 2015, a strategic move aimed at nurturing the nation's mining industry.

The inception of SMG was more than just the birth of an academic institution; it was a vision materializing. The school has become the cornerstone of Rwanda's mining landscape, with a focus on enhancing skills and supporting a robust mining industry. With departments in Geology and Mining Engineering, SMG offers two programs: Bachelor of Science in Mining Engineering and Applied Geology, that shapes professional earth scientists and mining engineers.

SMG now plans to introduce a Bachelor of Science in Metallurgy Engineering as a testament to the school's commitment to addressing Rwanda's industry needs.

Two years after the SMG was established, the government also established the Rwanda Mines, Petroleum and Gas Board (RMB) in 2017 as the

regulator of the mining industry in Rwanda. This marked another significant milestone creating an overture of collaborative avenues between RMB and SMG wherein strategies to transform the mining sector into a professional, modern, and sustainable industry were set in motion. The focus of our collaboration was to put in place robust educational programs for mining professionals to expedite the sector's transition towards professionalization and mechanized mining operations.

Under the leadership of Dean Associate Professor Digne Edmund Rwabuhungu R., SMG is on a path to becoming a regional center of excellence in mining and geological studies. This aspiration is not far-fetched, considering the school's impressive achievements. SMG has notably enhanced mineral exploration, processing, mine safety, and environmental protection. The introduction of programs focusing on mining and environmental protection has led to tangible contributions, such as tree planting in mining areas, training in mine safety, disease prevention, and waste management.

The graduation of the first cohort of mining engineers and geologists in 2019 marked a watershed moment for SMG

and Rwanda's mining sector. These professionals, now integral to the industry, are making significant contributions, whether within SMG or in various mining companies across the country.

SMG stands as a beacon of knowledge and talent development. It is a nurturing ground for future mining industry leaders, playing a vital role in human development through capacity-building and knowledge-sharing, essential for the growth of Rwanda's mining sector.

Theophile Bimenyimana, Head of the Department of Mining Engineering at SMG, affirms: "The partnership between Rwanda Mines, Petroleum and Gas Board and the University of Rwanda's School of Mining and Geology is set to foster timely innovation and the necessary transformation in the sector. This collaboration is a major benefit, steering Rwanda's mining sector's growth in the right direction."

As we reflect on these collaborative efforts and achievements, SMG extends its heartfelt gratitude to all stakeholders involved. Together, we are shaping a brighter future for Rwanda's mining industry, ensuring it remains a key pillar in the nation's journey towards socio-economic prosperity. **1**

Women Empowerment And Transformation In Mining: A Distinctive Perspective

BY KAMUGWERA VESTINE, MANAGING DIRECTOR, GENERATION MINING DEVELOPMENT COMPANY (GMDC)



MD Kamugwera Vestine during the opening of Rwanda Mining Week

mining is done professionally and in line with our country's vision.

We have implemented various strategies and measures to continuously develop our mining profession. We have increased the number of staff to 450, out of whom 50 are women. We aim to increase the women's participation to at least 30%. We have also increased our production to more than 10 tons per month, making us one of the top three best-producing companies in terms of wolfram production at the national level.

In our commitment to modern and responsible mining, we've made significant strides towards sustainable practices. This includes the use of electricity-powered modern machinery and equipment, which has revolutionized our operations. We've constructed

modern tunnels and shafts, adhering to international safety standards. Additionally, we've built an on-site processing facility, significantly enhancing our mineral recovery rate. Previously, nearly five tons of minerals were lost as waste, but now, we recover all of it.

Our efforts extend to the addition of value to our minerals. A new facility grinds and processes these minerals, making them market-ready.

We prioritize environmental protection by employing university-educated mining engineers and dedicated environmentalists. These professionals ensure that our mining activities are eco-friendly and in line with environmental standards. Furthermore, a significant investment in a RWF30 million (\$23,000) distribution transformer has resolved power voltage issues, benefiting not just our operations but also the

surrounding communities with improved electricity access.

Collaboration and partnership with other government agencies and citizens

At GMDC, we deeply value our collaborative efforts with local communities and the government, focusing on socio-economic development. Our initiatives include supporting community policing, providing modern housing for impoverished families, and building homes for genocide survivors. Additionally, we cover health scheme fees for over 100 needy individuals and have facilitated legal marriages for fifty families, significantly reducing intra-family conflicts. We also contribute to building local infrastructure, like cell offices and classrooms, aligning with the government's education program.

Employee welfare is a cornerstone of our operations. We've bridged connections between our staff and financial institutions, enabling easier access to loans. GMDC also emphasizes leisure and community relations. We proudly own a football team and a dance troupe, fostering strong bonds with the surrounding community and promoting holistic development.

