

BAOBAB RESOURCES PLC

POSITIVE TEST RESULTS POINT TO SIMPLER PROCESSING OPTIONS & CAPEX SAVINGS

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Baobab Resources PLC ('Baobab' or the 'Company'), the mineral exploration and development company with a portfolio of assets in Mozambique, is pleased to provide an update on the metallurgical test work which is being completed as part of the Pre-Feasibility Study (PFS) at its 85% owned Tete pig iron, vanadium and titanium project (IFC (International Finance Corporation) hold a 15% participatory interest).

HIGHLIGHTS

- Beneficiation test work recently completed on samples from the Tenge resource block demonstrates that the iron ore can be sufficiently upgraded to a concentrate of smelter-feed specification through low cost, coarse crushing (-3.35mm) and dry magnetic separation (a process known as 'coarse cobbing') at a very high mass recovery and a total iron yield of 63% and 84% respectively.
- The coarse cobbing concentrate specification is significantly coarser than the 150 micron grind size concentrate modelled in the 2011 Scoping Study which requires a ball mill and wet magnetic separation production circuit.
- The simplification of the beneficiation process, by eliminating the requirement for the milling, wet magnetic separation and agglomeration stages, will significantly reduce the initial capital expenditure burden.
- Preliminary mass balance calculations completed by engineering specialists, SNC Lavalin ('SNC'), conclude that smelting of the coarse cobbing concentrate can produce a high quality, ISO compliant pig iron as well as a valuable vanadium slag by-product. Further validation, incorporating local coal specifications, is on-going.
- SNC has commenced both beneficiation and iron making process engineering studies, the results of which will provide a more accurate estimate of capital and production costs.

Commenting today, Ben James, Baobab's Managing Director, said: *"The key outcome of this test work is the potential to make significant savings in the start-up capex for the Tete Project. The ability to smelt a much coarser concentrate also allows for a less complex beneficiation and pyro-metallurgical route than originally contemplated. It is important to note that the preliminary specifications of the Project's potential pig iron product are well within the ISO standard for steel-making pig iron."*

"With the recent GBE4m strategic investment made by the Africa Mining Exploration & Development fund (refer to RNS dated 6 July 2012), the Company is now fully funded and wholly committed to the rapid completion of the Pre-Feasibility Study."

BENEFICIATION PROGRAMME & MASS BALANCE SIMULATION

Beneficiation test work has been completed on a series of representative drill core samples from the Tenge resource block. Work has been carried out at the Bureau Veritas laboratories in Perth, Western Australia, under the management of iron ore processing specialist Dr. John Clout. Test work on core from the Ruoni North and Ruoni South resource blocks is ongoing.

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The programme tested the performance of the Tenge material over a range of grind sizes undergoing wet low intensity magnetic separation ('wet LIMS'). It was determined that the optimal concentrate was generated by wet LIMS at a grind size of 80% passing 150 microns, reporting a grade of 56.6% Fe, 0.75% V₂O₅ and 14.5% TiO₂ at a mass recovery of 52.6% (representing a total Fe yield of 77%). While finer size fractions returned improved Fe concentrate grades, the corresponding mass and Fe recovery figures declined. The 150 micron specification conforms to previous metallurgical test work programmes completed during the 2011 Scoping Study (please refer to RNS dated 29 November 2011).

Coarse cobbing test work has also been completed. Cobbing is a pre-concentration process designed to reject barren gangue material at a coarse size using dry crushing and screening followed by simple, low cost dry magnetic drum separation. Minimal processing of the Tenge core by crushing to -3.35mm and upgrading using a dry drum magnet produced a concentrate yielding 84% of the total available Fe and reporting a grade of 52% Fe, 0.65% V₂O₅ and 15% TiO₂ at an exceptionally high mass recovery of 63%.

The exceptionally high mass recoveries of the titano-magnetite concentrates reflect the high percentage of massive titano-magnetite/ilmenite mineralisation in the Tenge deposit. Both the coarse cobbing and 150 micron concentrates are considered of suitable specification to feed the proposed pig iron smelting facility being examined in the Pre-Feasibility Study (PFS). The advantage of the coarse cobbing option is the elimination of the requirement for ball mill and wet LIMS circuits, which not only simplifies the beneficiation flow sheets, but will result in a significant reduction in startup capital expenditure. The iron making process is likely to be further optimised through the treatment of the finer 150 micron concentrate, with the additional beneficiation steps (milling and wet LIMS) incorporated at a later stage in the mine life once cash flow is established.

The Company's engineering and infrastructure consultant, SNC Lavalin ('SNC'), is completing desk top mass balance studies of both concentrate options. The Studies are simulating the performance of the concentrates through the pyro-metallurgical processes of the proposed pig iron smelting facility; direct reduction via rotary kilns, electric arc furnace ('EAF') smelting and finally ladle treatment (to recover a vanadium rich slag) before pig iron casting. The preliminary results on the coarse cobbing concentrate study are now available.

