

ASX Announcement

23 April 2024

Speaker Presentation – Inaugural Malawi Mining Investment Forum

Attached is a copy of the Speaker Presentation that will be presented by Paul Smith, Chief Operating Officer of Globe, at the Inaugural Malawi Mining Investment Forum being held on 23 and 24 April 2024 in Lilongwe, Malawi.

Mr Smith commented:

“We are thrilled to announce that Globe will be present and actively involved in the upcoming Inaugural Malawi Mining Investment Forum. This pivotal event, presided over by His Excellency President Lazarus McCarthy Chakwera, signifies a monumental step forward for the mining sector in Malawi.

As a leading player in the mining industry, Globe is committed to contributing to the sustainable development and economic growth of Malawi. We are dedicated to harnessing the potential of the mining sector in alignment with the national development agenda outlined in the Malawi 2063 Vision and the Agriculture, Tourism, and Mining (ATM) Strategy.

At the forum, Globe will be at the forefront of discussions, showcasing our commitment to excellence and innovation in our refinery to be built in Lilongwe, and responsible mining practices at Kanyika. We look forward to engaging with government representatives, investors, private sector stakeholders, development partners, and other key players to explore strategies and solutions aimed at accelerating the growth of the mining sector.”

This announcement was authorised for release by Paul Hardie, Company Secretary.

For further information, please contact:

Paul Smith
Chief Operating Officer
+61 8 6118 7240
paul.smith@globemm.com

THE 2024 MALAWI MINING INVESTMENT FORUM

Lilongwe

The Kanyika Niobium Project

April 2024

Paul Smith
Chief Operating Officer



Disclaimer

This Presentation has been prepared by Globe Metals & Mining Limited ABN 33 114 400 609 (Globe or the Company).

The information in this Presentation is an overview and does not contain all information necessary for making investment decisions. In making investment decisions, investors should rely on their own examination of the Company and the Kanyika Niobium Project and consult their own legal, technical, business and/or financial advisers. The information contained in this Presentation has been prepared in good faith by Globe, however no representation or warranty expressed or implied is made as to the accuracy, correctness, completeness or adequacy of any statements, estimates, options, or other information contained in this presentation. To the maximum extent permitted by law, Globe, its Directors, officers, employees and agents disclaim liability for any loss or damage which may be suffered by any person relying on anything contained in or omitted from this Presentation.

Certain information in this Presentation may refer to the intentions of Globe with respect to the Kanyika Niobium Project, but these are not intended to be forecasts, forward looking statements or statements about the future matters for the purposes of the Corporations Act or any other applicable law. The occurrence of the events in the future are subject to risk, uncertainties and other actions that may cause Kanyika Niobium Project's actual results, performance or achievements to be materially different from the results, performance or achievements implied by the forward-looking statements.

Such factors include, but are not limited to, general economic, market and business conditions, market prices for niobium and tantalum, demand for niobium and tantalum, niobium and tantalum supply, obtaining additional debt and equity funding (as required), concluding of off-take agreements, obtaining of all necessary permits for development and production as and when required, estimation of resources and reserves, development and production costs, processing recoveries transportation delays and costs, risks and uncertainties related to construction and commissioning, delays in construction of the mining and processing operations, accidents, equipment breakdowns, title matters, labour disputes, environmental issues and local community issues involving relocation of project affected people or other unanticipated difficulties with, or interruptions in, development or production, exchange rate fluctuations, and risks and uncertainties associated with doing business in Africa.

In addition, there may be information herein that is information about prospective results of operations, financial position or cash flows and which is provided only to assist in an evaluation of the Kanyika Niobium Project outlined herein but are not to be relied upon as accurate representations of future results and may not be appropriate for any other purpose.

This Presentation contains certain forward-looking statements and comments about future matters. Forward-looking statements can generally be identified using forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "could", "may", "predict", "plan", "propose", "will", "believe", "forecast", "estimate", "target", "outlook", "continue", "guidance" and other similar expressions. The forward-looking statements including statements regarding our intent, belief or current expectations with respect to Kanyika Niobium Project's performance, market, political, social and environmental conditions, additional feasibility work, improvements and updates, project configuration, construction and commissioning costs and timelines, and general risks and uncertainties. Readers are cautioned not to place reliance on these forward-looking statements. While due care has been used in the preparation of forecast information, actual results may vary in a materially positive or negative manner.