Some of the challenges we face

Our journey at GMDC faces a few challenges. Financial institutions are hesitant to provide loans for large-scale mining projects, as the minerals we mine are not tangible assets for collateral. Additionally, we're striving to increase women's participation in mining, a sector they often hesitate to enter.

Reflecting on our achievements, I am grateful for our country's visionary leadership and governance. Inspired by this, we remain committed to advancing our company, supporting our people, and contributing to our nation's development. **P**

GMDC is a mining company that specializes in tungsten (wolfram) and operates in the city of Kigali, Nyarugenge District, Mageragere Sector.

I was only 21 when I started this profession, more than 20 years ago. At that time, I was part of a cooperative called CODEMIBU, which was established in 1995. In 2014, the cooperative was dissolved and transformed into a mining company, now known as GMDC.

When we started, we had just 20 staff members and we used artisanal mining methods. We could produce around 600kg of tungsten per month. But we had a vision to grow and prosper, inspired by our president who encouraged women to be bold and ambitious. I was one of the women who took the first step to invest in the mining industry and to ensure that

Exploration Operations And The Contribution To Rwanda's Mining Landscape

BY JANVIER NDABANANIYE, DIRECTOR OF NEW BUGARAMA MINE (NBM) LTD



The New Bugarama Mining Company (NBM) is a Rwanda-based (East Africa) company engaged in the mining industry. It performs mining activities on five mine sites or hills (Fumbwe, Murundi, Foyer, Kabindi and Rubona), extracting tungsten ore in underground mines and processing this ore in modern processing plants. They are sold and exported overseas (Belgium, Germany and Austria) for further smelting to obtain tungsten powders used in different industries, for example, mobile phone manufacturers and alloy manufacturers.

MINING AND MINERALS PROCESSING OPERATIONS

NBM is committed to responsible and sustainable mining by empowering local communities. The company started its

operations at the end of 2009 in the Bugarama Mine Concession, owned previously by another mining company 'Bugarama Mine' under a mine license valid for eight years (2009 - 2017) which was extended thereafter for 15 years as from 2017 (2017 - 2032).

In the beginning, all the mining operations were performed by using rudimentary or traditional tools and it was, therefore, classified as artisanal mining operations. The mineral processing operations were done by gravity separation through handpicking and manual panning.

In order to shift from artisanal mining to semi-mechanized mining, geological studies (borehole drillings) were conducted in 2013 to estimate the mineral reserves of the concession. Based on the results of the geological studies, a Mining Master Plan was set up in 2014

comprising the technical feasibility study and the financial feasibility study for both mining operations and mineral processing operations. The estimation of reserves for the upper part of the concession was found to be 785T of pure wolfram or tungsten.

Since 2020, NBM shareholders started the journey from artisanal mining to semi-mechanized mining by investing money to acquire efficient modern equipment for mining operations, ie. blasthole drilling machines, air compressors, mine cars or wagons and rails, explosives and detonators, exploding machines, water pumps, dump trucks, excavator, electricity supply, and for mineral processing operations (crushers, ball and hammer mills, trommel, jigs, shaking tables).

The pre-concentrates obtained from the first stage of processing are further upgraded in the second stage of processing



Equipment used during operations at the New Bugarama Mine



A tunnel at the NBM

to eliminate remaining impurities like iron. The average grade of the pre-concentrates is 55% WO₃ against a grade of 70% WO₃ for the final concentrates to be exported.

The average monthly production was 12 tonnes of final concentrates before the mechanization of mining and processing operations and jumped to 15 tonnes during the gradual mechanization of these operations (45 active artisanal mine sites, 30 modern tunnels). The increase in production is not 'very sensitive' yet as some mining operations are not yet mechanized and there are numerous development works still ongoing to crosscut veins destined for future mineral extraction.

All NBM operations are performed in conformity with local and international mining laws and regulations. It is in this context that, to ensure that minerals exported by NBM come from a conflict-free area, NBM has entered into a partnership with ITSCI (ITRI Tin Supply Chain Initiative), who are in charge of

the traceability of 3Tsg (tin, tantalum, tungsten and gold).

Moreover, NBM throughout its entire operations, has put in place procedures and measures aimed at avoiding and mitigating negative impacts to ensure the sustainability of its activities. For this reason, NBM has put in place five impact pillars namely: Working Conditions and Health and Safety; Environment Protection; Education and Professional Development; Local Added Value and Socio-Economic Contributions; Community and Stakeholder Engagement.

