# ASX Announcement 1 September 2021



#### **About Globe**

 Globe Metals & Mining Limited is a Perth based company listed on Australian Stock Exchange (ASX Code: GBE)

#### Investment Summary

• 100% interest held in Kanyika Niobium Project in Malawi (Africa)

#### **Directors and Management**

Ms Alice Wong - Non-Executive Chairperson
Mr Alistair Stephens - Managing Director
Mr William Hayden - Non-executive Director
Mr Bo Tan - Non-executive Director
Mr Ricky Lau - Non-executive Director
Mr Michael Fry - CFO/Company Secretary

#### **Capital Structure**

Shares on Issue: 465,922,373

#### **Substantial Shareholders**

Apollo Metals: 52.79%

Ao-Zhong International Minerals: 25.36%

#### **Director Holdings\***

Mr Alice Wong: 245,983,611 (52.80%) Mr William Hayden: 1,276,923 (0.27%) Director Stephens: 1,200,000 (0.26%)

\* both direct and indirect

#### Contact

Alistair Stephens Managing Director info@globemm.com T: +61 (0)8 6118 7240

# Kanyika Niobium Project Updated Presentation

Post the grant of a Large-Scale Mining Licence for the Kanika Niobium Project (LML0216/21), Globe Metals & Mining Limited (ASX: **GBE**, **Globe** or the **Company**) hereby a provides an updated presentation for its Kanyika Niobium Project which incorporates the highlights of its Feasibility Study results and economics as contained in the Company's ASX announcement of 19 August 2021 titled "Kanyika Niobium Project – Project Feasibility and Results".

#### **Authorisation for Release**

This presentation has been authorised for release by the Company's Managing Director, Alistair Stephens.

#### For further information please contact:

Alistair Stephens Managing Director +61 8 6118 7240 Michael Fry Company Secretary +61 8 6118 7240



# **Kanyika Niobium Project**

Positioned to be the first niobium mine in fifty years

**Enabling Excellence in Engineering** 

**Critical to Technology** 

Project Overview September 2021



ASX: GBE

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### Disclaimer



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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 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 through the use of reliance on anything contained in or omitted from this presentation.

Certain information in this Presentation refers 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, demand for niobium, niobium supply, 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, transportation delays and costs, risks and uncertainties related to construction and commissioning, delays in construction of the mining operation, accidents, equipment breakdowns, title matters, labour disputes or other unanticipated difficulties with, or interruptions in, development or production, exchange rate fluctuations, and risks and uncertainties associated with doing business in Malawi. 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 may contain 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, project configuration, construction and commissioning costs and timelines, and general risks and uncertainties. Readers are cautioned not to place undue 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. 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.

### **About Globe**



#### Who we are

Publicly listed company working towards mine construction and operation in order to commence manufacture of niobium and tantalum products principally for use in the engineering, battery and electronics industries.

### **Incorporation and Listing**

Incorporated in May 2005 Listed on Australian Stock Exchange *December 2005 to present* (ASX: GBE)

### **Office Locations**

Headquarters in Perth, Western Australia Operations in Lilongwe, Malawi

### **Shareholding Information**

Shares On Issue: 465.92 million

Top 20: 90.99%

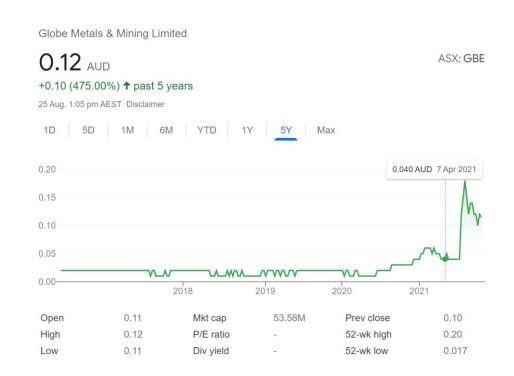
#### Substantial Holders:

Apollo Metals Investment Co. (52.80%)
Ao-Zhong International Minerals (25.36%)

