



**Company Presentation May 2019**

***Rare Earths and Technology for the CleanTech Revolution***



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Scientific and technical information contained in this pres relating to the mineral resource estimate has been approved and verified by Jeremy Witley Pr. Sci Nat of The MSA Group Pty Ltd, who is a “Qualified Person” in accordance with National Instrument 43-101 – Standards of Disclosure for Mineral Projects.

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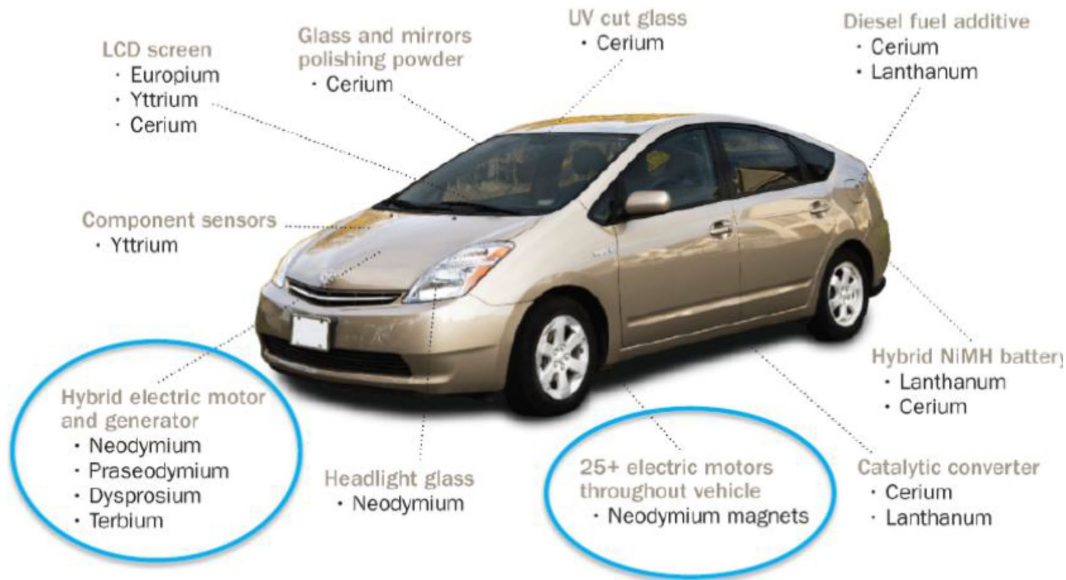
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# Rare Earths Geared to EV Growth

- ✓ Neodymium / Praseodymium (NdPr) - key components of rare earth permanent magnet motors for electric vehicles
- ✓ Accelerating EV demand will lead to an increasing neodymium supply-demand deficit