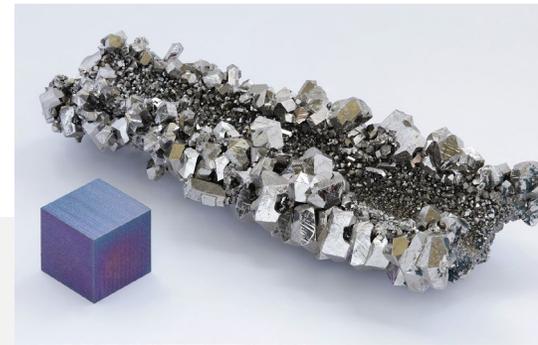
Any such statements, targets, opinions and estimates in this Presentation speak only as of the date hereof and are based on assumptions and contingencies subject to significant uncertainties or change without notice. Forecasts and hypothetical examples are subject to uncertainty and contingencies often outside Globe's control. The information in this presentation is current as at the date of the publication of this presentation.

There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. Except as required by law or regulation (including the ASX Listing Rules), Globe undertakes no obligation to supplement, revise or update forward-looking statements in the future, regardless of whether new information, future events or results or other factors affect the information contained in this Presentation.

The market

What is Niobium?

A transition metal with a unique set of characteristics



Niobium

atomic number	41	92.90637	atomic weight
symbol	Nb		acid-base properties of higher-valence oxides
electron configuration	[Kr]4d ⁴ 5s ¹		crystal structure
name	niobium		physical state at 20 °C (68 °F)

Transition metals	Solid
Body-centred cubic	Weakly acidic

© Encyclopaedia Britannica, Inc.

It is silvery, light grey, crystalline and ductile with the symbol Nb and the atomic number 41 found in the Earth's crust in the mineral pyrochlore

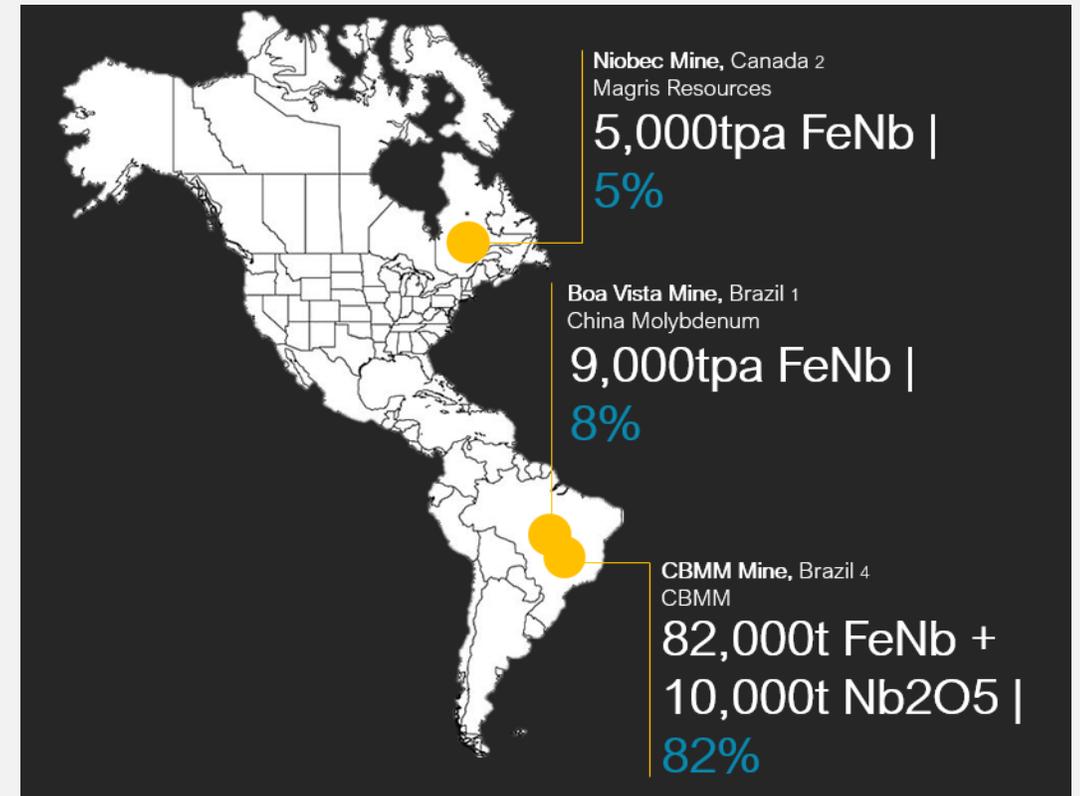
- This metal's high melting point makes it suitable for use in jet engines and rockets. Its superconducting capabilities when cool benefit high-speed trains.
- With its resistance to heat, corrosion, and oxidation, this material is well-suited for crafting complex aerospace components requiring precise specifications.
- Its Mohs hardness is comparable to titanium and it possesses a similar ductility to iron, adding to its versatility.
- Non-reactivity and paramagnetism are among its notable properties.
- It is distinguished by an electronic configuration that places electrons in the outermost orbitals.
- Its crystalline structure is advantageous for lithium-ion battery production, supporting the swift movement of lithium ions to the anode during charging, hence ideal for battery applications.