NBM contributes positively to advancing Rwanda's mining industry and is dedicated to impacting the lives of communities through various Corporate Social Responsibility (CSR) activities.

VALUABLE CONTRIBUTION TO RWANDA'S ECONOMY


As per the Statistics from RDB (Rwanda Development Board), the contribution of the Rwanda Mining Sector to the GDP will

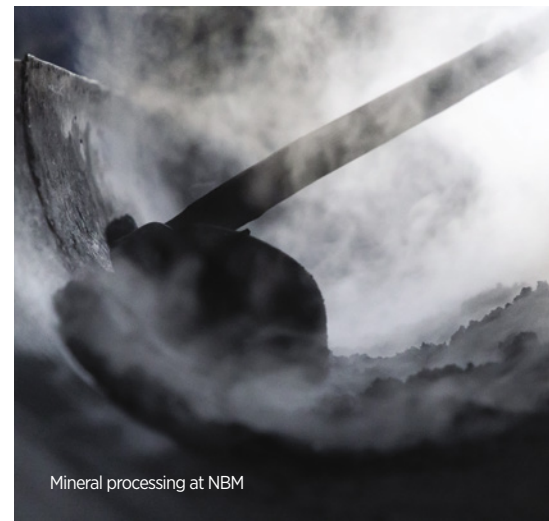
be 8.5% by 2024 and NBM will have its part in this national contribution.

NBM contributes to job creation through hiring mainly among local communities to whom salaries are paid and used to uplift the living conditions of their respective families through the payment of school fees for children, house construction, and farming.

The total number of people employed by NBM is currently 954 employees, out of whom 272 are women.

NBM participates in the socioeconomic development of Rwanda through the payments of different taxes and fees to the government, the payment of dividends to the shareholders deducted from the annual gross profits earned, payment of salaries to workers, assistance in-kind or cash to surrounding communities, and the payment of school fees to bright students from underprivileged families in the local communities.

An Early Childhood Development (ECD) center has been built within the NBM concession where children of female workers, under three years of age, are taken care of by the company during working hours to enable their mothers to perform their respective activities in the mine. All related expenses are incurred by the company. The mothers concerned are paid their monthly salaries instead of having to be at home with their children, without earning any income for their families. 



Mineral processing at NBM

Rwanda's Centrality To A Sustainable Energy Transition

BY RAY POWER, CEO OF POWER RESOURCES INTERNATIONAL LTD



Rwanda, a part of the continent's East Africa region, has long been overlooked as a first-choice mining destination, with the mining community often citing its small size and lower grades than competing destinations in Africa.

However, it has become increasingly clear that Rwanda's commitment to economic transformation is quietly turning the critical minerals landscape in its favor.

Base and precious metal miners have traditionally dominated the capital markets with their high grades and large scale, in the tens of millions of tonnes, being paramount for any investment.

Misunderstood in the minor metals sector is the definition of scale.

Monolithic, single-element deposits are not the norm but a good understanding of the complex poly-elemental deposits can provide for excellent economic returns, with comparatively small investments in the tens of millions, as opposed to the

hundreds of millions in more traditional mining investments.

With the popularity of critical minerals on the rise, mining traditions are being challenged by an industry which is much smaller in scale, often remarked upon as a kilogram business, and which requires a greater technical finesse.

To simplify it, one might say that many of the minor metal mines are too small for the big companies but too complex for the small companies.

This isn't to say it's beyond the intellectual capacity of the smaller companies, just that the cost of third-party consultants for feasibility work can have a disproportionately negative impact on the overall commerciality of projects of this nature.

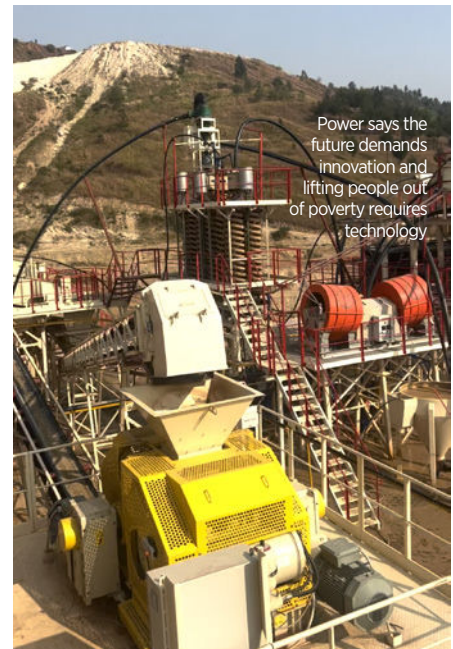
It is this techno-commercial dilemma (over-simplified for brevity), which has seen artisanal mining remain largely unchanged in markets such as cobalt, tantalum, tin and others, despite decades of innovation across other industry segments.

