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## **NEWS RELEASE**

### **MKANGO RESOURCES ANNOUNCES METALLURGICAL FLOW SHEET AND PRODUCES FIRST HIGH GRADE PRODUCTS FROM PROOF OF CONCEPT TESTWORK**

**Calgary, Alberta: July 10, 2013** – Mkango Resources Ltd. (TSXV-MKA) (the "**Corporation**" or "**Mkango**") is pleased to announce a base case metallurgical flow sheet for the Songwe Hill rare earth project. Proof of concept test work on a bench scale has demonstrated that the flow sheet has potential to produce a high grade mixed rare earth carbonate or hydroxide product.

#### **Highlights**

- Proof of concept test work produced a high grade mixed rare earth carbonate product (59% TREO<sup>1</sup>, 7% HREO<sup>2</sup>/TREO) and a cerium depleted, heavy rare earth enriched mixed rare earth hydroxide product (55% TREO, 18% HREO/TREO) on a bench scale.
- The proposed base case flow sheet uses conventional technology comprising flotation, followed by leaching of the mineral concentrate with hydrochloric acid, then precipitation and purification.
- Songwe's favourable mineralogy, comprising synchysite and apatite that is anomalously enriched in heavy rare earths, allows for a simple, low temperature acid leaching process to achieve good recoveries. There is an added benefit of the higher value critical and heavy rare earths leaching more effectively than light rare earths such as lanthanum and cerium.
- In contrast to other rare earth deposits containing monazite or xenotime, high capital and energy intensive kilns are not required in the proposed Songwe Hill processing flow sheet. Mkango anticipates that the plant design will be modular, using plastics or composite materials for tanks and pipework. With a design largely comprised of conventional technology, using tanks, pumps and filters, there is the potential for lower capital expenditure and ease of future expansion.
- Mkango is now proceeding with further optimisation and demonstration of the flow sheet, in advance of commencing plant engineering studies. Alternative hydrometallurgical flow sheets are being evaluated in parallel to confirm that the current flow sheet represents the optimal base case and to evaluate different product options

***William Dawes, Chief Executive of Mkango, stated "This is a major milestone in the development of the Songwe Hill rare earth project and the company is now well positioned to further progress discussions with potential strategic investors, separation facilities and off-take partners. Mkango has delineated a significant Indicated and Inferred rare earth resource at Songwe and is spearheading development of a major, world class rare earth mineral province in Malawi"***

<sup>1</sup> TREO – total rare earth oxides including yttrium oxide; <sup>2</sup> HREO – heavy rare earth oxides including yttrium oxide

## Background

A comprehensive three year program of mineralogical studies formed the basis for the program of scoping metallurgical testwork. Mineralogical work included an investigation by High Definition Mineralogy incorporating QEMSCAN™ completed by SGS Minerals Services, scanning electron microscope (SEM), electron microprobe and Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) analyses completed at the Natural History Museum, Aberystwyth University, Camborne School of Mines and the British Geological Survey. Further mineralogical work (SEM) on mineral concentrate was completed at Mintek and the Camborne School of Mines.

The mineralogical program identified the fluorocarbonate mineral, synchysite, and the phosphate mineral, apatite, as the most important rare earth bearing minerals, and confirmed that the apatite contained significantly enhanced concentrations of heavy rare earths and yttrium relative to apatite in other carbonatites worldwide.

Scoping metallurgical test work was then completed on a composite sample comprising equal proportions of material from diamond drill holes PX012, PX001, PX003 and PX005, which predominantly comprise carbonatite lithologies, and was oriented to maximise recovery of rare earths contained in both synchysite and apatite.

## Hydrometallurgy

A number of potential flow sheets were evaluated at Mintek, South Africa, and Nagrom Laboratories, Western Australia, of which a hydrochloric acid leach route has produced the most optimal results to date.

In the latest test work, hydrochloric acid leaching test work was undertaken at Nagrom, on the ground whole rock composite, comprising equal proportions of material from diamond drill holes PX012, PX001, PX003 and PX005. Although optimal dissolution of rare earths occurred at 30% hydrochloric acid strength, high dissolution values were also achieved using 20% hydrochloric acid strength. Leaching was undertaken at ambient temperatures (i.e. without the need for heating). Test work to date indicates that the higher value critical and heavy rare earths leach more effectively than light rare earths as indicated below:

Leach Recoveries			
Rare Earth		% Recovery (30% HCL)	% Recovery (20% HCL)
Lanthanum	Light rare earth	84.7	78.0
Cerium	Light rare earth	87.3	82.9
Praseodymium	Light rare earth	89.6	85.5
Neodymium	Critical / light rare earth	91.3	87.8
Samarium	Light rare earth	93.7	91.2
Europium	Critical / heavy rare earth	94.5	92.3
Gadolinium	Heavy rare earth	96.2	94.4
Terbium	Critical / heavy rare earth	95.8	94.5
Dysprosium	Critical / heavy rare earth	94.9	94.4
Yttrium	Critical / heavy rare earth	93.4	93.0

Precipitation and purification test work culminated in the production of mixed rare earth carbonate and mixed rare earth hydroxide products. Test work to date suggests that thorium impurities can be removed during the purification step.