**“Tesla's electric motor shift to spur demand for rare earth neodymium”**



REUTERS

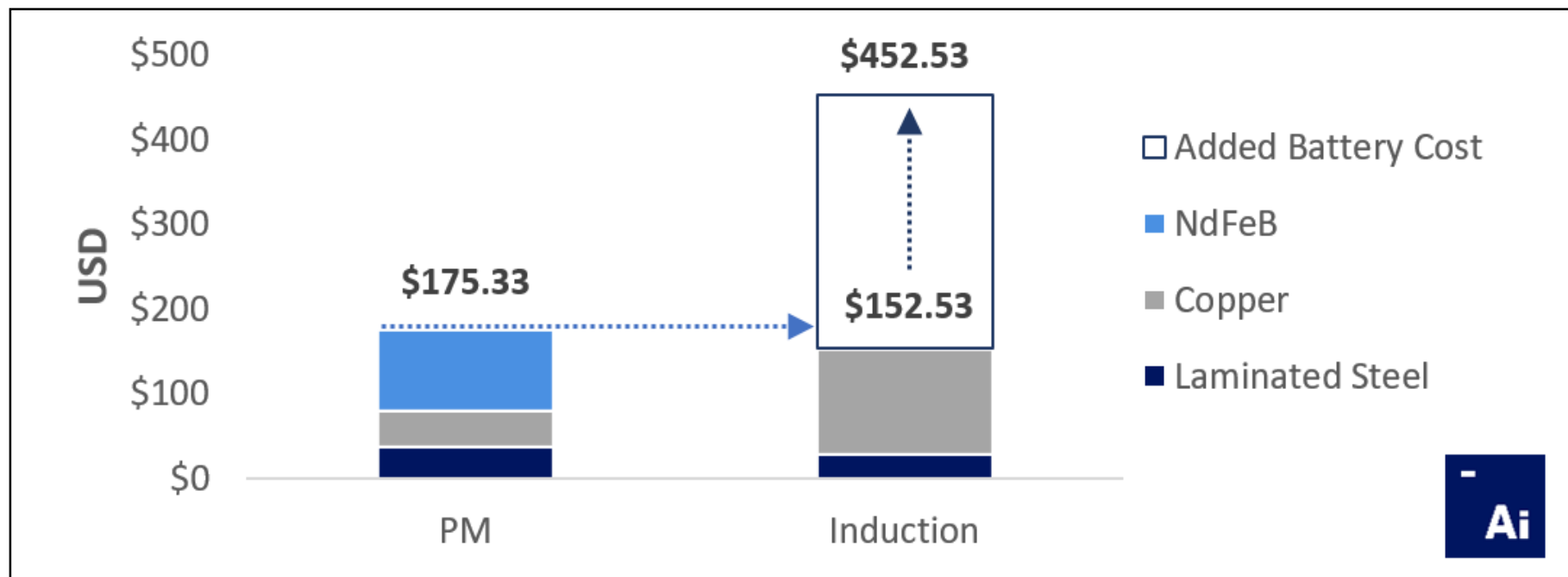
March 12, 2018

***Permanent magnet (PM) motors used in over 90% of EVs and remain the optimal technology***



# Benefits - Rare Earth PM Motors for EVs

## Bill of Materials for Comparable Rare Earth Permanent Magnet (PM) and Induction Motors



Source: Adamas Intelligence – Spotlight on Dysprosium (2018)

- ✓ Increasing the capacity of a 60-kWh battery by a conservative 5% to compensate for use of an induction motor, which has lower efficiency, can increase powertrain costs by upwards of US\$300 (based on a conservative US\$100/kWh battery cost)
- ✓ Suggests that use of a rare earth permanent magnet motor is substantially more economically attractive than induction motor despite higher direct material costs