Important uses of Niobium?

Three mines account for over 95% of the global mined niobium supply and no new mines have been brought into production for over 50 years.

Two basic forms of Niobium supply:

1. Ferro Niobium (90% of total market) - NbFe alloy (60%-70% Nb)
2. Niobium Oxide (10% of total market) (Nb₂O₅, min 98.5%) – Globe’s focus due to limited competition with only CBMM producing oxide currently and a market with high prices and good margins.



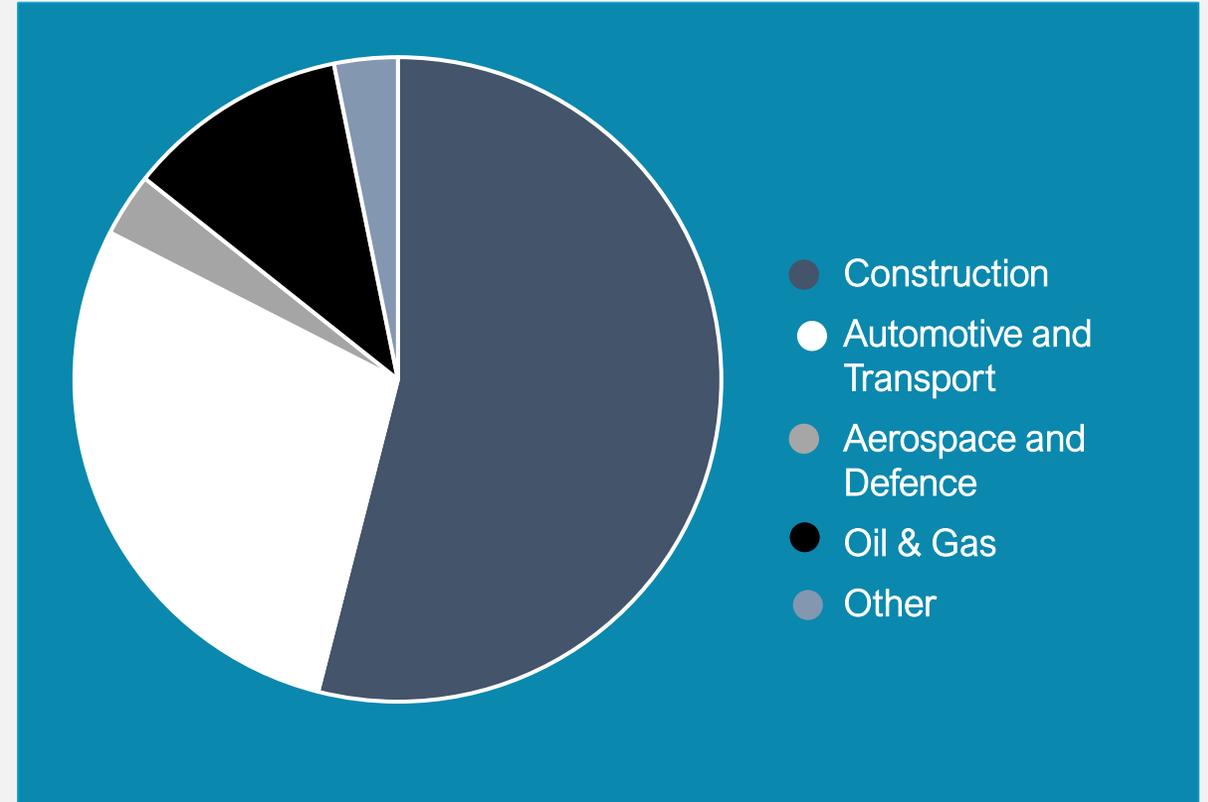
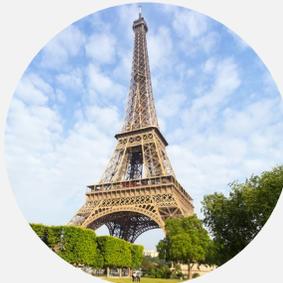
Niobium's main use is in steel-making