This often results in industry commentators passionately debating whether artisanal or industrial mining is the superior choice for a sustainable future.

In truth, the future demands innovation and lifting people out of poverty requires technology.

So, the real answer to sustainable mining is not to displace artisanal miners with industrial miners but to work with them and facilitate a transition where technology is introduced to increase recovery rates, and profits for artisanal operations, whilst supporting production with long-term off-takes and skills development – sector evolution.

It's a holistic approach which not all




mineral extraction companies are geared up for and neither are all countries' mining laws.

Modeling this approach in real life at the invitation of the Rwandan government through an agreement signed just over six years ago, Power Resources International (PRI), a UK-based mining and refining company, has developed Rwanda's largest industrial tantalum mine to feed its newly built tantalum and niobium refinery from artisanal origins.

With the original artisanal miners now working in the industrialized mine, PRI's internationally-accredited, tantalum and niobium refinery is the world's only near-source, vertically-integrated tantalum refinery.

This is a great testimony to Rwanda's progress over the last thirty years but, more than that, is an exemplary case study of how the world's energy transition does not need to be at the expense of developing, resource-rich countries, suffering to produce the materials for the wealthy in faraway lands.

Skilled jobs, higher income and advanced manufacturing are the likely consequences of Rwanda's strategy to place itself at the heart of sustainable mining and refining in the critical minerals sector, an admirable vision and one which PRI has discovered is a privilege to be a part of. 

Rwandan Mining: A Potential Driver Of Economic And Social Transformation

The sector has seen major growth and development in recent years, and, with this, an improvement in the lives of miners and employers alike.

Rwanda has a long history in mining, but it has only recently formulated its ambition to become a regional mining and mineral processing hub. The objective is two-fold. Firstly, the modernization of mining has the potential to make the sector a key driver of Rwanda's development journey through economic transformation, industrialization and inclusive growth. Secondly, Rwanda wants to boost its export revenues by moving up the value chain and processing raw materials before they leave the country.

Enabel, the Belgian development agency, is accompanying Rwanda on this journey, with programs aimed at sharing geological expertise and empowering miners through collective bargaining agreements and the formal recognition of their qualifications.

Leveraging geological mapping and expertise

The Rwanda Mines, Petroleum and Gas Board (RMB), Enabel and the Belgian Royal Museum for Central Africa have just concluded a five-year program of updating, digitalizing and sharing geological maps. As a result, RMB can now:

- Benefit from an up-to-date inventory of its industrial commodities and building materials;
- Use the updated maps for a more detailed mapping at 1/50,000 scale of target areas and;
- Benefit from geoscientific staff with a better grasp of geological history and the mineral deposit potential in Rwanda.

Creating opportunities through formal certification of miners' skills

Within its thematic portfolio on Decent Work and Social Protection in Central Africa, Enabel supports a Recognition of

Prior Learning program for miners. Over 2,000 formal certificates of competence were issued to workers operating in the city of Kigali and Kivu Belt mining districts, in collaboration with the Rwanda Extractive Industry Workers Union (REWU), the Rwanda TVET Board and the National Examination and School Inspection Authority (NESIA).

The certificates validate miners' knowledge and skills, thus enhancing their employability, self-esteem and productivity. They mark a crucial step in enabling workers in extractive industries to transition from informal to formal employment, which is a significant stride towards lasting positive change.

Boosting motivation and production through collective bargaining agreements

Collective Bargaining Agreements (CBAs) are another intervention supported by Enabel through its Decent Work and Social Protection program. Partnering with REWU, workers received support in negotiating CBAs with their employers on issues such as wages, working hours and job security. This resulted in benefits such as fair compensation, less disputes, more harmonious relations, improved workplace safety, more respect for health standards and social rights in general.

Prior to these negotiations, employees were not motivated due to low pay, which resulted in low productivity. After implementing a CBA, Trinity Metals, a mining company in Rulindo District in the Northern Province, almost doubled its production from 50 tons to nearly 96 tons per month. The introduction of a minimum wage tied to increased production rates and international mineral prices played a pivotal role.

Donatien Mutuyimana, a miner, vividly



André Mutsindashyaka (SG, REWU) and Laurent Preud'homme (Head of Cooperation at the Embassy of Belgium in Kigali) present an RPL award

recounts the contrast in his work and life before and after the implementation of the Decent Work and Social Protection program: "There was a time when our motivation was buried as deep as the mines we worked in".