### **Key Market Statistics**

Market Capitalisation: 55.9M (based on 12c close on 26-Aug-2021)

52-week price high: 19c (24-Jun-2021) Cash at Bank: \$2.82m (end Jun 2021)



"Niobium – critical to technological advancement"

## **Board & Management**



### Alice Wong Chairperson

- Apollo Nominee
- Hon. Business Administration Accounting; AICPA
- · Extensive career in investment banking

# Alistair Stephens Managing Director and CEO

- Over 30 years experience as geologist and mining company executive
- Instrumental in developing Arafura Resources
- Joined Globe in May 2013

#### **Senior Management**

- Michael Fry CFO & Company Secretary
- · Benny Tsung President of Global Sales and Marketing
- Dr Marc Steffens Consulting Metallurgist
- Neville Huxham In-Country Manager, Director GBE Malawi Subsidiary
- Grant Hudson General Manager Corporate Services GBE Malawi Subsidiary
- Dean Lungu Chairman GBE Malawi Subsidiary
- Lisungu Banda Senior Accountant / Director GBE Malawi Subsidiary

#### Bo Tan

#### Non-Executive Director

- MBA and CFA
- Over 15 years experience in finance and investment
- Deep understanding of the Greater China market

### **Ricky Lau**

#### Non-Executive Director

- Extensive career in investment banking and real estate
- Managing Partner of Crane Capital
- Former Partner and Co-Head of TPG Capital Asia
- Humanitarian and philanthropist

### William Hayden

### Non-Executive Director

- Co-founder and President of Ivanhoe Nickel and Platinum Ltd
- Current director of a number of ASX and TSX listed companies
- Geophysicist with over 40 years experience in minerals exploration industry

# **Project Highlights**



First niobium Project in fifty years

Kanyika Niobium Project is positioned to be the first ever niobium mine in Africa and Globe the first new producer in 50 years.

68.3 Mt Resource

JORC (2012) compliant mineral resource estimate of 68 Mt with grade of 0.283% Nb205 (M+I+I) (Cut-Off Grade = 1,500 ppm Nb205)

Favourable metallurgy

Patented metallurgical advancements allowing substantially simpler beneficiation with greater recovery and lower process OPEX.

Integrated operations

Project is configured to maximise leverage off existing supporting industries and central to markets

High growth industries

Project provides an opportunity to participate in the growing alloy market, and the high-growth battery and electronics industries.

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Low contents of deleterious elements such as Antimony in ore mineral

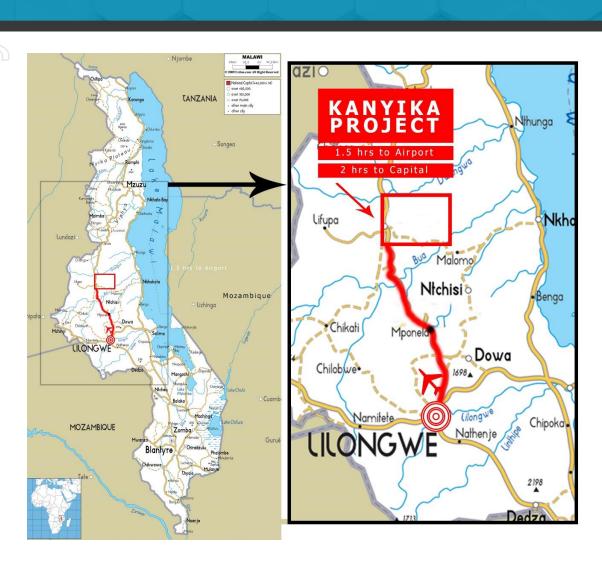
Tantalum (ta) and Uranium (U) byproduct in ore mineral



Metallurgy work indicates ability to beneficiate ore to very high-grade (>2 wt% Nb205)

### Location





- ~250kms north of capital city of Lilongwe
- ~800kms WNW of Nacala Port, Mozambique

KNP is located in the Mzimba District in the Northern Region of Malawi, approximately 55km north east of the town of Kasungu.