Ferroniobium (at 65% niobium) is the primary saleable form of the metal and sells for over US\$40,000/t.

Ferroniobium is primarily used in the production of High Strength Low Alloy (HSLA) steel which is used extensively in the construction and automotive industries and in the manufacture of high-pressure gas and oil pipelines, providing extra strength, and greater resistance to heat and corrosion.

Fast fact

Construction of the Eiffel Tower used 7,300t of wrought iron. Today, it could be built using 2,000t of HSLA steel (27% of current weight)



Global ferroniobium sales by sector¹

~100,000t/year

~US\$3 billion per year²

¹ Source: CBMM

² Niobium Outlook to 2030 Roskill, 2020

Critical to the energy transition and “next-generation” lithium-ion batteries.

Niobium oxide makes batteries greener, cheaper and cleaner and cobalt free.



Ultra-fast charging

Niobium oxide batteries can be fully charged in less than

10 minutes

at lower operating temperatures versus +3 hours in conventional Li-ion batteries.



Increased range

Niobium oxide increases the energy density of batteries by

200%

at a lower material cost compared to conventional Li-ion batteries.



Better performance

Niobium oxide batteries are more stable and can withstand

10,000

charging cycles versus 1,000 in conventional Li-ion batteries.



Niobium oxide used in Superalloys Aerospace and Defense

Airplanes, helicopters, rockets, satellites, space stations, and spacecraft.

- High strength-to-weight ratio, which is crucial in aerospace design for reducing the weight of the aircraft or spacecraft while maintaining structural integrity and performance.
- Stable at high temperatures, which is ideal for components that are exposed to extreme heat, such as jet engines and rocket propulsion systems.
- Enhanced proclivity for weldability and fabricability. This allows for the production of complex aerospace components with precise specifications.
- Lightweight, durable components that can withstand the stresses and strains of aerospace operations, from takeoff and landing to the rigors of space travel.



And several other key applications in the “New Economy”



MRI

Niobium oxide is used for ophthalmic lenses having high refractive indices, because it combines the advantages of high refractive index and relatively low value of specific gravity for a glass.

CAGR 6.8%



Optical Glass

Niobium oxide is used for ophthalmic lenses having high refractive indices, because it combines the advantages of high refractive index and relatively low value of specific gravity for a glass.

CAGR 11.1%

Source: MRI , Optical & Glasses plus Thermo Power market : Grand View Research (2023 – 2030)

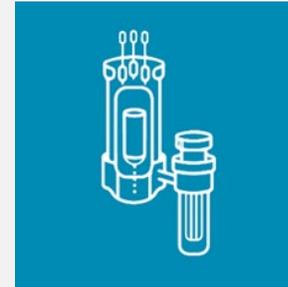


Super Conductor

Niobium metal can be used as superconductors in particle accelerators, like the CERN in Switzerland.

