

# KIBARAN RESOURCES CORPORATE UPDATE & MINING INDABA 2016 PRESENTATION

**Kibaran Resources Limited** (ASX: KNL), is pleased to make available its latest presentation. Managing Director, Andrew Spinks will be presenting at Mining Indaba 2016 in Cape Town, South Africa to be held on the 8 to 11 February 2016.

The presentation "Development of the Epanko Graphite Project and the Emerging Lithium-Ion Battery Market" has been appended to this announcement.

Further information, please contact:

**Managing Director** 

**CFO/Company Secretary** 

**Andrew Spinks** 

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# **DEVELOPING PREMIUM QUALITY GRAPHITE IN TANZANIA**



February 2016

Development of the Epanko Graphite Project and the Emerging Lithium-Ion Battery Market

# Presented by:

Mr Andrew Spinks, Managing Director
Mr Christoph Frey, Technical Graphite Specialist

ASX: KNL

quality graphite uniquely tanzanian



## DISCLAIMER

#### **Securities Disclaimer**

This presentation is for informational purposes only and does not constitute an offer to sell, or solicit to purchase, any securities. Such offer can be made only through proper subscription documentation and only to investors meeting strict suitability requirements. Any failure to comply with these restrictions may constitute a violation of applicable securities laws.

#### **Forward looking Statements**

Various statements in this presentation constitute statements relating to intentions, future acts and events. Such statements are generally classified as "forward looking statements" and involve known and unknown risks, uncertainties and other important factors that could cause those future acts, events and circumstances to differ materially from what is presented or implicitly portrayed herein. The company gives no assurances that the anticipated results, performance or achievements expressed or implied in these forward looking statements will be achieved.

#### **Competent Person**

The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Andrew Spinks, who is a Member of The Australasian Institute of Mining and Metallurgy included in a list promulgated by the ASX from time to time. Andrew Spinks is a director of Kibaran Resources Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Andrew Spinks consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mr David Williams, a Competent Person, who is a Member of The Australasian Institute of Mining and Metallurgy. David Williams is employed by CSA Global Pty Ltd, an independent consulting company. Mr Williams has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". David Williams consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the Ore Reserve has been compiled by Mr Steve O'Grady. Mr O'Grady, who is a Member of the Australasian Institute of Mining and Metallurgy, is a full time employee of Intermine Engineering and produced the Mining Reserve estimate based on data and geological information supplied by Mr Williams. Mr O'Grady has sufficient experience that is relevant to the estimation, assessment, evaluation and economic extraction of Ore Reserve that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. Mr O'Grady consents to the inclusion in this report of the matters based on his information in the form and context that the information appears.



# COMPANY OVERVIEW

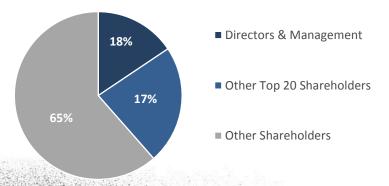
## **Capital Structure**

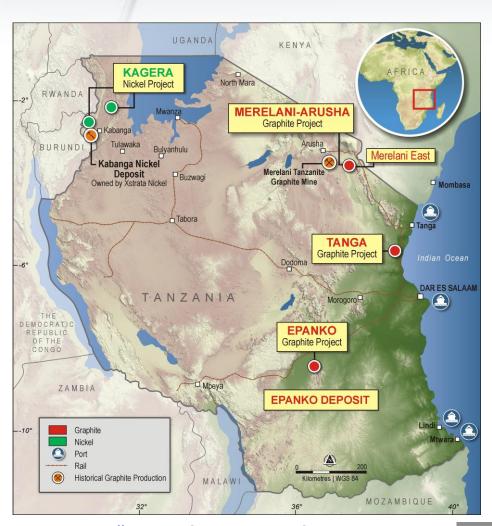
KNL:ASX	
Shares on Issue	167.6m
Share Price (31 December 2015)	\$0.165
Market Capitalisation	\$27.7m
Net Cash (31 December 2015)	\$1.4m
Enterprise Value	\$26.3m