The Kanyika Project is located at 1,050masl some 60km west of Lake Malawi. The topography of the project area is moderate with small hills and incised streams and river valleys. The Milenje River cuts across the northern section of the deposit. The most prominent topographical feature in the area is Mphunju, a hill approximately 5km east of the ore body.

Most of the project footprint is located within degraded miombotype woodland areas that have been extensively disturbed through various land use activities, most significantly by cultivation, harvesting of timber and grazing by livestock.

The area is well populated with extensive subsistence level agriculture and domestic cattle, chickens and goats with limited commercial crops.

## **Brief Project Timeline**



Discovered in 2006

Discovery of the Kanyika Nb-U-Ta-Zr deposit publicly announced by Globe in November 2006, following field programmes that included ground radiometric surveys, soil and rock-chip sampling and geological sampling.

JORC resource

Between 2007 and 2009, Globe completed 19,396 metres (236 holes) of RC drilling and 2,984 metres (32 holes) of diamond drilling and publicly announced a JORC Mineral Resource Estimate.

**Project configuration** 

Infill drilling comprising a further 9,207 metres (67 hoes) of RC drilling and 811 metres (3 holes) of diamond drilling, Mine Geotechnical Study, Environmental Impact Assessment, Mineral Processing Studies completed.

Mining Licence

Notice of grant of mining licence received in June 2015, conditional on the signing of a Development Agreement with the Government of Malawi.

New Mines Act

New Mines and Mineral Act 2018 introduced (effective from 1 September 2019). New Act eliminates the requirement for execution of a Development Agreement as a condition of grant.

MRC recommendation

On 3 June 2021, Globe received a formal letter from the principal Secretary of Mining informing it that the Mineral Resource Committee had recommended the grant of a Mining Licence to Globe.

Large-Scale Mining Licence granted

Large-Scale Mining Licence No. LML0216/21 issued 13 August 2021; valid for initial term of 25 years.

### **Niobium**



Geographical risk

Supply concentred to Brazil and Canada. African niobium will provide welcome geographical diversification.

Concentration risk

CBMM currently supplies ~ 85% of the market's requirements. Market would benefit from having additional suppliers.

Minelife in decline

Remaining mine lifes of Catalao (Brazil) and Niobec (Canada) both of which first commenced commercial production in 1976 are in decline. World needs another producing niobium mine within next 5 years.

Key ingredient for Steel Industry

Over 90% of niobium is consumed as ferro-niobium a key input in the manufacture of High Strength Low Alloy steels. Steel production growing year on year.

Increasingly important in electric vehicles

Niobium becomingly increasingly important in quantum electronics and in electric vehicle industry with niobium batteries achieving ultra-rapid re-charge and improved range capabilities.

Critical to military, aerospace, space, nuclear industries

Strategic metal for USA, UK and Russia due to its many military applications (missiles, jets, tanks, etc). Critical to the space industry due to its strength, corrosion resistance and other attractive features; used in many important components: rocket engines, nozzles, etc.

Globe to manufacture high-spec products

Globe aims to manufacture high specification niobium pentoxide products to support the electronics industry (quantum computing, medical imaging, super-conductors, capacitors, military, aerospace and space travel applications) and electric vehicle industry.

Nb

There are only 3 Niobium producing mines on earth; a quasi monopoly



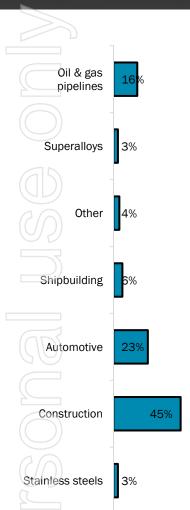
Long term price trend is up



Exciting new uses for the metal in quantum computing and electric vehicles, as well as long term increase in demand

# **Conventional Uses for Niobium - by Industry**















### **Niobium**





Approximately 90% of niobium production is consumed in the steel industry; steel industry and intensity of use of niobium in steel is growing year on year



Often unknown or unheard of metal whose unique properties are just starting to be understood and applied.
Critical to the development of a wide range of new technologies.



