

Globe Metals & Mining Ltd

Economics improved, progressing to DFS

Globe Metals & Mining Ltd (ASX:GBE) is a Perth-based, Africa-focused resources company which has been developing the Kanyika niobium project in Malawi, Africa since 2007. Kanyika has the potential to be the first producing niobium mine in more than 50 years and the first ever in Africa. The Kanyika project has a mineral resource of 68Mt at 0.283% niobium and reserves of 34Mt at 0.304% niobium. On 5 February 2024, GBE completed an optimisation study which confirmed and enhanced the 2021 Definitive Feasibility Study (DFS) metrics and showed a pre-tax NPV_{8%} of US\$1.004bn over the 27-year mine life at an internal rate of return (IRR) of 47.1%. The study highlighted a lower risk two-phase development approach for the project and refined the initial upfront capital cost for phase 1 to US\$30m from US\$70m, however, since the release of the study, GBE has revised the cost of phase 1 to US\$46m. A change in refining technology to the chlorination process also improved economics (a 15% lower cash operating cost per kg of Nb₂O₅) and environmental sustainability, with the process producing high-purity products which can command premium prices. GBE has a 20-year, worldwide and exclusive licensing agreement with TCM Research for its suite of chlorination processing technologies for the treatment and recovery of metals including iron, titanium, vanadium, tin, tungsten, tantalum, niobium and rare earth elements. We note that in **May 2024**, Paul Smith was appointed CEO (previously COO) with retiring CEO Grant Hudson remaining with the company as an in-country advisor.

Project description

The Kanyika niobium project is located in central Malawi, approximately 55km north-east of the regional centre of Kasangu and secured by a large-scale mining licence which grants GBE security of tenure and the right to mine niobium, tantalum and deleterious uranium. Kanyika has the potential to become the first new niobium mine in 50 years, with an average production rate of 3,155tpa of niobium pentoxide (Nb₂O₅) and 142tpa of tantalum pentoxide (Ta₂O₅) post the completion of phase 2. The project involves a low-cost, open-pit mining operation with mineral processing to produce a 20% Nb₂O₅ concentrate, which feeds into a closed-circuit chlorination refining process to generate a high grade refined Nb₂O₅. The project incorporates two stages with phase 1 aiming to produce 2,000tpa of concentrate and 313tpa of refined Nb₂O₅ from CY26 onwards whilst phase 2 aims to increase this to 18,000tpa and 3,155tpa respectively sometime after CY27, noting refined 99.9% Nb₂O₅ currently commands over US\$50,000/t. The February 2024 optimisation study delivered a pre-tax IRR of 47.1% based on NPV_{8%} of US\$1.004bn with total capex of US\$260m, and life of mine EBIT of US\$2.72bn (~70% gross margin) using US\$51.48/kg of Nb₂O₅ and US\$280/kg for Ta₂O₅ over the life of the mine (LOM). Since the release of the study, GBE has revised costings of phase 1 to US\$46m for a total project cost of US\$296m (previously US\$280m).

Project progressing with several milestones in 2024

GBE has continued metallurgical work for their chlorination process with results (20 March 2024) demonstrating the ability of the process to produce high purity Nb₂O₅ at a lab scale. The results showed an extraction and separation rate of 99% for niobium and tantalum as well as 94% for rare earth elements (REEs). It was also noted that the niobium and tantalum products contained no deleterious elements in the form of radioactive elements which were removed during the refining process. Progress on the pilot plant has continued with GBE conducting hot commissioning as of 7 June 2024 with optimisation of the plant to be conducted prior to processing concentrated ore from Kanyika. The pilot plant aims to prove the chlorination refining process at a greater scale and produce samples for marketing activities to support offtake agreements which GBE aims to confirm in Q4 CY24. The updated DFS is expected to be released in Q2 CY25 and include the chlorination refining technology with the front-end engineering design (FEED) to be conducted thereafter in CY25. Inclusive of early-stage development work, this requires ~US\$6m of funding to complete.

Trading at a discount to peers on a market cap/project NPV basis

We view GBE's relevant peers as Australian Strategic Materials (ASX:ASM) and RareX (ASX:REE), all of which are advancing niobium projects. We have looked at this group from a post-tax NPV_{8%} basis and found that GBE is currently trading at 0.049x NPV_{8%} (post-tax), compared with its peer group which trade at an average of 0.062x post-tax NPV_{8%}. Since our **last report**, the valuation gap has closed, and we would expect to see this discount narrow further provided GBE passes more milestones in the delivery of its project. We previously had Hastings Technology Metals (ASX:HAS) as a peer but note a change in their project scope now excludes the refining stage thus making it a less relevant comparison.

Metals & Mining

18 July 2024

Share Details

ASX code	GBE
Share price (17-Jul)	\$0.054
Market capitalisation	\$37.3M
Shares on issue	691.5M
Net cash at 31-Mar-24	\$2.3M

Share Performance (12 months)



Upside Case

- Strong tailwinds for critical metals, inc. niobium
- Better-than-expected test work on concentrate
- Scaleable start-up with early cash flows in CY26

Downside Case

- Slower-than-expected approvals
- Market for equity raises remains weak
- Opaque nature of niobium market

Catalysts

- Pilot plant built and operating (Q3 CY24)
- Definitive feasibility study updated (Q4 CY24)
- Offtake agreements confirmed (Q3 CY24)

Comparable Companies (Aust/NZ)

ASM, REE, WA1

Board and Management

Alice Wong	Non-Executive Chair
Paul Smith	CEO
Michael Barrett	Non-Executive Director
Michael Choi	Non-Executive Director
Ricky Lau	Non-Executive Director
Bo Tan	Non-Executive Director
Charles Atshuler	CFO
Rex Zietsman	CTO
Louis Schoeman	Project Manager
Grant Hudson	Regional Advisor, Malawi

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