Materials and utilities mass balances were completed focusing primarily on the consumption of iron ore, direct reduced sponge iron, coal, fluxes, and power in the pyro-metallurgical processes for the production of pig iron and slag by-products (as tabulated below). The simulation has been based on well-established chemical and thermodynamic algorithms using a standard coal specification and has assumed 85% metallisation in the rotary kiln.

TABLE 1: COARSE COBBING CONCENTRATE SIMULATION: PYRO-METALLURGICAL INPUTS & OUTPUTS

INPUTS			OUTPUTS		
Material / Utility	UM	Value	Product	UM	Value
Titano-magnetite Ore	kg	1848	Pig Iron	kg	1000
Coal (total)	kg	713.1	Slag with TiO ₂	kg	599
Limestone	kg	50	Slag with V ₂ O ₅	kg	51
Dolomite	kg	50			
Electrodes paste	kg	2.9			
Serpentine/Quartzite/FeSi	kg	21			
Fe-Mn	kg	12			
CaC ₂	kg	5			
Electricity Composition	kWh	1060			
Oxygen	Nm ³	65			

Based on the results of the mass balance modelling, SNC completed further calculations to estimate the specifications of both the pig iron product and slag by-products. The pig iron is expected to contain low impurities and trace elements, well within the acceptable limits of the International Organisation for Standardisation (ISO) specifications for steel-making pig iron (see Table 2 below). SNC's workings have been peer reviewed and confirmed by independent smelting specialists SMS Metix.

TABLE 2: COARSE COBBING CONCENTRATE SIMULATION: PRELIMINARY PIG IRON SPECIFICATIONS

	Fe (%)	C (%)	Si (%)	Mn (%)	S (%)	P (%)	Trace Elements (%)
ISO Specification for Steel-Making Pig Iron	No Spec	3.0-4.8	<1.0	<1.5	<0.06	<0.25	<0.5
Baobab Preliminary Specification	96	3.11	0.7	0.51	0.002	0.01	0.35

The by-products of the pig iron process would include a titanium rich slag recovered during the EAF stage, and a vanadium rich slag resulting from the ladle treatment process. The calculations indicate that the titanium slag includes 50% TiO₂, which is higher than the 30% TiO₂ slag of EVRAZ's Highveld Vanadium and Steel operation in South Africa, but lower than the 80% TiO₂ slag resulting from typical ilmenite smelting. The high value Vanadium slag potentially consists of c.10% V₂O₅, which is likely to significantly enhance the overall economics of the Project.

To confirm the integrity and consistency of the mass balance calculations, locally available coal specifications need to be incorporated into the simulation. To this end, SNC has established a task force to assess the coal specifications of operations in the immediate vicinity of the Tete Project to determine which source would be best suited for the Company's iron making aspirations. Test work is ongoing and being conducted at Outotec's laboratory in Germany as well as the Bureau Veritas laboratories in Mozambique and South Africa.

SNC has also commenced both the beneficiation and pyro-metallurgical process engineering design phase of the PFS which will further clarify required materials and utility inputs as well as anticipated capital and operation costs.

PRE-FEASIBILITY STUDY & DRILLING UPDATE

In parallel with SNC Lavalin's work programmes, the Company is pleased to announce that good progress is being made on the environmental impact assessment and mining and geotechnical studies being managed by Coffey Environment and Coffey Mining respectively.

Drilling is also progressing well in the Tenge/Ruoni area with a total of 6,500m reverse circulation (RC) and 3,230m diamond drilling completed so far this season. The bulk of the drilling has been designed to upgrade resources at Ruoni North and Ruoni South as well as defining new resources within the Ruoni Flats area where Coffey Mining estimated an Exploration Target of between 120m and 260m (please refer to RNS dated 29 March 2012). Upgrade resource drilling in the Tenge resource block is expected to commence by the end of September 2012.

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NOTE TO EDITORS

TETE PROJECT OVERVIEW

The project is located in the richly endowed Tete province of Mozambique. The province hosts some of the largest undeveloped coal reserves on the planet and, with estimates pointing towards the area producing up to 20% of the world's coking coal within the coming decade, is fast-tracking to become a mining and industrial hub of global significance.

Immediately south of Baobab's tenure, and sharing the Company's licence boundaries, are c.15Bt of coking and thermal coal resources being brought into production by two of the world's largest mining houses, Rio Tinto and Vale, along with premier steel producers, Tata Steel, Nippon Steel, Jindal Steel and Posco. Other operators in the area include AIM listed companies Beacon Hill Resources plc, Ncondezi Coal Company plc and Eurasian Natural Resources Corporation plc (ENRC).

Low tariff hydro-electric power is readily available from the 2,075 megawatt Cahora Bassa dam. Studies are underway to expand the dam's capacity by an additional 1,300 megawatts. A new 1,500 megawatt scheme at Mphanda N'kuwa, also on the Zambezi, is in advanced planning stages and due to commence production in 2015. The Company believes that it will be able to negotiate tariff rates at a third, if not a quarter, of typical power generation costs in Australia or west Africa which will have a significant impact on future operating costs.

