

ASX Announcement

27 June 2023

Kanyika Niobium Project Next Steps and Vendor Selection

Highlights

- Sample extracted from site and delivered to Johannesburg for processing and test work.
- Six highly experienced vendors selected to advance the Kanyika Niobium Project.

Globe Metals & Mining Limited (ASX: GBE) (“Globe” or “Company”) is pleased to advise that it has extracted a sample from site for processing and test work and finalised a team of 6 highly experienced vendors to proceed with the next steps in advancing the Kanyika Niobium Project.

Sample extracted from site and delivered to Johannesburg for processing and test work.

A 12-tonne bulk sample has been extracted from a surface outcropping located at the point on the Phase 1 pit shell as per the DFS mining plan where mining will commence. Members of the Department of Lands in Malawi evaluated the damage to crops caused by the passage of the excavator in collecting the sample and compensation has been paid to the affected farmer.

The sample was transported to Lilongwe where it was crushed to -40mm before being exported to South Africa. Here it is being crushed to -1mm by Energy and Densifications Systems (Pty) Ltd (**EDS**) using a multi-shaft mill. Thereafter, the sample will be split, with one half being sent to Solo Resources (Pty) Ltd (**Solo**) for gravimetric testing to determine how much gangue can be discarded from the ore and the second half going to Geolabs Global (Pty) Ltd (**Geolabs Global**) who will mill, deslime and remove magnetics prior to flotation to produce a concentrate. The air-dried concentrate will then be delivered to TCM Research Limited (**TCM**) for chlorination testing.

Six Selected Vendors

Solo has been selected to design and construct the mineral processing plant. Based in Johannesburg, Solo has a wealth of experience in the design, build and commissioning of mineral plants in South Africa, and have supplied such installations all over the Continent. Solo will also undertake gravimetric testing on the ore to discard gangue prior to milling.

TCM has been selected to design the refinery process for the Kanyika concentrate and to determine the design parameters of the refinery. TCM has worked with more than 10 different ore concentrates that contain niobium and tantalum. In addition, they have processed concentrates containing platinum-group metals, rare earths, gold, tin, vanadium and iron, tungsten, zircon and hafnium, nickel and copper sulphides as well as low levels of radioactive materials such as uranium, thorium and other fission daughter products. The advantage of the chlorination process is the ability to convert the bulk of these

into chlorides that can be separated and purified to high grades. The chlorides are then oxidized to oxides and chlorine which is recycled to the reactor.

Thereafter, The Resonant Group (**Resonant**) will complete the engineering drawings for the refinery using these design parameters. Resonant is a multi-disciplinary engineering business active in the metals, minerals, chemicals, oil and gas, and infrastructure sectors. Whilst based in South Africa, Resonant is also active in the Americas, Europe, Asia, and the Middle East.

Globe has selected Geolabs Global as the laboratory to process the Kanyika ore to concentrate. Geolabs Global is a leading provider of mineral processing solutions for the mining and minerals industry based in South Africa.

For Phase 1 of the project, Globe has selected Malawi-based construction company, S.R. Nicholas Ltd, to provide the preliminary design and civil engineering of the plant.

Since 2016, EDS has been developing a horizontal, multi-shaft mill that has a significantly lowered power consumption than the equivalent SAG ball mill. The EDS mill produces -1mm crushed ore that is ideal for gravity spiral separation and is expected to allow some gangue to be discarded prior to reaching the ball mill. In the revised flowsheet, Globe expects both capex and opex to be reduced by about 10%. The final cost savings will be published in the revised feasibility study (refer below).

Refinery Design

The final refinery design is dependent on the current test work results which will determine the bespoke process design criteria to be used in the final engineering drawing. Areas of focus are:

- the discard rate of gangue from the proposed gravity spiral plant;
- determining the size and operating parameters of each of the steps in the refinery by processing the concentrate through the chlorination pilot plant; and
- achieving target product quality by TCM to meet marketing purity requirements.

The target for completion of all design work is Q4 2023.

Feasibility Study

Once the refinery design is finalised, all vendors will have their cost estimates verified and finalised for execution of their respective portions of the overall plant and refinery. Globe expects this to be completed by Q1 2024 when the revised feasibility study will be published.

Authorisation for Release

This ASX Announcement has been authorised for release by the Company's Chief Executive Officer, Grant Hudson.