#### Options

Unlisted Options	Various Exp, Various Ex Prices	12m
TOTAL		12m

### Shareholders





"Focused strategy to become a major graphite producer"



# EPANKO PROJECT HIGHLIGHTS

## Epanko World-class Graphite Assets

- Debt financing supported by in-principle German Government Loan Guarantee (UFK) up to \$US40m
- German KfW-Bank Bank mandate letter signed for debt financing
- African Development Bank, Nedbank EOI of up to US\$30m of additional funding
- Bankable Feasibility Study completed with Pre-tax NPV of US\$197.5m
  - Annual EBITDA of US\$33.6m for 15 years
  - Annual production of 40,000tpa
  - Mining licence granted with environmental approvals in place
  - Mine life of 25 years is based on Ore Reserves
- Staged increase to 84,000tpa, then 150,000tpa increase with global demand
- · Significant mineralisation remains undrilled
- Longterm Strategic Offtake & Sales Agreement
  - ThyssenKrupp for 20,000tpa
  - European trader for 10,000tpa
  - Sojitz Corporation
- Value Add Growth Lithium Ion Battery Market
  - Strategic partnership and access to Japan-Korea Battery Market with Sojitz Corporation
  - Scoping Study completed with Pre-tax NPV of US\$115m
  - Discussion with other strategic partnerships seeking funding for Battery Manufacturing Facility

"Positioning Kibaran to be one of the first listed graphite focussed companies to progress to Production"



## BOARD & MANAGEMENT TEAM

### Robert Pett - Non-Executive Chairman

- Minerals Economist with over 30 years experience working in mining and exploration
- Involved with listed companies at all levels in the resources sector at senior levels from grass-roots exploration through to mine development, production and financing
- Founding Chairman of Resolute Mining (gold mines/exploration Africa and (Australia)

## Andrew Spinks - Managing Director

- Geologist with over 25 years experience
- Expertise in exploration, mining and management across a number of commodities
- Association with operations in Africa for the past 13 years and worked for Resolute Ltd, Plutonic Resources, Dominion Mining & Whim Creek Resources

## Grant Pierce OAM - Executive Director Projects

- Mining engineer with over 25 years experience
- Extensive management experience & knowledge of Tanzanian mining sector
- Senior operational management roles in mining and exploration projects in Africa
- Awarded the Order of Australia Medal in 2003 for his personal contribution to social development in rural Tanzania

### John Conidi - Non-Executive Director

- Bachelor of Commerce degree from Royal Melbourne Institute of Technology
- 14 years of experience in developing, acquiring and managing businesses. MD of ASX:CAJ increasing market capitalisation from \$20 million to more than \$500 million in 8 years. Significant involvement in 3D Printing technologies



His Excellency Jakaya Kikwete (R),
President of Tanzania with Grant Pierce
(L) and Andrew Spinks (C) at Mahenge on
the 20 August 2014 discussing the
significance of Kibaran's Epanko and
Merelani Graphite Projects to Tanzania.

"30-plus years in-country experience with proven track record in Tanzania"



#### MANAGEMENT & TECHNICAL TEAM

## Robert Hodby - CFO/Company Secretary

- Bachelor of Commerce, Member of CPA Australia and Governance Institute of Australia
- Over 20 years industry experience in financing and administration of public and listed companies gathered at both operational and corporate levels
- Held roles in numerous executive and project level management as well as CFO, Board & Company Secretarial roles with a number of companies involved in the resource and energy industries













## Christoph Frey - Technical Graphite Specialist

- German based graphite industry professional
- Over 20 years graphite experience in Russia, Europe, Africa and China
- Involved with all facets of development and production of natural flake graphite
- Direct experience in production of battery grade graphite
- Use of graphite in high tech applications
- Production of nanoparticles and nanopowders
- From 2010 to 2013 he served as Technical Director at Graphit Kropfmuehl AG where he worked on the Ancuabe graphite mine in Mozambique