The railway connecting Tete with the port of Beira is being refurbished, as is the port. The deep water port of Nacala and railway linking the port with the interior is also being refurbished under the auspices of a consortium

including the Mozambique government, Vale and the World Bank. An order of magnitude study has been completed on a dedicated heavy haulage railway to a Greenfields port located within 500km of Tete.

The Tete Project straddles the central portion of the Tete Mafic Complex and contains two areas of titanomagnetite / ilmenite mineralisation; the Singore area to the south and the Massamba Group in the north. The Massamba Group is composed of a series of three prospects (Chitongue Grande, Chimbala and South Zone) forming an 8km long trend and the 3.5km long Tenge / Ruoni prospect to the east.

IFC (International Finance Corporation) hold a 15% participatory interest in the Project with Baobab owning the remaining 85%. The Company announced on 6 February that IFC has supported the 2012 pre-feasibility study (PFS) through a pro-rata contribution of approximately US\$1.9m.

Building on the successful exploration programmes of 2009 and 2010, Baobab accelerated activities in 2011 to achieve two key milestones; to define a minimum resource base of 300Mt on which a Scoping Study could be finalised. The Company completed an aggressive c.40,000m drilling campaign that resulted in the expansion of the global resource base to of 482Mt (please refer to RNS dated 5 March 2012 for a summary of resources).

The Scoping Study, completed by independent consultants and applying conventional beneficiation and smelting technologies, assessed two production scenarios:

- Scenario 'A': base-case production of 3Mtpa titanomagnetite concentrate and 0.5Mtpa ilmenite concentrate products for export. Initial capital expenditure (capex) estimate of US\$448m.
- Scenario 'B': capitalising on the Project's access to low tariff hydro-electric power and strategic proximity to thermal coal reserves to add further value on site through the mine-mouth smelting of 1Mtpa pig iron. Initial capex estimate of US\$690m.

While the base-case model for scenario 'A' demonstrated viable Project fundamentals, the optimisations and financial modelling of Scenario 'B' at a 10% discount rate provided compelling economics with pre-tax net present value (NPV10) and internal rate of return (IRR) figures of US\$1.4b and 34% respectively. The estimated average annual net cash flow after capex over the modelled 25 year mine life is US\$275m.

The Scoping Study results show very clearly the 'value add' from the plans for on-site smelting of pig iron and underlines the strategic advantages of the Project's unique geography with respect to infrastructure and complementary resources. Producing a higher value, high demand product will not only broaden the market base, but also mitigate the requirement to compete for rail and port access.

The vanadium potential remains to be modelled and could add further to the value of this Project. Reduced input costs through long-term domestic coal contracts and on-site power co-generation also need to be assessed, while the expanding resource base at Tenge/Ruoni, underpinning a meaningful +30 year mine life, allows scope for ramping up production. For a detailed summary of the Scoping Study, please refer to RNS dated 29 November 2011.

PRE-FEASIBILITY STUDY TEAM

The PFS is being coordinated out of Australia by Baobab's Project Manager, Christian Kunze. Mr. Kunze has a Master's Degree in Mechanical Engineering / Business Administration and 20 years international management experience in iron ore project development, plant engineering and steel manufacture. He has worked for industry specialists including Siemens VAI and ProMet Engineers, and has a well-established network of professional associates in Africa, USA, Europe, Asia and Australia. Mr. Kunze's specific strength lies in a combined technical and commercial understanding of projects.

The mineral processing component of the study is being supervised by consultant, Dr. John Clout. Dr. Clout is a leader in iron ore petrography, metallurgy, beneficiation, downstream processing and marketing. He was the Head of Resource Strategy at FMG in which role he was instrumental in the success of the company. He is an ex-CSIRO manager and has advised on mineral processing to companies including Rio Tinto, BlueScope, OneSteel, Robe River, Hancock and WISCO. John holds the position of Adjunct Professor in Mineral Processing at the School of Mechanical and Chemical Engineering, University of Western Australia.

Coffey Mining has been selected to complete the resource, mining and environmental aspects of the PFS. Coffey has more than 50 years' experience as specialist mining consultants operating in over 60 countries across the globe and has contributed to iron ore feasibility studies for clients including FMG, Atlas Iron, Robe River, BHP Billiton, Gibson Iron, OneSteel, Hancock Prospecting, Grange Resources, Brockman Resources and Midwest Cooperation.

SNC-Lavalin has been selected as the engineering and infrastructure consultant. SNC-Lavalin is one of the largest engineering and construction groups in the world, consistently ranked in the top ten international design firms by Engineering News Record. As a provider of engineering, procurement, construction and project management services SNC-Lavalin has the capacity to take the Tete project from feasibility level through to project execution. Recently executed studies relating to the beneficiation of magnetite and heavy mineral sands projects include

FMG's North Star Magnetite Project, Zammin Ferrous' Valentines Magnetite Project and Grand Cote Mineral Sands Project.