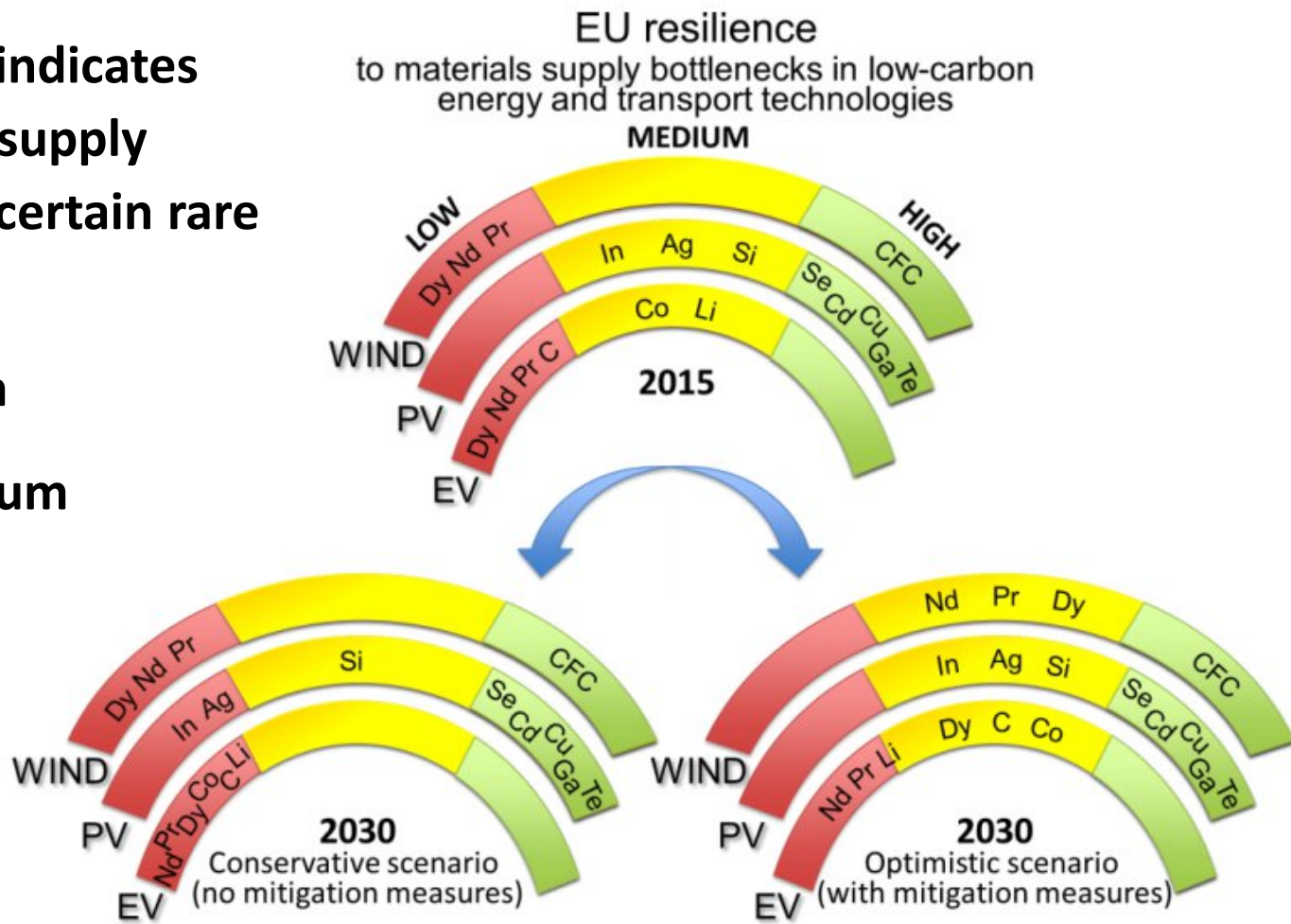




# Critical for the Low Carbon Economy

✓ EU report (JRC) indicates vulnerability to supply bottlenecks for certain rare earths:

- Neodymium
- Praseodymium
- Dysprosium



Source: European Commission JRC report 2016 - Assessment of potential bottlenecks along the materials supply chain for the future deployment of low-carbon energy and transport technologies in the EU



# NdPr from “the Warm Heart of Africa”

- ✓ Focused on the advanced stage Songwe Hill rare earth project in Malawi
- ✓ 2019 resource update – 60% increase in Measured & Indicated Resources
- ✓ Feasibility study underway – based on 2019 updated resource estimate
- ✓ Pathway to production – JV with Talaxis Ltd funding BFS, with development option
- ✓ Malawi – stable jurisdiction with major infrastructure developments ➡ low capex
- ✓ Sustainable development and CSR – integral to Mkango’s vision; Social Licence
- ✓ Downstream technology – R&D project with Metalysis focused on NdFeB alloys

*Feasibility study underway with development timeline perfectly timed  
for the NdPr crunch point*



# Transaction with Talaxis



- ✓ Talaxis Limited is a Noble Group subsidiary focused on resources which are critical to green technology supply chains
- ✓ Talaxis invested **£12 million** into Lancaster in two tranches, fully funding the BFS for Songwe, in return for a 49% interest
  - First **£5 million** tranche invested January 2018 (for 20% interest)
  - Second **£7 million** invested March 2019 (for 29% interest)
- ✓ Following completion of BFS, Talaxis has option to increase its interest in Songwe to 75% by arranging funding for 100% of project development costs
- ✓ Talaxis to invest **£2 million** into Maginito in two tranches for 49% interest
  - First **£1 million** invested in January 2018 (for a 24.5% interest)

***On completion of Talaxis investments, Mkango's interest in Songwe would be 25%, free carried to production***





# Company Structure

**Talaxis holds  
24.5% of  
Maginito**

**75.5%**

**Maginito Ltd**  
(£1m invested to  
date by Talaxis)

**Focused on rare earth alloy and  
magnet technologies**

JV with Metalysis – 2017

Evaluating growth opportunities

**51%**

**Lancaster  
Exploration Ltd**  
(£12m invested to  
date by Talaxis)

**Talaxis  
holds 49%  
of Lancaster**

**Developing the Songwe Hill Rare  
Earths Project in Malawi**

Resource update - 2019

Feasibility study (BFS) underway



AIM / TSXV: MKA



# Corporate Snapshot

## Capital Structure (TSX-V / AIM)

Share Price (29/5): £0.0835 / C\$0.15

Shares Outstanding: ~114.6M

Warrants: 20.3M @ £0.066  
12.0M<sup>1</sup> @ £0.066

Options: 5.7M @ C\$0.06  
2.5M @ C\$0.07  
1.0M @ C\$0.16  
1.9M @ C\$0.14

Fully Diluted: ~158.0M

Market Cap (29/5): ~£9.6M / C\$17.1M

<sup>1</sup> Warrants held by Talaxis

- ✓ Listed in Canada (TSX-V) Jan 2011
- ✓ Dual-listed in UK (AIM) June 2016
- ✓ Cash position of US\$2.4m Dec 2018
- ✓ Talaxis investment £7m March 2019



## Major Shareholders

Talaxis (Noble Group)	12.5%
RESOC	12.0%
Leominex <sup>1</sup>	7.5%
Richard Sneller	4.8%
Myles McNulty	4.8%

<sup>1</sup> W Dawes and A Lemon each hold 17.3% of Leominex



# Experienced International Board

## Technically led Executive team with 12 year track record in Malawi Board strengthened with three new Non-Executive Directors appointed in 2018

**William Dawes, *Chief Executive Officer & Co-founder*** - BSc Geology, MSc Mineral Exploration, Over 20 years experience in exploration, business development, investment banking; prior experience at Rio Tinto, Robert Fleming, Chase Manhattan and JP Morgan.