## Consultants Under Exclusivity Arrangements

GR Engineering Services ~ Study Manager & Engineering Design CSA Global ~ Mineral Resource & Geology Knight Piésold ~ Hydrology & Infrastructure ECG Engineering ~ Power & Electrical Engineering Independent Metallurgical Operations ~ Metallurgy Intermine Engineers ~ Mining & Ore Reserves George Orr & Associates ~ Geotechnical Mine Design MTL Consulting ~ Environment Trinity Promotions ~ Social & Community

"GR Engineering and all study consultants are considered leading experts with a proven history of developing project in Tanzania"



## Major Supply Chain to the current and high growth Battery Markets







### Sojitz Assistant General Manager, Mr Togo Teruhiko commented:

"We are delighted to partner Kibaran, given our testwork has shown Epanko's graphite to have superior qualities to its peers and at a time market demand is looking for a new supply of natural graphite outside of existing supply chains."

## **Debt Financing**







## Nedbank Senior Investment Banker, Mr Mark Tyler commented:

"Having followed the graphite sector and the many global graphite projects over the past 2 years, Nedbank is delighted with the prospect of partnering with Kibaran Resources in Tanzania. Given their blue chip offtake partners, combined with their realistic business plan and suitably experienced management, we believe it's currently the best credentialed project for development in the graphite space."

# X

## WHY TANZANIA

## Mining-friendly Country

Stable democratic Government committed to mining sector growth and development

- English speaking
- Common law system
- Friendly tax regime (30%) and low royalties (3%)
- Existing and developed mining activity in place
- Access to skilled and educated local workforce
- Established mining support services

## **Commercial Advantages**

- Access to grid power
- Emerging power source with major gas discoveries
- Extensive infrastructure network (road, rail and ports)
- Major infrastructure initiatives Power doubling and Tanga Rail



New Road and Bridge Constructions on route to Epanko

"Tanzania understands the benefits of mineral wealth through the development of minerals"



## ABOUT GRAPHITE

# An industrial mineral with unique physical properties:

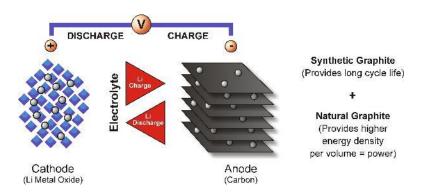
- Superior thermal/electrical conductivity
- Stable wide temperature range
- High melting point
- Excellent lubrication
- Malleable
- Resistant to chemical attack





## **Lithium Ion Battery (LiB)**

- Graphite and essential component in lithium ion batteries (Electric Vehicle and Energy Storage Systems)
- High growth and demand expected
- Hybrid Vehicle (HV), Electric Vehicle (EV) and Plugin(PHEV) will all use Lithium Ion Battery (LiB)
- Lib Anode a mixture of Synthetic and Natural Flake Graphite



"LiB is expected to be a major growth driver and having one of the highest purity graphite is a market advantage"



### EPANKO BANKABLE FEASIBILITY STUDY

## **Key BFS Results**

Conventional open cut mine and conventional flotation processing plant.

- Annual EBITDA of US\$33.6m for 15 years with 40,000tpa
- Pre-tax (NPV) of US\$197.4m
- Payback 2.7 years with 25 year mine life
- Strip Ratio (W:O) 1:1 LOM
- Revenue Price US\$1,466/t of concentrate
- Opex FOB Dar es Salaam \$570/t
- Nameplate throughput of 480,000 tpa
- Ability to increase production as market demand increases via a 2 stage growth strategy to 100ktpa

%		
Items		Parameters (LOM)
Plant Throughput	(tpa)	434,000
Plant Recovery	(%)	93.3
Feed Grade	(%)	8.6
Carbon Grade	(%)	96.3
Production Concentrate	(tpa)	36,400
Base Price Assumption	(US\$/t)	1,446
Cost per Tonne of Concentrate	(US\$/t)	570
Mine Life	(Yrs)	25
Pre-Production Capital	(US\$m)	77.5
Strip Ratio	(W:O)	1:1
Discount Rate	(%)	10
Payback	(Yrs)	2.7
EBITDA/Annum (Avg)	(US\$m)	30.3
Pre-tax IRR	(%)	41.2
Pre-tax NPV	(US\$m)	197.4

