



ASX RELEASE

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Investment Summary

- ASX listed resources company (ASX:GBE)
- 100% interest held on projects in Malawi including niobium, graphite and rare earths
- Malawi Kanyika Niobium project in feasibility optimisation

Directors and Management

Non-Executive Chairperson

Ms Alice Wong

Managing Director

Mr Alistair Stephens

Executive Director & Deputy CEO

Ms Shasha Lu

Non-Executive Director

Mr Jingbin Tian

Independent Non-executive Director

Mr William Hayden

Mr Bo Tan

Mr Alex Ko

CFO & Company Secretary

Ms Kerry Angel

FPOS 469,729,062

OPTIONS 9,100,000 (various)

Contact

Alistair Stephens

Managing Director

info@globemm.com

T: +61 08 9327 0700

Kanyika Demonstration Plant Completed with Outstanding Improvements

Globe Metals & Mining (“**Globe**” or “**the Company**”; ASX:GBE) announces the completion of the Kanyika demonstration pilot plant at Guangzhou Research Institute of Non-Ferrous Metals (GZRINM).

Highlights

- **Major improvements to grade and recovery are achieved;**
 - **Concentrate grade averages 24% Nb₂O₅,**
 - **Nb₂O₅ recovery averages 77%,**
- **Concentrate grades up to 35% are achievable,**
- **Flotation process is now optimised and the flowsheet substantially derisked,**
- **Blending of mineralisation now not critical resulting in improved mine scheduling (yet to be evaluated)**
- **Concentrate samples are available for downstream testing and evaluation.**

Background on Demonstration Work

The Kanyika demonstration plant was undertaken as part of the Kanyika Niobium Project (KNP) optimisation to complete the Definitive Feasibility Study (DFS). The demonstration plant goals were to:

- 1) Operate on a continuous basis and optimise the process,
- 2) Reduce operating costs,
- 3) Improve recovery,
- 4) Produce higher concentrate grade, and
- 5) Produce concentrate sample for downstream market evaluation.

In 2013 the Guangzhou Research Institute for Non-Ferrous Metals (GZRINM) was engaged to undertake metallurgical optimisation for the KNP concentrator. Initial results indicated a hydroxamic acid-based flotation reagent scheme improved metallurgical performance over previous reagent schemes.

Given the nature of oxide flotation circuits such as that proposed for the KNP, Globe considered it prudent to undertake a demonstration pilot plant. A 40-tonne bulk sample was collected from the KNP site and shipped to GZRINM in China.

Kanyika Demonstration Plant Programme

Prior to operation of the demonstration plant, preparatory work was undertaken that involved crushing and homogenising samples and bench-scale flotation work. This was followed by plant commissioning and process optimisation where process conditions were gradually and systematically modified to allow optimal conditions and results to be achieved. The demonstration plant exercise is now complete.

Summary of Results

A summary of the grade and recovery results obtained from plant operations are presented in Table 1. Each of these results is an average of the mineralisation type and a representative result from multiple days of plant operation. The data shows that niobium pentoxide (Nb_2O_5) recoveries are above 75% and concentrate grades are above 22% Nb_2O_5 .

Table 1: Summary of Concentrate Grade and Niobium Recovery achieved in Kanyika Demonstration Plant.

Sample type	Concentrate Grade (% Nb_2O_5)	Nb_2O_5 Recovery (%)
Blended	26	75.1
Surface & Transitional	25	80.3
Deep	22.1	76.4

A portion of the demonstration plant campaign was dedicated to obtaining an understanding of the concentrate grade – recovery relationship. It was found that concentrate grades up to 35% could be

produced, however increasing the concentrate grade reduces Nb₂O₅ recovery. Therefore emphasis was placed on maximising recovery over concentrate grade. The concentrate mass yield was generally between 1-3% of feed mass; an outstanding result compared to the mass yield achieved in typical flotation plants. A simplified diagram of the processing flowsheet is shown in Figure 1.