**Alexander Lemon, *President & Co-founder*** - BSc Geological Sciences, MSc Mineral Exploration, Over 20 years experience in exploration, operations management; prior experience as Managing Director of Gold and Mineral Excavation Inc.

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**Derek Linfield (*Chairman*)** - Legal consultant and former Managing Partner of Stikeman Elliott (London) LLP, having over 18 years experience in London focusing on mining and oil & gas sectors, mainly in Africa.

**Susan Muir (NED – Aug 2018)** - Highly experienced investor relations executive, with over 30 years experience in the mining sector and in capital markets. Formerly Vice President, Investor Communications at Barrick Gold Corporation

**Adrian Reynolds (NED)** - Over 30 years experience in the natural resources sector, 15 years with Randgold, former Chairman of Digby Wells Environmental, Non-Executive Director of Geodrill Ltd.

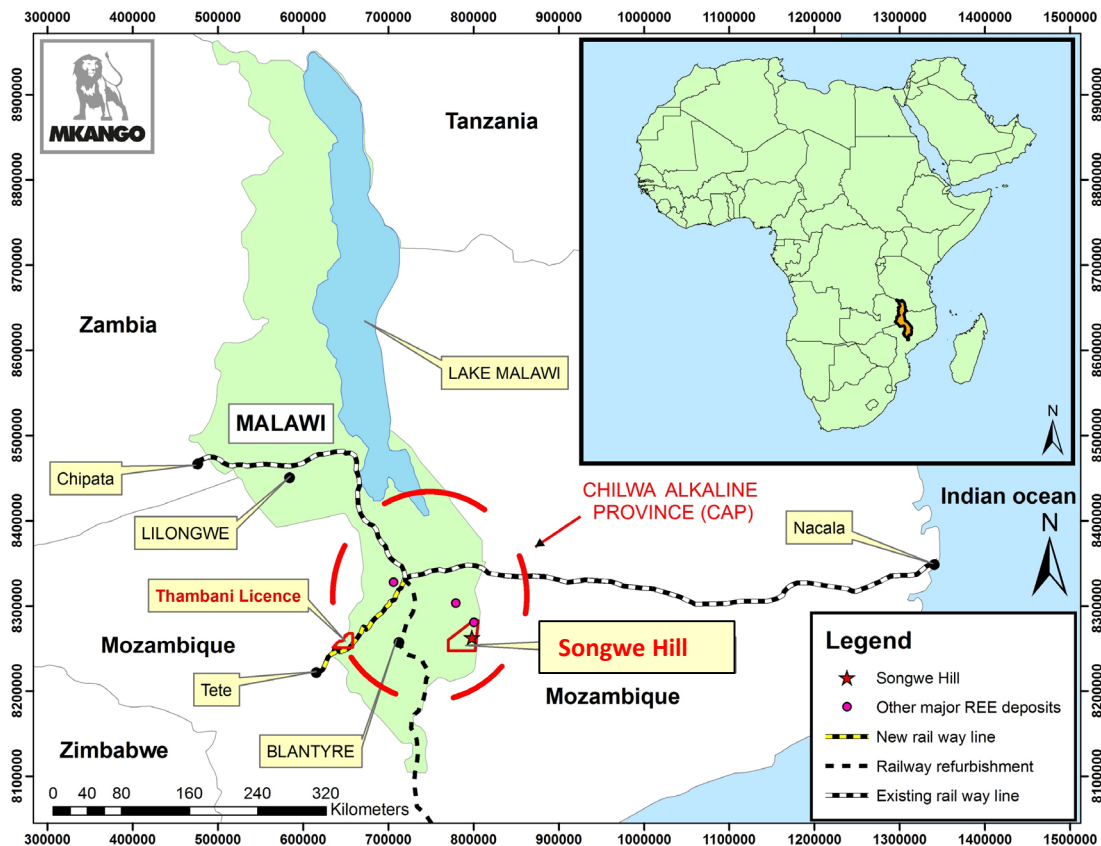
**Sandra du Toit (NED – Aug 2018)** - Highly experienced investment banker having advised on numerous transactions in the African mining and finance space. Currently Executive Vice President with Standard Bank.

**Shaun Treacy (NED – Oct 2018)** - Senior strategic and financial adviser. Currently Chief Investment Officer for the private equity firm, Arete Capital Partners. Previously held senior investment banking positions with JPMorgan, Lehman Brothers, Nomura and UBS.