Strategic metal for USA,
Russia and China due to its
numerous military and
space applications. Exciting
new uses for niobium in
quantum computing and
electric vehicles

Scientists and manufacturers are only now beginning to imagine the range of technological applications for niobium.

# **Emerging Uses for Niobium**













## **Niobium Supply**



- Supply concentred primarily to Brazil and Canada. African niobium will provide welcome geographical diversification
- CBMM (Brazil) currently supplies ~ 85% of the market's requirements. Market would benefit from having additional suppliers.
- Remaining mine life of Catalao (Brazil) and Niobec (Canada) both of which first commenced commercial production in 1976 are in decline. Industry view: the world needs another producing niobium mine within next 5 years.
- In 2020 the mine production of niobium was estimated at 78,000 metric tons worldwide.
- Niobium producers have increased their production capabilities significantly in recent times to cater for increasing demand from the steel industry and growing demand from the electric vehicle industry, military and space industries and medical industry.
- CBMM, the world's largest supplier of niobium, recently announced that by 2030 it expects to produce and sell 45,000 tons of niobium oxide, used in the production of batteries, up from just 100 tons presently.



There are only 3 producing niobium mines on earth; a quasi monopoly.



Source: Metals-hub.com

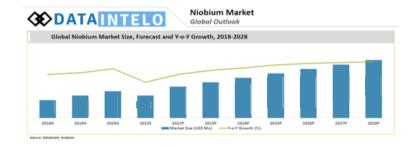
### **Niobium Demand**



- Niobium (Nb) was initially applied in 1933 to stabilize stainless steels against intergranular corrosion.
- Around 1970, niobium started to be used in many technological applications, especially in heat treatments at high temperatures, in the form of superalloys and, over the past four decades, Nb has been employed on an industrial scale.
- In recent years, applications of niobium have increased steadily in various segments such as: micro-alloyed steels, super alloys, thin films, medical implants, titanium and aluminum alloys, superconductors and copper alloys, electrolytic and ceramic capacitors.
- Approximately 90% of niobium is currently consumed as ferro-niobium. As such, the main drivers for niobium usage are the volume of steel manufactured, which is growing year on year, and intensity of use of niobium in steel, which is growing rapidly as the demand/need for higher quality steel increases, this is particularly so in China which has a strategy of using and producing higher quality steels and being compensated accordingly.
- Niobium market is predicted to grow by Compound Average Growth Rate (CAGR) of 5% between 2021 and 2026. Source: Mordor Intelligence "Niobium Market: Growth, Trends, COVID-19, Impact and Forecasts (2021 2026)"

#### ~90 % of Niobium goes into steel





## Resources



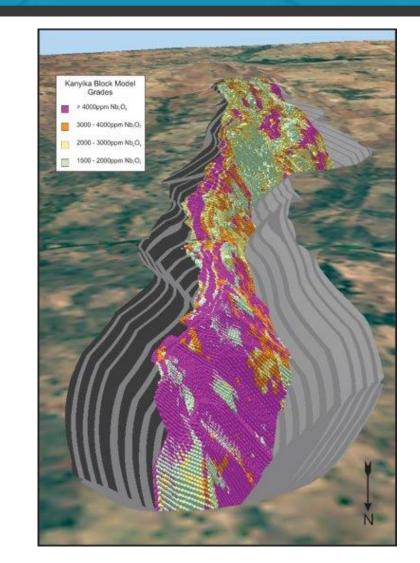
### Mineral Resources:

	Classification	Tonnes (Mt)	Nb <sub>2</sub> O <sub>5</sub> (ppm)	Contained Nb <sub>2</sub> O <sub>5</sub> (t)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Contained Ta <sub>2</sub> O <sub>5</sub> (t)
	Measured	5.3	3,770	19,981	180	954
	Indicated	47	2,860	134,420	135	6,345
	Inferred	16	2,430	38,880	120	1,920
5	Total	68.3	2,830	193,281	135	9,219