#### Notes:

- ∼ FOB Dar es Salaam
- ∼ Excluding Royalties (3%) and Taxes (30%)



## EPANKO METALLURGY AND FLOWSHEET

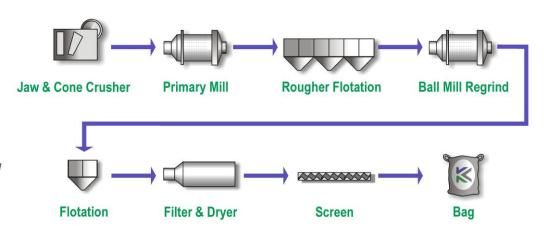
## Metallurgical Results

- 85.7% of distribution > than 106 micron
- Final carbon conc. of 96.3% TGC

### **Flowsheet**

- Simple flowsheet design
- Flotation circuit rougher, scavenger, primary cleaner and secondary cleaner flotation stages
- Graphite concentrate will be filtered and dried
- Dry graphite concentrate will be screened into various product sizes and bagged for shipping

EPANKO FLAKE SIZE DISTRIBUTION				
Name	Microns (μm)	Mesh Size	Portion Retained (%)	Carbon Grade (%)
Jumbo	>300	>48	20.0	97.1
Large	>180	>80	35.4	96.7
Medium	>106	>150	30.3	96.2
Small	>75	>200	7.4	95.3
Fine	<75	<200	6.9	92.6
			100%	96.3%



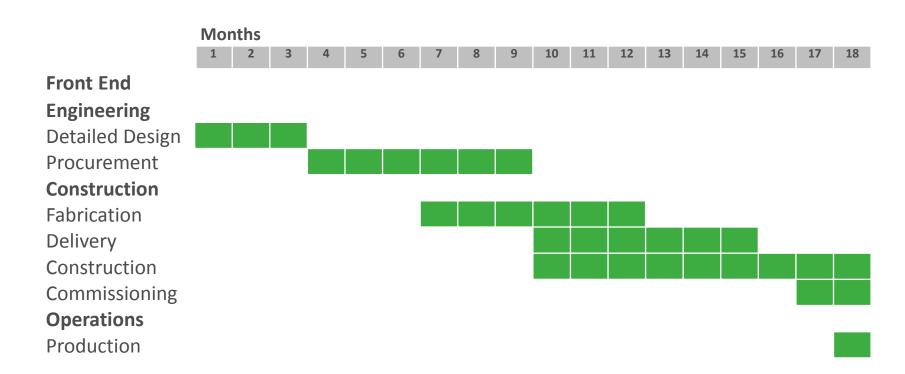
"Competitive advantage with highest large flake distribution and lowest fines fraction"

<sup>\*</sup> Micron ( $\mu$ m) and Millimetre (mm). 1mm = 1000 $\mu$ m and fixed carbon content determined by loss on ignition method (LOI)



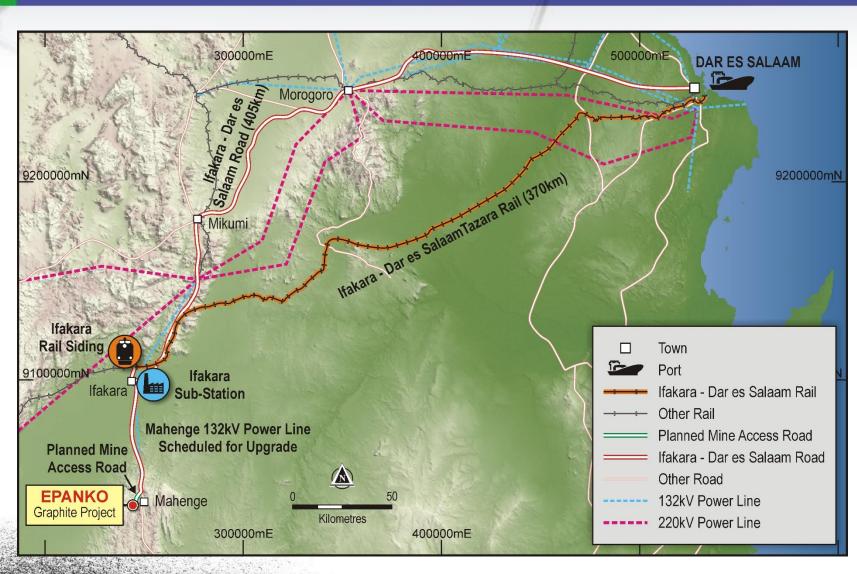
# EPANKO - BANKABLE FEASIBILITY STUDY (BFS)