# Malawi – Favourable Jurisdiction

- ✓ World class, undeveloped rare earth mineral province
- ✓ New rail corridor unlocking mineral development
- ✓ Politically stable democracy
- ✓ Supportive government



*Continuity of senior management from project inception  
longstanding relationships in Government and local communities*



# Songwe Hill Rare Earths Deposit

- ✓ Carbonatite hosted rare earth mineralisation
- ✓ Updated resource estimate announced February 2019
  - 60% increase in Measured & Indicated Resources
  - 95% of Measured & Indicated Resources <160m  
➡ indicating majority accessible by open pit mining
  - First Measured Resource underpins ongoing BFS
  - Key objectives of 2018 drill programme achieved
- ✓ Broad mineralised zones as opposed to dykes, veins
- ✓ Synchysite dominated rare earth mineralogy



*Publication of technical report  
in relation to resource update  
triggered £7m Talaxis  
investment to complete BFS*

Cut-off grade	Measured Mineral Resource estimate	Indicated Mineral Resource estimate	Total Measured and Indicated Mineral Resource estimate	Inferred Mineral Resource estimate
<b>Base Case 1.0% TREO</b>	8.8 mt grading 1.50% TREO	12.2 mt grading 1.35% TREO	<b>21.0 mt grading 1.41% TREO</b>	27.5 mt grading 1.33% TREO

TREO: total rare earth oxides based on total  $\text{La}_2\text{O}_3$ ,  $\text{CeO}_2$ ,  $\text{Pr}_6\text{O}_{11}$ ,  $\text{Nd}_2\text{O}_3$ ,  $\text{Sm}_2\text{O}_3$ ,  $\text{Eu}_2\text{O}_3$ ,  $\text{Gd}_2\text{O}_3$ ,  $\text{Tb}_4\text{O}_7$ ,  $\text{Dy}_2\text{O}_3$ ,  $\text{Ho}_2\text{O}_3$ ,  $\text{Er}_2\text{O}_3$ ,  $\text{Tm}_2\text{O}_3$ ,  $\text{Yb}_2\text{O}_3$ ,  $\text{Lu}_2\text{O}_3$ ,  $\text{Y}_2\text{O}_3$ . Grades of individual rare earth oxides are shown in the appendix. 4% geological losses applied to account for voids.