CAGR 10.0%

Source: Allied market research (2022 – 2032)



Nuclear (SMR)

Niobium is used in the Nuclear industry due to their high-temperature strength and resistance to corrosion, used in reactor components, fuel elements and surface acoustic wave devices.

CAGR 15.8%

Source: Nuclear (SMR) : Allied market research (2020 -2023)



Thermo Power

Niobium is used in Ultra Temperature Thermal Power, due to high-temperature and resistance to corrosion, user in high temperature pipes.

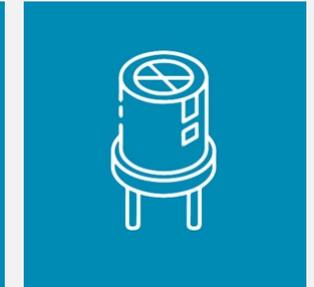
CAGR 9.1%



EV Batteries

As the green energy transition gathers pace, niobium’s use in electric vehicle batteries has the potential to decrease charging times, increase range, improve battery life and maximise performance.

CAGR 11%



Capacitors

Niobium capacitors can substitute Tantalum, due to its stable performance, reliability level, non burning high resistance and high break down voltage.

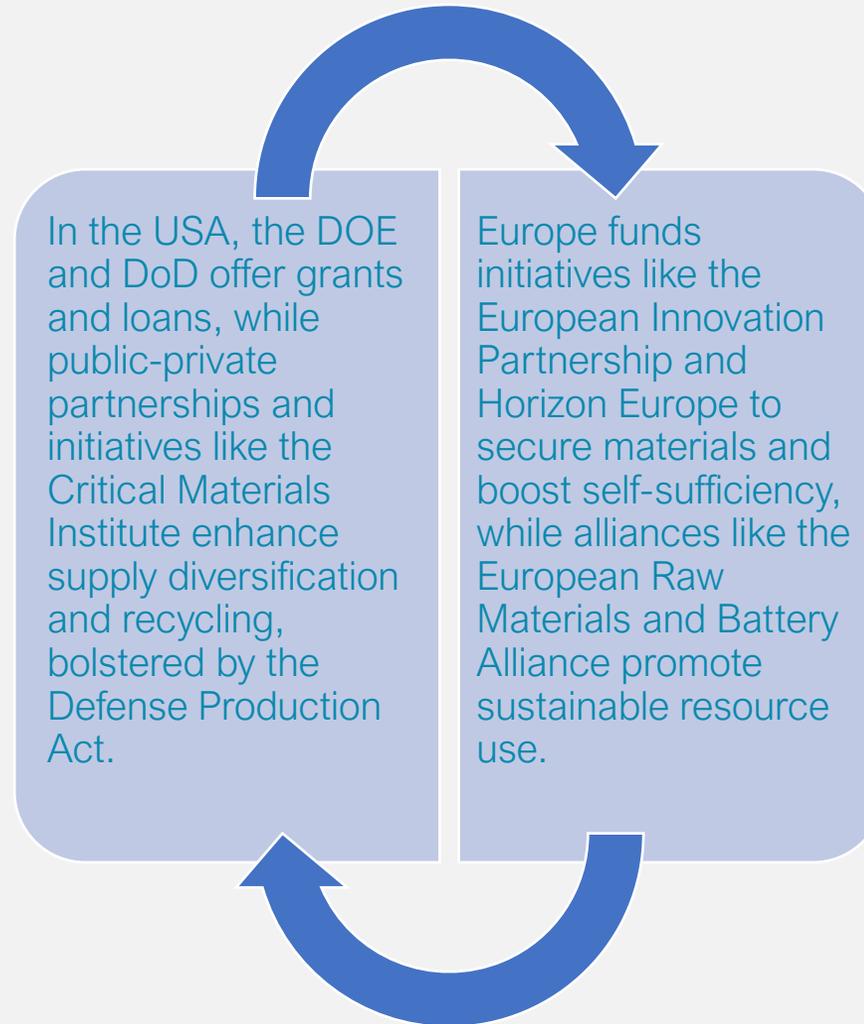
CAGR 6.4%

Source: Capacitors : Allied market research (2021 – 2031)

Support from US and EU - Niobium top of the critical metal list

EU, US, Japan, and India and Australia.