## **Timeline to Production**





## PROJECT LOCATION AND INFRASTRUCTURE





## LONGTERM DEVELOPMENT STRATEGY

## **Graphite Endowment**

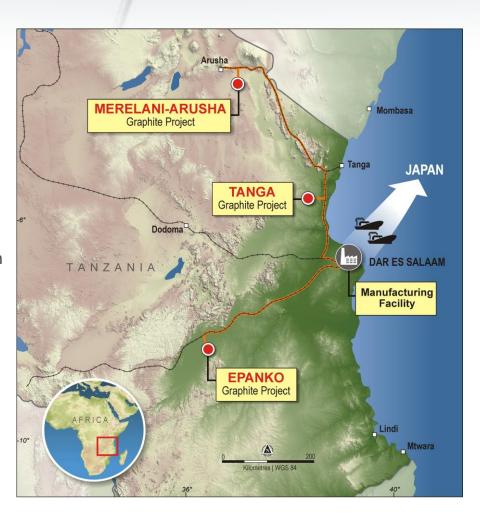
- Largest flake sizes in East Africa
- Africa's largest historical production centre
- Cost competitive with existing (Chinese) supply
- Considerable technical advantages compared with current supply

## **Geological Reason**

 High metamorphic gradient is the key factor to graphite crystallinity - large flake size distribution and high purity

## Significant Commercial Opportunity

- Long term stable supply of graphite to the existing and emerging markets
- Potential to become a manufacturing hub with direct shipment of value add products to end markets

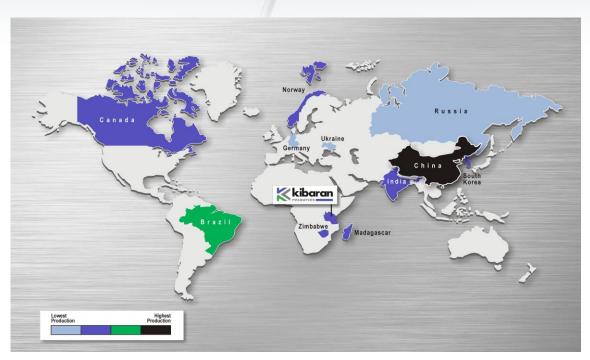


"A pipeline of outstanding quality projects and value add strategies"



## WORLD - DEMAND / SUPPLY

- Total market is 1.2Mtpa with China the largest producer and consumer
- Natural flake demand outside of China is 320ktpa and largely sourced from China
- Traders and end users seeking diversity away from Chinese supply
- China seeking to import Large Flake Graphite
- China has 20% Export duty and 17% Vat on natural flake graphite
- China costs are rising
- World seeking ecofriendly supply



US, Japan, Korea, Taiwan and Europe are seeking alternative sources to China China currently produces 73% of the world natural flake graphite supply

"Opportunity to develop new mines that are cost competitive and have technical advantages to existing supply"



# EPANKO GRAPHITE – SUPERIOR QUALITY

## Commercial Advantage over Existing Supply

- Expansion Rates for Jumbo (+50 mesh) flake is 490 ml/g which is up to 30% higher than Chinese supply
- Ultra High purity of 99.98 % Carbon
- Very low percentage of fine flake (< 75micron)</li>
- Testwork confirmed no limitation on industrial uses
- Extremely High percentage of large flake provides higher basket prices and increased saleability
- High Crystallinity expected to generate higher conductivity and densities which is important for LiB market