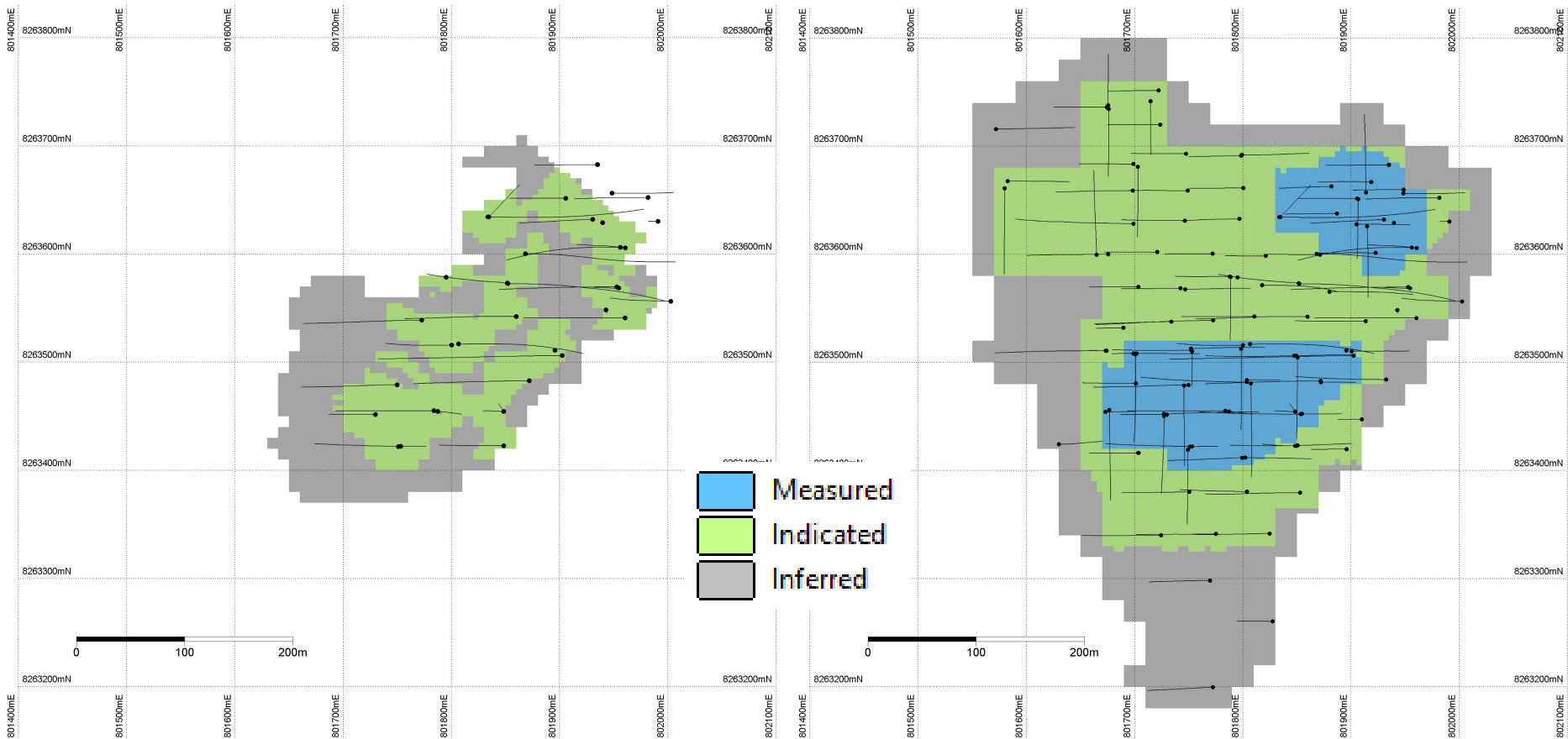


# 2019 Resource Upgrade

## Plan Views

2012

2019



*Majority of previously delineated near surface Inferred Resource upgraded to either Measured or Indicated categories*

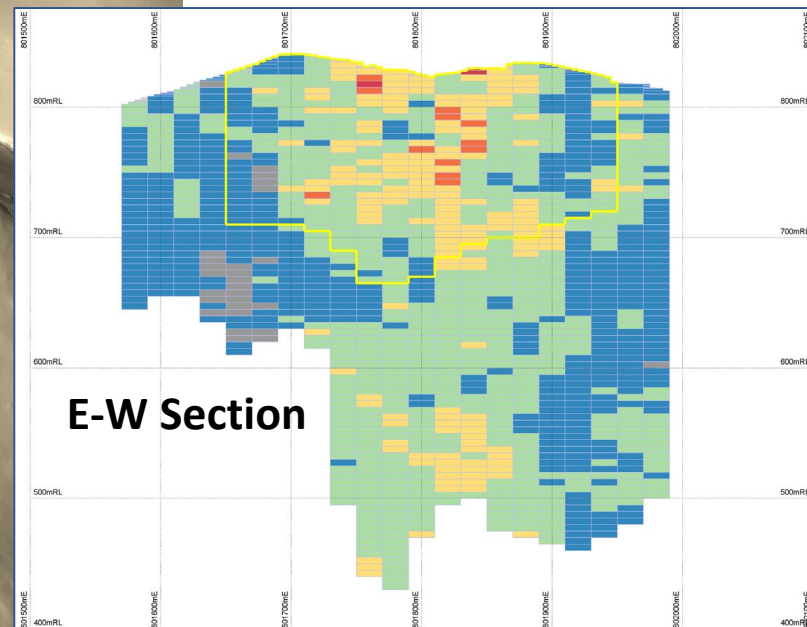


# 2019 Resource Upgrade

Outline of Measured & Indicated Resource draped on topography and superimposed on grade block model