### Ore Reserve:

<b>5</b>	Reserve Classification	Tonnes (Mt)	Nb <sub>2</sub> O <sub>5</sub> (ppm)	Contained Nb <sub>2</sub> O <sub>5</sub> (t)	Ta <sub>2</sub> O <sub>5</sub> (ppm)	Contained Ta <sub>2</sub> O <sub>5</sub> (t)
	Proved	5.3	3,680	19,504	171	906
	Probable	28.5	2,930	83,505	136	3,876
	Total	33.8	3,048	103,009	141	4,782

Refer Competent Person Information and Ore Reserve and Mineral Resource Estimate information at rear



## Mine Development Agreement



- The Project Mine Development Agreement (MDA) between the Malawi Government and Globe is presently in FINAL DRAFT and is expected to be executed soon.
- The MDA sets out the terms upon which Globe is able to develop the Project, including terms not otherwise required through existing regulations.
- In executing the MDA, the Malawi Government recognises that Globe has previously undertaken significant
  expenditure in exploration over the license area, and has complied with all license conditions, through technical,
  environmental, social and community programs, and undertaken rehabilitation of the relevant area without
  environmental or social detriment.

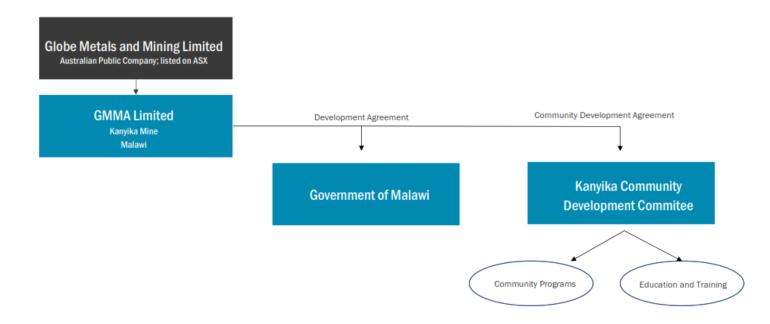
### **Key Terms of Final Draft DA:**

- 10% free carried interest to Malawi Government;
- Malawi Government to receive 5% Gross Metal Royalty;
- Stability: 10 year standstill on taxes to commence upon formal notice from Globe or first day of production;
- Globe exempted from import duty and import excise and zero rated for VAT on imports of capital goods, consumables and services;
- Project excluded from expropriation

### **Community Development Agreement**



- Kanyika Community to receive a 0.45% Gross Metal Royalty from revenue at mine gate.
- Royalty funds are to be directed to community programs as determined by Kanyika Community Development Committee.
- Kanyika Community Development Committee to comprise representatives of Kanyika Community, the Mzimba District and Globe.
- CDA required to be signed prior to operations commencement



# **Community Development Initiatives**



Globe is committed to resourcing projects with high community need, i.e. those that would not be addressed without Globe and where Globe can make a significant difference

Globe's objectives are effective outcomes, collaboration and sustainability









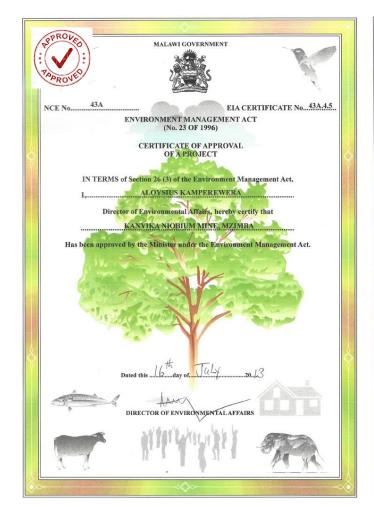




## Kanyika Project Environmental Certification



- The Project has received full environmental accreditation.
- Globe is committed to protecting the environment and operating in a way that is consistent with this objective.
- Globe aims to earn the confidence of our people, regulators and shareholders, as well as contribute to the communities in which we operate as good neighbours.
- Globe's approach to environmental management is based on the robust identification, assessment and management of risks (both threats and opportunities) across all phases of our activities, including development, operation and closure.