When metals make critical lists in the USA and Europe, they are deemed essential for national security and economic stability but have at-risk supply chains. This status triggers diverse support mechanisms:

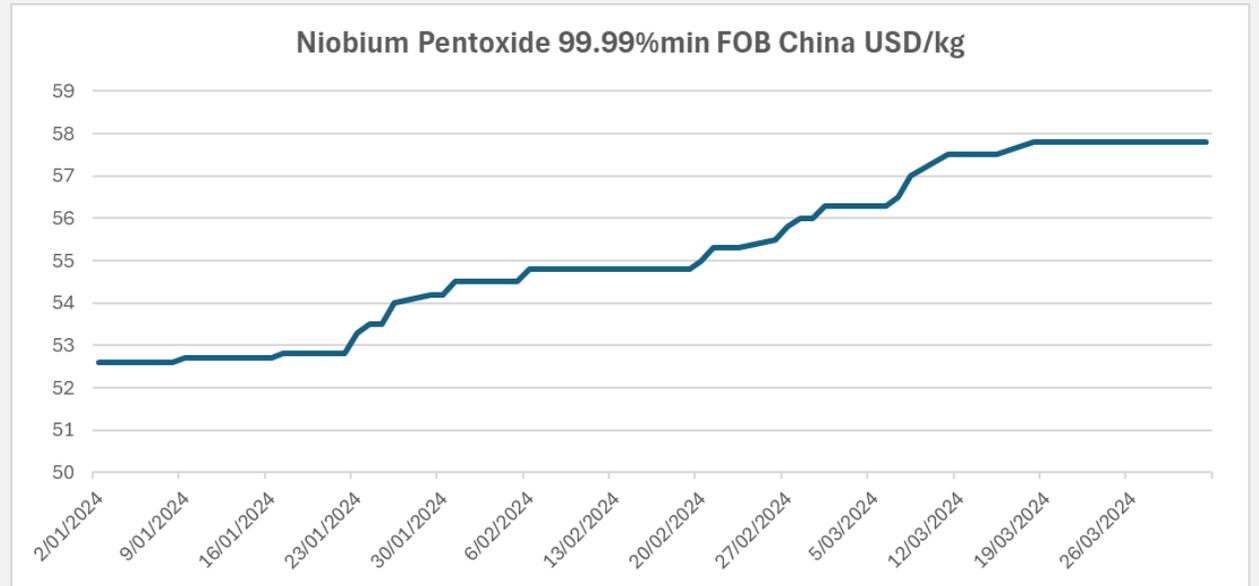


Both regions aim to decrease import reliance, particularly from geopolitically sensitive areas, by fostering a complete, domestic supply chain that encourages innovation and sustainable practices.

Increasing prices

Current niobium oxide (Nb_2O_5) prices are \$US58,000t for 99.9% (FOB China).

Commodity	Price per tonne at 1 April 24
Niobium oxide	\$US 58,000
Nickel	\$US 16,560
Copper	\$US 8,770
Colbalt	\$US 28,549
Lithium	\$US 15,152



The project

Large resource base - long life of mine

Potentially, the first globally significant niobium mine in 50 years.