E-W Section Line

0 100 200m

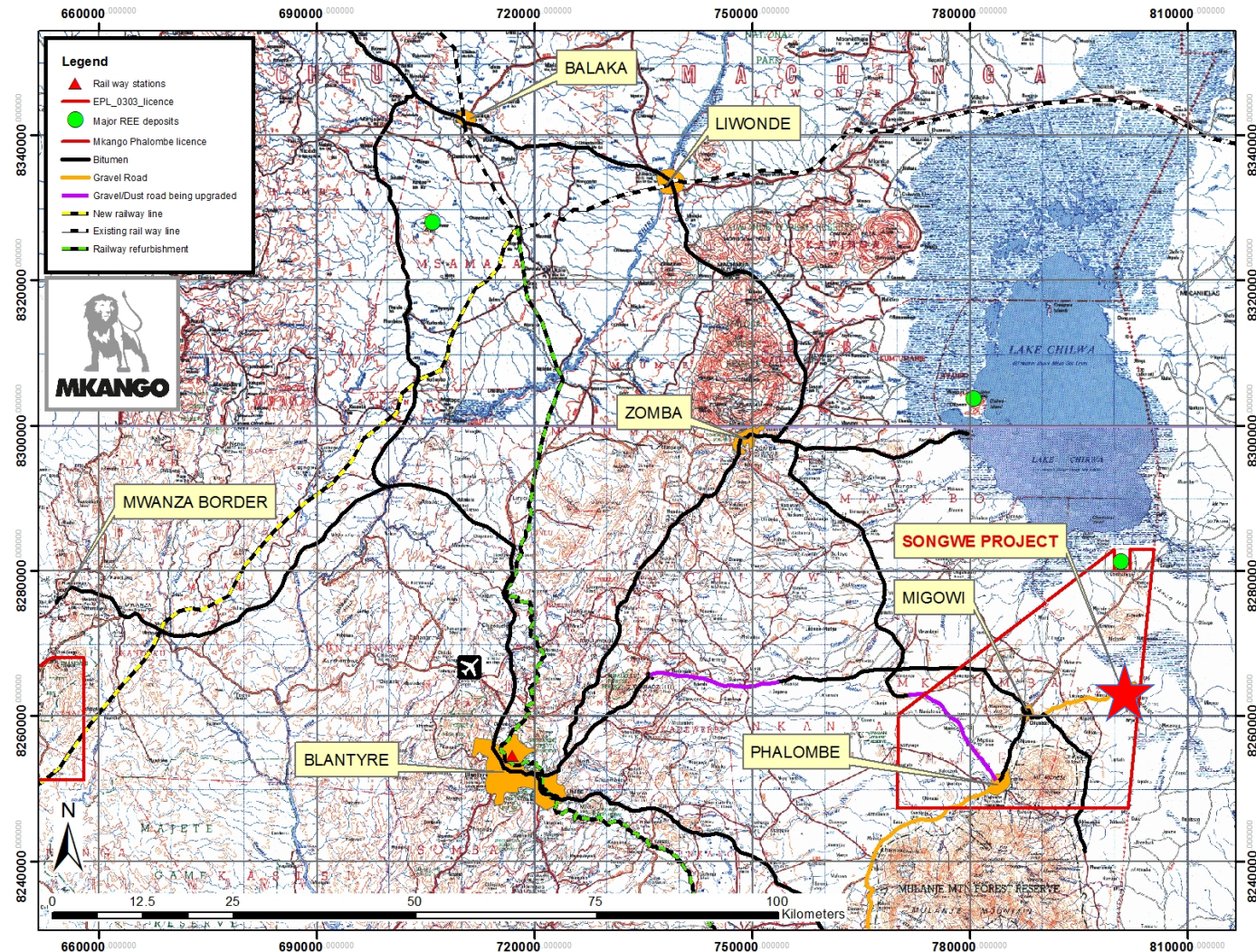






# Excellent Access to Infrastructure

- Beneficiation, hydromet and acid plants to be located in Malawi
- Production of purified, high grade, mixed rare earth chemical product
- Product export and reagent import via rail and road
- Site located 2hrs from major commercial centre, Blantyre, with rail head and international airport
- Power cogenerated from sulphuric acid plant, supplemented with grid / solar



**MKANGO**



# Feasibility Studies Underway

- ✓ **Mine planning - evaluating opportunities for:**
  - ✓ Increased tonnage in mine plan
  - ✓ Increased throughput
  - ✓ Extended mine life
  - ✓ Lower strip ratio and lower mining costs
- ✓ **Metallurgical optimisation**
  - ✓ Flotation – evaluating opportunities to increase recovery and / or conc grade
  - ✓ Hydrometallurgy – focused on opex reduction and acid regeneration
  - ✓ Separation – evaluating options
  - ✓ 60 tonne bulk sample selected
- ✓ **Environmental, Social and Health Impact Assessment**
  - ✓ ESHIA progressing on track





# Corporate Social Responsibility

## boNGO Worldwide partnership

- Happy Classrooms project
- Enhancing 3 local primary schools
- 24 classrooms painted with school syllabus

## Scholarships and Food Programme

- Secondary education fees paid for the top 6 students from 3 local primary schools – 24 students to date
- Zero Hunger with Langar Project – 2,000 primary school students receive daily meal

## Local Community Infrastructure projects

- Five water boreholes & pumps installed, fifteen restored in the local area
- Bridge construction & extensive road refurbishment



Before - An unhappy classroom



After - A happy classroom after renovation & painting syllabus on the classroom wall



Water Pump Mphembezu



New Bridge Constructed





## Next Steps

- ✓ Completion of metallurgical optimisation for Songwe
- ✓ Export of bulk sample and commencement of pilot testing for Songwe
- ✓ Songwe feasibility study and ESHIA targeted for completion 2020
- ✓ Grow Maginito portfolio focused on technologies geared to EV revolution
- ✓ Advance Thambani (U-Ta-Nb) and Chimimbe (Ni-Co) licences via JVs, spin-off or other partnerships





# Appendix



# Mineral Resource Estimates

## Mineral Resource estimates at different cut-off grades<sup>1</sup>

Resource Categories	0.5% TREO cut off grade			Base Case 1.0% TREO cut off grade			1.5% TREO cut off grade		
	Million tonnes	TREO %	TREO tonnes	Million tonnes	TREO %	TREO tonnes	Million tonnes	TREO %	TREO tonnes
Measured	13.34	1.26	167,573	8.81	1.50	131,929	3.67	1.86	68,278
Indicated	24.30	1.06	258,092	12.22	1.35	165,469	3.13	1.79	55,805
<b>Total Measured &amp; Indicated</b>	<b>37.64</b>	<b>1.13</b>	<b>425,665</b>	<b>21.03</b>	<b>1.41</b>	<b>297,398</b>	<b>6.80</b>	<b>1.83</b>	<b>124,084</b>
Total Inferred	59.65	1.02	608,194	27.54	1.33	366,154	5.92	1.75	103,414