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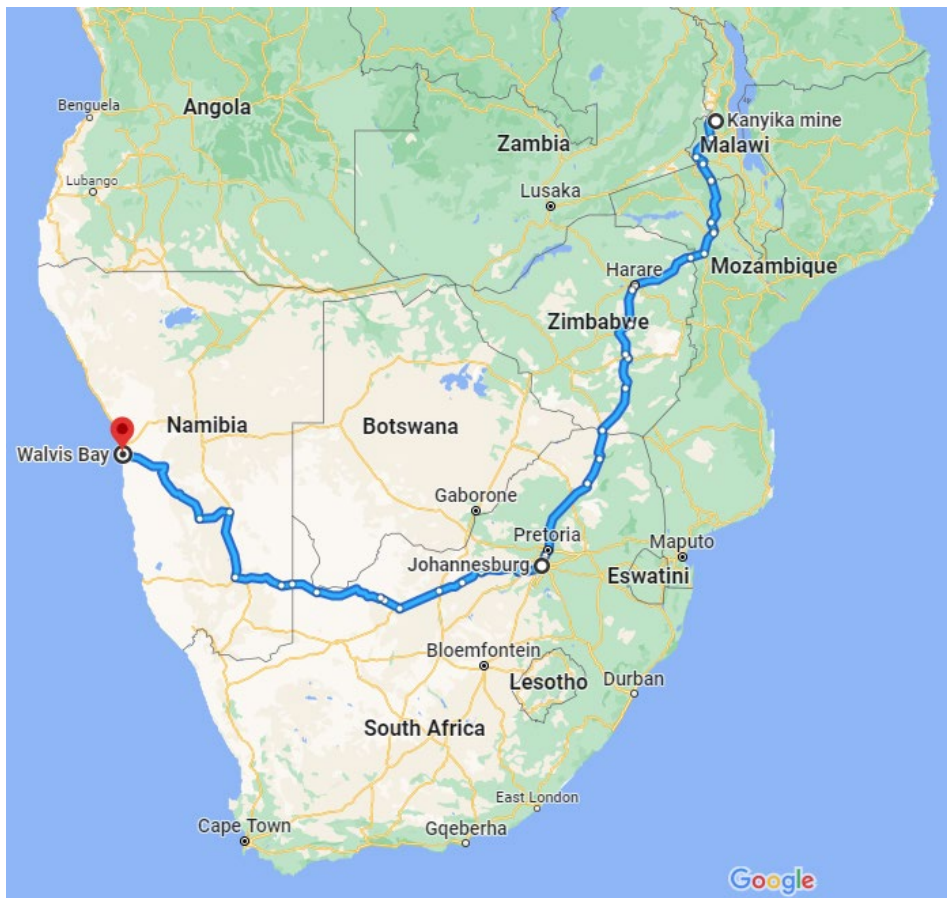
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About the Kanyika Niobium Project

The Kanyika Niobium Project is located in central Malawi, approximately 55km northeast of the regional centre of Kasangu and is secured by Large-Scale Mining Licence No. LML0216/21 which grants the Company security of tenure and the right to mine niobium, tantalum, and deleterious uranium.

Drilling programs totalling 33.8 kilometres of percussion and core drilling have defined the extent of mineralisation. Structured and progressive engineering studies have resulted in the current (JORC 2012) Mineral Resource Estimate (refer below) and given rise to significant improvements and simplifications in the process flowsheet, from that first imagined.

In addition, Globe has undertaken substantial metallurgical optimisation work and commissioned a pilot plant to demonstrate and further optimise metallurgical processes. Metallurgical optimisations studies have improved recoveries from 62% in 2012 to 75% today, through simple novel patented metallurgical processes.



The Kanyika operations will produce a pyrochlore mineral concentrate that contains both niobium and tantalum in commercially valuable volumes to be shipped to a refinery for advanced processing into high purity materials.

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A Mineral Resource Estimate for the Kanyika Niobium Project under the 2012 JORC guidelines was reported to ASX on 11 July 2018 as follows:

Table 1: MRE for KNP using a 1,500 ppm Nb₂O₅ lower cut

Category	Resource (Mt)	Nb ₂ O ₅ (ppm)	Ta ₂ O ₅ (ppm)
Measured	5.3	3,790	180
Indicated	47	2,860	135
Inferred	16	2,430	120
TOTAL	68.3	2,830	135

Table 2: MRE for KNP using a 3,000 ppm Nb₂O₅ lower cut

Category	Resource (Mt)	Nb ₂ O ₅ (ppm)	Ta ₂ O ₅ (ppm)
Measured	3.4	4,790	220
Indicated	16.6	4,120	160
Inferred	2.8	4,110	190
TOTAL	22.8	4,220	190

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” available to view at www.globemm.com.

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