# WORLDS GIGAFACTOIES

Gigafactories to increase graphite demand in future

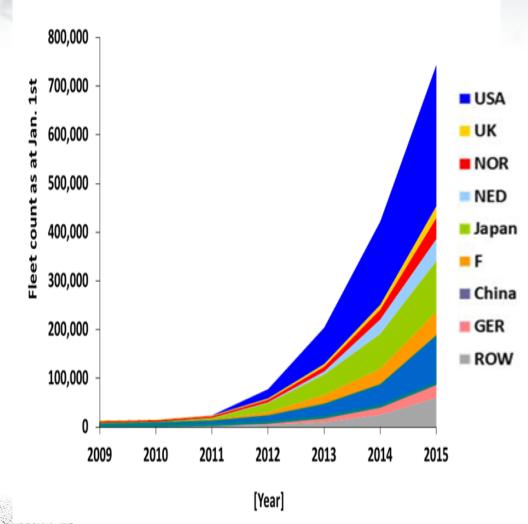
Panase	<b>onic</b> 35GWh	\$5bn Nevada, USA Lithium-ion 2016
LG Chem	7GWh* 1.6 GWh	\$500m*Nanjing, China Lithium-ion 2016 \$300m Michigan, US Lithium-ion Expansion
FOXCONN	15GWh*	\$810m* Anhui, China Lithium-ion 2016
BYD	20GWh	various, China Lithium-ion 2020
Boston	10GWh	various, China Lithium-ion 2020
SAMSUNG SDI	1.5 GWh (combined)	Ulsan, South Korea Lithium-ion Expansion Xi'an, China Lithium-ion Expansion

Source: Benchmark Mineral Intelligence

"Panasonic (Japan) and LG Chem (Korea) are developing the world's largest gigafactories for the growing EV battery market"

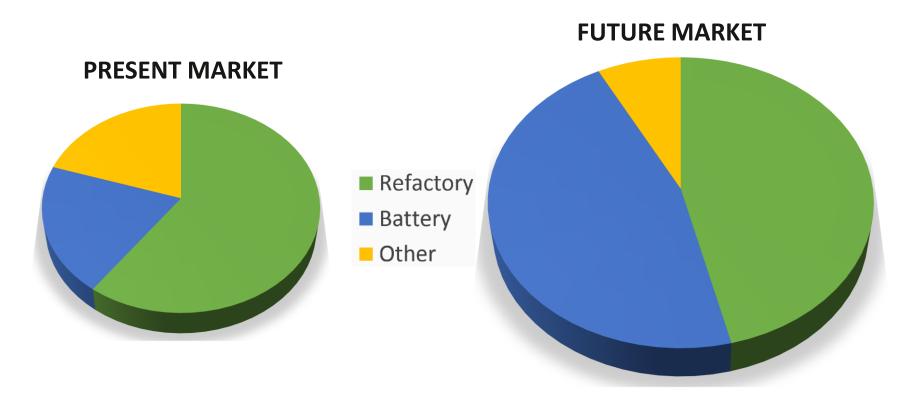


## EV'S: CURRENT MARKET SITUATION



- Current growth driven by government subsidies
- US and China currently largest growth markets
- Short-Medium term growth expected by increased government subsidies
- Europe led by Germany is expected to introduce incentives

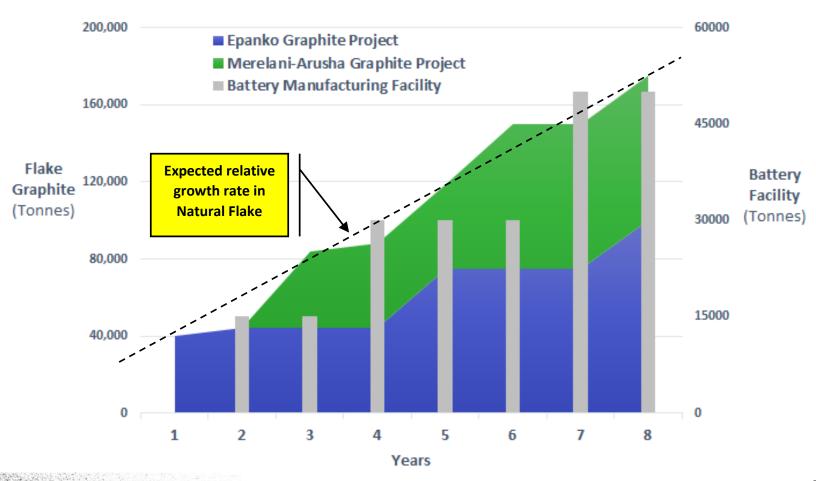
Number of electric cars worldwide on January 1, 2015