<sup>1</sup> Mineral resources are not mineral reserves and do not have demonstrated economic viability

### Measured Mineral Resource - Individual Rare Earth Grades at 0.5%, 1.0% and 1.5% TREO Cut-Offs

Cut-Off %TREO	Million Tonnes	La <sub>2</sub> O <sub>3</sub> ppm	CeO <sub>2</sub> ppm	Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm	Sm <sub>2</sub> O <sub>3</sub> ppm	Eu <sub>2</sub> O <sub>3</sub> ppm	Gd <sub>2</sub> O <sub>3</sub> ppm	Tb <sub>4</sub> O <sub>7</sub> ppm	Dy <sub>2</sub> O <sub>3</sub> ppm	Ho <sub>2</sub> O <sub>3</sub> ppm	Er <sub>2</sub> O <sub>3</sub> ppm	Tm <sub>2</sub> O <sub>3</sub> ppm	Yb <sub>2</sub> O <sub>3</sub> ppm	Lu <sub>2</sub> O <sub>3</sub> ppm	Y <sub>2</sub> O <sub>3</sub> ppm	TREO ppm
0.5	13.34	2,948	5,664	602	2,033	301	82	194	24	109	18	42	5	31	4	504	12,560
1	8.81	3,581	6,793	715	2,391	343	94	221	27	124	20	47	6	35	5	572	14,975
1.5	3.67	4,673	8,517	874	2,855	392	107	251	31	140	22	52	7	38	5	631	18,594

### Indicated Mineral Resource - Individual Rare Earth Grades at 0.5%, 1.0% and 1.5% TREO Cut-Offs

Cut-Off %TREO	Million Tonnes	La <sub>2</sub> O <sub>3</sub> ppm	CeO <sub>2</sub> ppm	Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm	Sm <sub>2</sub> O <sub>3</sub> ppm	Eu <sub>2</sub> O <sub>3</sub> ppm	Gd <sub>2</sub> O <sub>3</sub> ppm	Tb <sub>4</sub> O <sub>7</sub> ppm	Dy <sub>2</sub> O <sub>3</sub> ppm	Ho <sub>2</sub> O <sub>3</sub> ppm	Er <sub>2</sub> O <sub>3</sub> ppm	Tm <sub>2</sub> O <sub>3</sub> ppm	Yb <sub>2</sub> O <sub>3</sub> ppm	Lu <sub>2</sub> O <sub>3</sub> ppm	Y <sub>2</sub> O <sub>3</sub> ppm	TREO ppm
0.5	24.30	2,538	4,797	502	1,687	256	69	165	20	90	15	35	4	25	3	415	10,620
1	12.22	3,369	6,195	634	2,083	301	81	191	23	103	16	39	5	28	4	465	13,535
1.5	3.13	4,688	8,279	826	2,637	359	96	224	26	116	18	42	5	30	4	508	17,858

### Inferred Mineral Resource - Individual Rare Earth Grades at 0.5%, 1.0% and 1.5% TREO Cut-Offs

Cut-Off %TREO	Million Tonnes	La <sub>2</sub> O <sub>3</sub> ppm	CeO <sub>2</sub> ppm	Pr <sub>6</sub> O <sub>11</sub> ppm	Nd <sub>2</sub> O <sub>3</sub> ppm	Sm <sub>2</sub> O <sub>3</sub> ppm	Eu <sub>2</sub> O <sub>3</sub> ppm	Gd <sub>2</sub> O <sub>3</sub> ppm	Tb <sub>4</sub> O <sub>7</sub> ppm	Dy <sub>2</sub> O <sub>3</sub> ppm	Ho <sub>2</sub> O <sub>3</sub> ppm	Er <sub>2</sub> O <sub>3</sub> ppm	Tm <sub>2</sub> O <sub>3</sub> ppm	Yb <sub>2</sub> O <sub>3</sub> ppm	Lu <sub>2</sub> O <sub>3</sub> ppm	Y <sub>2</sub> O <sub>3</sub> ppm	TREO ppm
0.5	59.65	2,346	4,601	494	1,691	255	68	159	19	85	14	33	4	25	3	399	10,197
1	27.54	3,189	6,079	639	2,134	306	82	188	22	100	16	39	5	29	4	464	13,296
1.5	5.92	4,375	8,064	825	2,700	368	98	226	27	122	19	47	6	35	5	558	17,475

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