Now he looks back on the changes with gratitude. "The negotiated increase in wages brought a glimmer of hope to our lives. Suddenly, the work we put into those mines felt valued, both in terms of compensation and the acknowledgement of our rights. The establishment of a minimum wage tied to production rates not only fuelled a surge in our productivity but also instilled a sense of security."

Other substantial outcomes of the program are the provision of written contracts to all workers, their social security affiliation, annual and maternity leave benefits and the transition to payment of salaries through banks. These positive changes have made the mining sector more productive and more attractive. ¹

About Enabel

Enabel is the development agency of Belgium's federal government. Its main mission is to implement the policy priorities of Belgian governmental cooperation and to promote sustainable international development. Enabel operates in more than 20 countries in Africa, the Middle East and Europe, working to foster positive and lasting impacts on global development.

Sustainable Mining Development In Rwanda

The country's commitment to responsible sourcing, occupational health, safety standards, and environmental protection has elevated its mining sector onto the global stage. However, to develop it sustainably, it requires responsible practices, strategic partnerships, and regional collaboration.

With funding provided by the European Union (EU) and the German Federal Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has supported Rwanda in its efforts to develop a sustainable mining industry.

The goals are to enhance compliance with international mineral sourcing standards, strengthen technical vocational education and training skills in mining, as well as promote environment-friendly mining practices.

A FOUR-PILLAR APPROACH

GIZ uses a demand-oriented capacity development approach. It works with the Rwanda Mines, Petroleum and Gas Board (RMB) and the Integrated Polytechnic Regional College (IPRC) – Kigali's Rutongo Mining School (RMS), to professionalize the country's mining sector in compliance with international due diligence standards. This approach focuses on four pillars: traceability, digitalization, training and safe mining practices.

The pillars enable key stakeholders in mining, such as private operators, service providers, higher learning institutions and public institutions to contribute to the economic development of the sector more efficiently and sustainably.

Improved traceability of mineral flows:

Supported by GIZ, RMB is developing a national digital mineral traceability

and chain of system. The system applies responsible sourcing standards from the Organization for Economic Co-operation and Development (OECD), the EU, and the International Conference on the Great Lakes Region (ICGLR), such as environmental consideration and conflict-free minerals, as well as human rights protection. With this, it is envisioned that the Rwandan mining sector will gain market access and international recognition by reinforcing efforts towards responsible mineral value chains.

The digitalization of mining sector data and services:

To enhance the professionalization within the mining sector, RMB created the Geological Information and Mining Cadastre System (GIMCS). This system ensures digitalization and therefore aims to ease the access of mine site data and services. With GIMCS, it is possible to manage licenses offered by RMB in 30 districts, digitally record geological, geochemical, and geophysical maps and documents, and conduct online mining inspections.

Digitalization will, crucially, enable informed decision-making in the mining sector, as well as ease access to mine site data and other key information for workers. As a result, promoting the formalization of the artisanal and small-scale mining sector. This initiative is in line with Rwanda's goal to promote the integration of Information Communication Technology (ICT) as one of the key solutions to addressing existing challenges in different sectors.

GIZ is supporting RMB to develop GIMCS further by providing the necessary material, software, and IT equipment for the digitalization process and its operationalization. Furthermore, GIZ is organizing training for RMB technical staff and mining operators on how to use both GIMCS Internal Portal and GIMCS External Portal.

Training for mining professionals:

Rwanda has quality Technical and Vocational Education Training (TVET), but there is an increasing need for improvement, especially in training management-level personnel proficient in practical technologies. In response to this demand, the Government of Rwanda will introduce a Bachelor of Technology (BTech) program in Mining. This program will play a vital role in bridging the gap between graduates' qualifications and the industry labor market needs.

GIZ supported IPRC Kigali's RMS to develop a BTech curriculum by engaging the key stakeholders in the mining sector, particularly mining companies, TVET institutions, accreditation institutions, and consultants. Not only does this collaboration ensure that the curriculum reflects diverse perspectives and expertise, but it also underscores the synergy between industry, academia, and the government in equipping individuals with the skills needed to meet the demands of the labor market.

Safer mining practices for people and the environment:

With support from GIZ, RMB strives to promote occupational health and safety, and social and environmental protection standards. Enabling key players, including RMB staff and private mining companies, to embrace and meet these standards will ensure that mining activities are compatible with surrounding communities and are more inclusive and gender-sensitive. This in turn enhances the sector's attractiveness and subsequently contributes to Rwanda's economic growth. With GIZ's support, gender-sensitive training has been provided to RMB technical staff on environment, health, security, and social protection issues. 