Mineral Resources

Measured

5.3Mt

3,770ppm Nb₂O₅
19,981t Contained Nb₂O₅

180ppm Ta₂O₅
954t Contained Ta₂O₅

Indicated

47Mt

2,860ppm Nb₂O₅
134,420t Contained Nb₂O₅

135ppm Ta₂O₅
6,345t Contained Ta₂O₅

Inferred

16Mt

2,430ppm Nb₂O₅
38,880t Contained Nb₂O₅

120ppm Ta₂O₅
1,920t Contained Ta₂O₅

Total

68.3Mt

2,830ppm Nb₂O₅
193,281t Contained Nb₂O₅

135ppm Ta₂O₅
9,219t Contained Ta₂O₅

Ore Reserves

Proved

5.3Mt

3,680ppm Nb₂O₅
19,504t Contained Nb₂O₅

171ppm Ta₂O₅
906t Contained Ta₂O₅

Probable

28.5Mt

2,930ppm Nb₂O₅
83,505t Contained Nb₂O₅

136ppm Ta₂O₅
3,876t Contained Ta₂O₅

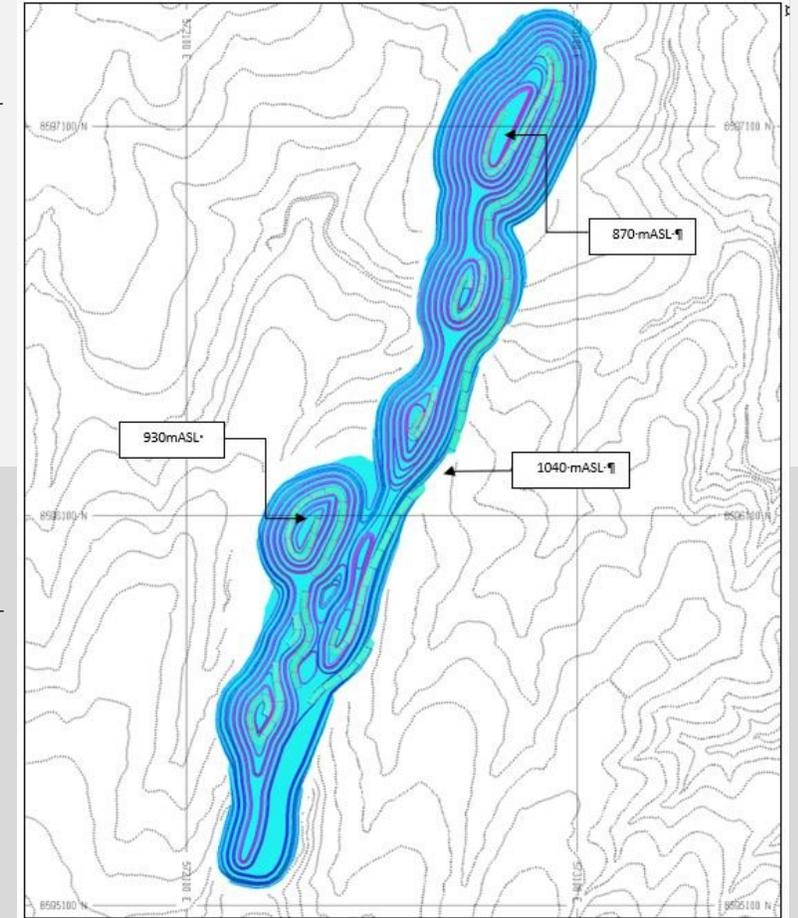
Total

33.8Mt

3,048ppm Nb₂O₅
103,009t Contained Nb₂O₅

141ppm Ta₂O₅
4,782t Contained Ta₂O₅

- Contains pyrochlore and zircon mineralisation in disseminated zones
- Niobium and tantalum mineralisation occurs within the mineral pyrochlore
- High-grade mineralisation features pyrochlore bands associated with zircon



Kanyika Niobium Project

Benefiting from tremendous support from the Hon Minister of Mining and her team at the Ministry of Mining.

- Mining Right issued
- Mine Development Agreement Signed
- Community Development Agreement being finalised
- Refinery development terms under discussion



Figure 1. Signing ceremony for the Mining Development Agreement between the Globe and Malawi Government : 29 March 2023



Figure 2: Production, processing and refining in Malawi.

Shovel-ready, fully permitted, advanced staged project covered by a Mining Development Agreement, Mining License, and all environmental and land approvals required to immediately start construction.