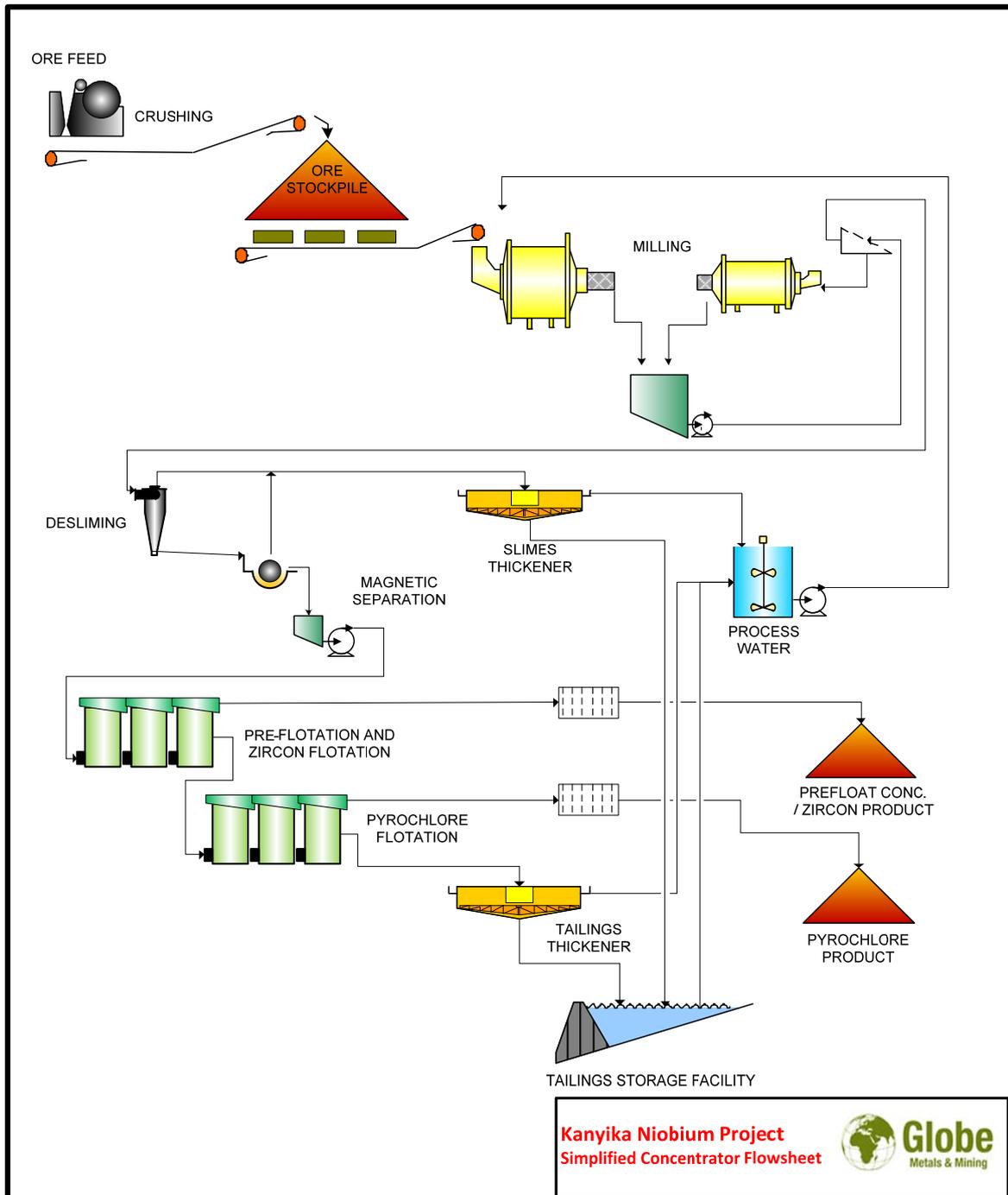


Figure 1: Simplified Kanyika Concentrator Flowsheet.

Process is De-risked and Mining Schedule Improvements Expected

The results of the demonstration plant validated the results of earlier optimisation tests by demonstrating an effective improvement in concentrate grades and increases in Nb₂O₅ recoveries. This represents a significant de-risking of the flowsheet as the test results were achieved under continuous and steady state conditions.

The pilot plant also demonstrated that blending of the mineralisation prior to processing is not as critical as initially envisaged for grade-recovery optimisation. It was found that the process is able to produce comparable Nb₂O₅ recoveries regardless of mineralisation type. This result is significant as it eases metallurgical restrictions previously imposed on the Kanyika mining schedule. The associated economic benefit will be quantified in a mining optimisation study.

Validated Engineering Data for Plant Design

A significant amount of process data was collected during operation of the plant to aid further engineering design in a Front-End Engineering Design (FEED) phase prior to plant construction. The data collected confirms the concentrator design undertaken in 2012, with minor improvements likely to be implemented in the reagent preparation area and in the sizing of flotation cells.

Product Samples Available for Evaluation

A 150 kg sample of mineral concentrate has been produced from the demonstration plant, which is stored for further downstream evaluation and marketing.

Commentary and Next Steps

Globe's MD Alistair Stephens commented;

"Globe is delighted with the results achieved by Prof. Zhang and the team at GZRINM. There were numerous challenges along the way which the team has successfully overcome. The program has improved recovery, improved concentrate grade, eased the metallurgical restrictions on the mining schedule, and made improvements to the plant design. These alone make the demonstration plant exercise a remarkable success".

Globe will use these results for re-modelling of the project economics. Globe will then endeavour to finalise product marketing and off-take aspects of the KNP, while continuing Development Agreement (DA) negotiations with the Government of Malawi.

Competent person: The information in this ASX release relating to metallurgical evaluation is based on information compiled by Dr Marc Steffens. Dr Steffens is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM) and is a full-time employee of Globe Metals and Mining. Dr Steffens consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

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For further information:

Contact:

Alistair Stephens
Managing Director
Globe Metals & Mining Ltd
Tel: +61 (0) 8 9327 0700

Shasha Lu
Deputy CEO and Executive Director
Globe Metals & Mining Ltd
Tel: +61 (0) 8 9327 0700

About Globe Metals & Mining

Globe is a resources company, with a strategy to grow the company's global investment opportunities in the minerals industry.

Globe's corporate head office in Perth, Australia is supported by a regional operational office in Lilongwe, Malawi.