## **Feasibility Study Partners**



The Company is satisfied that the project has undertaken studies and programs that are both relevant, recent and of sufficient quality to qualify the project to meet the criteria of a Feasibility Study and the Company has used;

- Wood Engineering (previously named AMEC Foster Wheeler) undertook detailed engineering design for process plant and associated infrastructure while Coffey Mining undertook geotechnical studies and assessments of the project, and Oreology Mining Consultants undertook a detailed mine design and mine schedule,
- GIRCU, a reputable specialist metallurgical consultant company in China with specific commodity experience for the development of a flotation regime and pilot plant for the recovery of pyrochlore, (with subsequent registration of an Intellectual Property Patent for flotation but now superseded with optimised processing intellectual property),
- Knight Piesold Consulting undertook studies for waste rock characterisation and tailings dam waste storage design, Jones and Wagner
  Consulting Civil Engineers for studies on hydrology and hydrogeology, and Knight Piesold Consulting outlined the costs and time for a
  conceptual mine closure plan, and the Company collected a bulk sample and pilot plant test work program to assess recovery regimes
  and flow sheet design under a continual process,
- An EIA has been completed by Synergistics Environmental Services and the Company has Environmental Licences Certificates that enable it to proceed with access and construction of the site.

## **Overview of Financial Projections**



### Feasibility Study highlights a robust project with strong economics:

- 23-year mine life, plant operating at 1.5 Mtpa;
- ability to extend mine life to 38 years by conversion of inferred resources through further drilling
- estimated average annual production of 3,250 tonnes of niobium and 140 tonnes of tantalum
- Recoveries of ~75% for niobium and ~73% for tantalum

Pre-tax NPV of US\$1.018b (8% disc rate):

- Pre-production capital costs of ~US\$250m
- US\$5.6B of revenue over 23-year mine life
- Pre-tax IRR ~50x%
- Payback period ~1.5 years (from production commencing)

Key price assumptions:

- US\$55/kg for Nb<sub>2</sub>O<sub>5</sub>
- US\$410/kg for Ta<sub>2</sub>O<sub>5</sub>

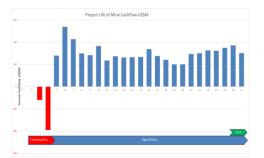
IRR (before tax) of ~50%
Capital Investment of ~US\$250 m

NPV (Before Tax) @8% = US\$1.018b

Avg. Annual Production:  $Nb_2O_5 - 3,250 \text{ t/a}$  $Ta_2O_5 - 140 \text{ t/a}$ 

Annual Cash Flow = US\$225 m

Payback period = 1.5 years



# **Project Funding**



- Globe aims to debt-fund the majority of the Project construction cost
- Globe has had preliminary discussions with a number of prospective financiers; with parties awaiting issue of mining licence to Globe. Now that the mining licence has been issued, work can begin in earnest.
- Significant preliminary interest received from African development banks and financial institutions.
- High potential for off-take partners to offer debt-funding options.
- Newly appointed President of Global Sales and Marketing has 'hit-the-ground' running with market response being that it is genuinely excited about prospect of first new niobium mine in over 50 years.
- Cash at bank at end of June 2021: \$2.82 million

# The Kanyika Project Key Next Steps



Tenure

• Execute Development Agreement

Community

Execute and deliver agreed programs in accordance with Community Development Agreement

Financing

• Complete sales and off-take agreements, and secure financing

Construction

• Construct minesite plant and build refinery, commission plant and commence production

Operations

- Operate safely, in accordance with environmental considerations, and efficiently
- Position Globe's niobium and tantalum products to maximise revenue opportunities
- Build industry relationships



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**Michael Fry** 

**Company Secretary** 

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## **Competent Persons Statement**



### **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 <a href="https://www.globemm.com">www.globemm.com</a> 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" is available to view at <a href="https://www.globemm.com">www.globemm.com</a>

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