"It's critical to secure present market demand to provide a foundation for entry into the growth battery market"



## Two Fold Growth via Diversity



"Kibaran is leading Tanzania to become the world's second largest graphite producer"



## LITHIUM ION BATTERY - SUPPLY CHAIN

# **Epanko Graphite Project**

Production of Natural Flake
Graphite
-100 mesh 94-97% Carbon



# Production of Spherical Graphite

Mechanical Shaping via Impact mills
Purification via chemical treatments
Graphite
99.95% Carbon



Production of Lithium Ion Battery

**Panasonic** 





# Production of Lib Anode

Coating of Spherical Graphite
Mixing with Binder and Additives
Coating slurry on copper foil
Graphite anode



## BATTERY MANUFACTURING FACILITY STUDY

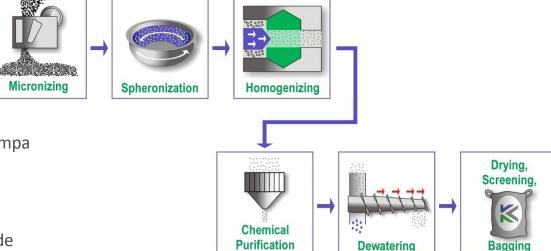
## **Scoping Study Key Results**

Production of Spherical, Expanded
Graphite and other purified graphite
products

Initial production to commence at 15,000tpa, increasing to 50,000tpa

## **Key Study Results**

- Pre-tax NPV10 of US\$115m
- Pre-IRR of 51%
- Capital Expenditure of US\$35m
- Annual pre-tax cashflow of US\$18mpa based on Stage 1
- Payback 1.9 years
- Manufacturing of first battery grade
   Spherical Graphite is scheduled to
   commence 12 to 18 months into Stage
   1 Epanko Graphite Project expanded
   production



"Exponential growth in graphite demand forecasted over the next 5 years from Electric Vehicle (EV) and Battery Storage industries"



# CORPORATE SOCIAL INVESTMENT

# School Desk Donation to Local Community

In August 2014 Kibaran donated 148 school desks to Epanko Primary School.

His Excellency President Jakaya Kikwete was present to receive the donation on behalf of the school.

## Wheelchairs for Special Needs Children

In October 2014 Kibaran donated 30 wheelchairs to vulnerable children within the Ulanga District. The wheelchairs were made in Australia by volunteer organisation Wheelchairs for Kids.

The District Community Development Officer and the Association for the Disabled identified the special needs children who ranged in age from 5 to 14 years. All wheelchairs were adjusted by a trained technician to fit each child's individual needs.













"Development of Kibaran's graphite project will be to the benefit of all key stakeholders including the local community.

Genuine and lasting benefits

for the local community"



## KIBARAN'S KEY DRIVERS TO SUCCESS

- Strategic Partners ThyssenKrupp AG + Sojitz + EGT
- Debt Financing KfW-IPEX Bank + UFK (German Gov't) + Nedbank
- Epanko positioned to be one of the first graphite projects into production in Africa
- Maximise our significant cost competitive advantage due to our superior quality graphite
- Secured access to Japan-Korea Battery Market
- Construct the first battery grade downstream processing plant in Africa for the EV battery market
- Staged growth strategy in place to 150,000tpa to meet future demand
- Develop 3D Graphtech Industries as a stand alone supplier of 3D printed products exclusively using TanzGraphite<sup>®</sup> as the raw material for graphite inks
- TanzGraphite® to become an industry standard and household name in the global graphite sector



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