## Flotation

Extensive flotation test work was completed at Mintek in South Africa, with a view to determining the optimal reagent regime and conditions required to upgrade both synchysite and apatite in a mineral concentrate. A large proportion of this work was completed within the scope of a Mintek research project entitled “Developing beneficiation procedures for upgrading rare earth minerals from carbonatitic deposits”. Flotation has proved to be the most effective upgrade method tested to date.

Test work has successfully demonstrated that, for the material tested to date, flotation upgrades both synchysite and apatite. Recent bench scale test work on the composite comprising equal proportions of material from diamond drill holes PX012, PX001, PX003 and PX005 produced a mineral concentrate grading 4.6% TREO (6.3% HREO / TREO) equivalent to an approximate 2.6 times upgrade in TREO grade with individual recoveries for the principal rare earths ranging from 54% to 70% as indicated below. The mass pull was 25.7%, i.e. the mass of the mineral concentrate was 25.7% of the mass of the whole rock feed, implying that a flotation step prior to leaching would result in a significant reduction in acid consumption, and therefore leach costs, versus leaching whole rock.

Rare Earth		Flotation Recovery (%)
Lanthanum	Light rare earth	69.6
Cerium	Light rare earth	68.2
Praseodymium	Light rare earth	66.8
Neodymium	Critical / light rare earth	66.0
Samarium	Light rare earth	63.4
Europium	Critical / heavy rare earth	62.4
Gadolinium	Heavy rare earth	59.9
Terbium	Critical / heavy rare earth	58.9
Dysprosium	Critical / heavy rare earth	56.1
Yttrium	Critical / heavy rare earth	53.5

## Base case flow sheet



## Next steps

Mkango is now proceeding with further optimisation and demonstration of the flow sheet, on a larger scale, in order to advance the project through the pre-feasibility stage.

In terms of flotation, further optimisation work will be completed with a view to increasing overall TREO recovery and that of apatite in order to increase heavy rare earth recoveries.

Alternative hydrometallurgical flow sheets are being evaluated in parallel to confirm that the current flow sheet represents the optimal base case and to evaluate different product options. Bench scale testing will also be completed to evaluate recycling of hydrochloric acid using sulphuric acid, which would be a lower cost reagent and an integral part of the flow sheet.

A further sample totalling approximately 480kg of core from diamond drill holes PX013, PX015, PX021, PX022b, PX033 and PX035 will be used for the next phase of test work, which will also include comminution tests.

Scientific and technical information contained in this release in relation to metallurgical test work has been approved and verified by Mr Gavin Beer BSc. (Ext. Met.) MAusIMM (CP), consultant metallurgist who is a "Qualified Person" in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects*.

### **The Songwe Hill Rare Earth Project**

The Songwe Hill rare earth project is located within the 100% owned Exclusive Exploration Licence 0284/10R in southeast Malawi. The Songwe project is accessible by road from Zomba, the former capital, and Blantyre, the principal commercial town of Malawi. Total travel time from Zomba is approximately 2 hours, which will reduce as infrastructure continues to be upgraded in the area.

On 22 November 2012, Mkango filed a Technical Report (the "Report") for its maiden NI 43-101 mineral resource estimate entitled *NI 43-101 Technical Report and Mineral Resource Estimate for the Songwe Hill Rare Earth Element (REE) Project, Phalombe District, Republic of Malawi* authored by Scott Swinden, Ph.D, P.Geo. and Michael Hall, Pr.Sci.Nat., MAusIMM. The Report's mineral resource estimates, as previously announced, are summarized below.

<b>Cut-off grade</b>	<b><i>In-situ</i> Indicated Mineral Resource estimate</b>	<b><i>In-situ</i> Inferred Mineral Resource estimate</b>
1.0% TREO	13.2 mt grading 1.62% TREO	18.6 mt grading 1.38% TREO
1.5% TREO	6.2 mt grading 2.05% TREO	5.1 mt grading 1.83% TREO

TREO – total rare earth oxides including yttrium. In-situ - no geological losses applied. mt - million tonnes

For further details of mineral resource estimates including breakdowns thereof, please refer to the Report which is available at [www.sedar.com](http://www.sedar.com).

### **Mkango Resources Ltd.**

Mkango's primary business is the exploration for rare earth elements and associated minerals in the Republic of Malawi. It holds, through its wholly owned subsidiary Lancaster Exploration Limited, a 100% interest in two exclusive prospecting licenses covering a combined area of 1,751 km<sup>2</sup> in southern Malawi. The main exploration target is the Songwe Hill rare earth deposit, which features carbonatite hosted rare earth mineralisation and was subject to previous exploration in the late 1980s.

The Corporation's corporate strategy is to further develop the Songwe Hill rare earth deposit and secure additional rare earth element and other mineral opportunities in Malawi and elsewhere in Africa.

On April 11, 2013 the Corporation closed an oversubscribed C\$2.3 million private placement.

On behalf of the Board of Mkango Resources Ltd.,

*"William Dawes"*  
Chief Executive Officer

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The forward-looking statements contained in this press release are made as of the date of this press release. Except as required by law, the Corporation disclaims any intention and assume no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by applicable securities law. Additionally, the Corporation undertakes no obligation to comment on the expectations of, or statements made, by third parties in respect of the matters discussed above.

***The TSX Venture Exchange has neither approved nor disapproved the contents of this press release.***

***Neither the TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.***