The Globe Chlorination Refinery Lilongwe - Malawi

- *Goal to be the first of its kind in Africa.*
- *Supporting*
 - *Malawi's efforts to export value added products*
 - *Industrial development in Malawi*
 - *Malawi's global role in supplying responsibly sourced critical metals*

Pilot Chlorination plant under construction

- Testwork has demonstrated up to 99% extraction of Niobium and Tantalum from a niobium concentrate from Kanyika
- Confirmed removal of all radio-active materials (U & Th) from the product.
- Successful extraction and separation of >94% of the key Rare Earth Elements (REE), as by-products.



Globe in Malawi – entering an exciting development phase

- **Finalise metallurgical test work**
 - Milling and concentration optimisation
 - Construction and operation of the Chlorination Pilot Refinery
 - Production of Marketing samples
 - Finalise Refinery terms with the Government
- **Finalise our Social Development programs**
- **Update the project Feasibility Study**
 - Update the Mine and Concentrator study
 - Refinery Bankable Feasibility Study (BFS) – Malawi relocation
- **Update the Mine & Concentrator EIA**
- **Refinery EIA and regulatory approvals**
- **Phase 1 Construction and operation**
 - Project infrastructure – Mine and Refinery
 - Mine and Concentrator
 - Chlorination Refinery

The Kanyika Niobium Project's Phase 1 could significantly benefit Malawi's local community.

01

Hiring at the mine and refinery could total 109 new jobs, boosting local income and living standards.

02

Diverse job roles provide skill-building opportunities for the workforce, transferable to other sectors.

03

\$40m Capex in Phase 1, plus better roads/electricity will support the project and improve local living conditions.

04

Community royalties from the project could fund local development, healthcare, and education.

05

Agricultural Development backed by the project, will improve irrigation and food security.

06

Using renewable energy sources, the project prioritizes environmental sustainability.

07

Initiatives in education and community development reflect Globe Metals & Mining's commitment to corporate social responsibility.

08

Introducing carbochlorination might spur technological advances and educational opportunities.

Competent person's statement

Production target and forecast financial information

Mineral resource estimates:

The information in this report that relates to Mineral Resources is extracted from the report titled “Kanyika Niobium Project – Updated JORC Resource Estimate” released to the Australian Securities Exchange (ASX) on 11 July 2018 and available to view at www.globemm.com and for which Competent Persons' consents were obtained. Each Competent Person's consent remains in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.

The Company confirms that is not aware of any new information or data that materially affects the information included in the original ASX announcement released on 11 July 2018 and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original ASX announcement.

Full details are contained in the ASX announcement released on 11 July 2018 titled “Kanyika Niobium Project – Updated JORC Resource Estimate” and is available to view at www.globemm.com

Production target and forecast financial information (ASX Listing Rule 5.19):

The production target and forecast financial information derived from the production target included in this presentation were first announced to the ASX in the announcement released to the ASX on 19 August 2021 titled “Kanyika Niobium Project – Project Feasibility and Economics” and secondly in the announcement released to the ASX on 5 February 2024 titled “Robust Optimisation Study results support Globe's Kanyika Niobium Project. Globe confirms that all the material assumptions underpinning the production target as reported to the ASX on 19 August 2021, and the forecast financial information as reported to the ASX on 5 February 2024, continue to apply and have not materially changed.

Full details are contained in the ASX announcement released on 19 August 2021 titled “Kanyika Niobium Project – Project Feasibility and Economics” as well as in the announcement released to the ASX on 5 February 2024 titled “Robust Optimisation Study results support Globe's Kanyika Niobium Project. and is available to view at www.globemm.com

Ore reserves:

The information in the report that relates to Ore Reserves is extracted from the report titled “Kanyika Niobium Project – Project Feasibility and Economics” released to the Australian Securities Exchange (ASX) on 19 August 2021 and available to view at www.globemm.com and for which a Competent Person's consent was obtained. The Competent Person's consent remains in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.

The Company confirms that is not aware of any new information or data that materially affects the information included in the original ASX announcement released on 19 August 2021 and, in the case of estimates of Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original ASX announcement.

Full details are contained in the ASX announcement released on 19 August 2021 titled “Kanyika Niobium Project – Project Feasibility and Economics” and is available to view at www.globemm.com