

EPANKO GRAPHITE PROJECT  
FOUNDED ON SALES TO THE TRADITIONAL MARKETS BUT

**FULLY CHARGED**  
FOR THE **BATTERY**  
**SUPERCYCLE**



**KIBARAN**  
RESOURCES LTD



ASX: **KNL**  
FSE: **FMK**

**INVESTOR PRESENTATION**

**June 2018**

PREMIUM QUALITY GRAPHITE **UNIQUELY TANZANIAN**

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The production targets and forecast financial information referred to in this presentation were originally reported to the ASX by the Company on 21 June 2017 and on 5 December 2017. All material assumptions underpinning the production targets and forecast financial information reported in those ASX announcements continue to apply and have not materially changed.

## 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 the 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 in which it appears.

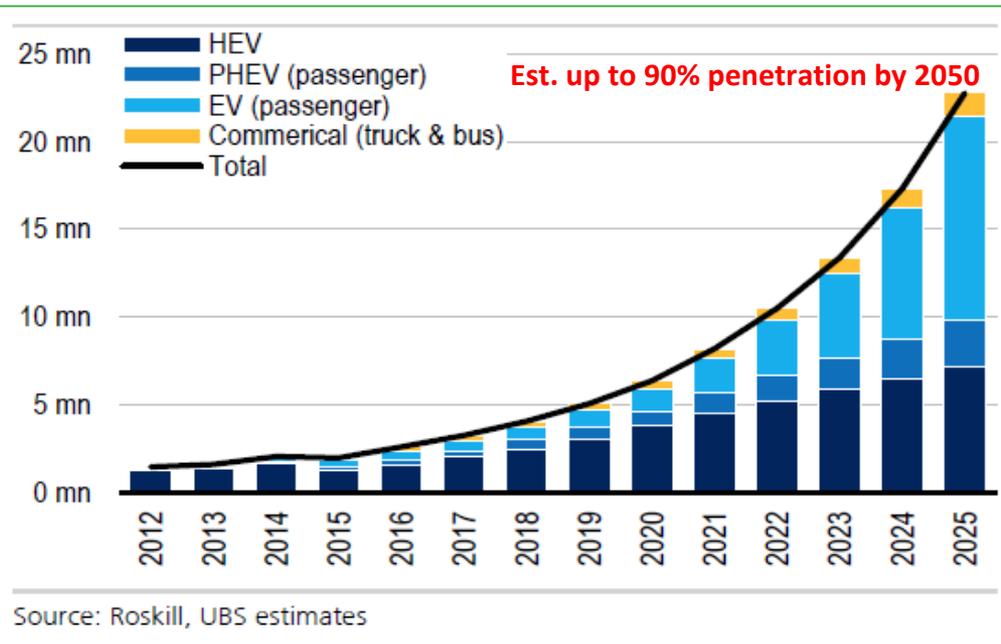


2018-19 is a pivotal phase in Kibaran’s five year journey to establish a scalable, long term graphite mining and downstream processing business:

- Construction of the Epanko Graphite Project
- First sales of eco-friendly purified spherical graphite



**EV natural graphite consumption forecast to increase approximately 700% by 2025 ..... to over 800ktpa<sub>1</sub>**



Average EV battery contains ~50kg of graphite, ~55% of which is natural, requiring 55kg of mined graphite to produce 27.5kg SPG

1m EV requires 50-55,000t of mined graphite UBS June 2017

Current EV natural graphite demand ~127ktpa Roskill

97m vehicles sold globally in 2017

Note 1: 55kg per EV, 22kg per PHEV and 5.5kg per HEV [UBS forecast up to 1.1mtpa]



- Listed in Australia and Germany
- Chairman Robert Pett, Managing Director Andrew Spinks and in-country Project Director Grant Pierce OAM have extensive experience in Tanzania, established Tanzania's Golden Pride Gold Mine and are recipients of the President's Award in Tanzania for environmental excellence
- German-based graphite professional Christoph Frey (ProGraphite) and CFO Howard Rae



**3 East African graphite projects with Epanko as the lead project**

Shares on issue	Key holders	Market cap
Listed 256m F-diluted 259m	Colonial 7% Board 9% Value-on-Gr. 5% GR Engineer. 2%	US\$30m

**Life-to-date project spend**  
Over US\$25m

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# KEY STAKEHOLDERS



- Investors



- Sales and offtake contracts



- German, Australian and African lenders



THE AFRICAN CHAMPION BANKING NETWORK

- Engineering and technical expertise



- Trademarks and branding





Total pre-tax NPV<sub>10</sub>  
 US\$356m  
 (geared, nominal terms)



**EPANKO GRAPHITE PROJECT**

Natural Flake Graphite (NfG)

<b>Production</b>	60ktpa
<b>NPV<sub>10</sub></b>	US\$211m
<b>EBITDA</b>	US\$44.5m



**DOWNSTREAM PRODUCTION FACILITY**

Spherical Graphite (SpG)  
 (F) Fines  
 (UN) Unpurified  
 (P) Purified

<b>Production</b>	20ktpa
<b>NPV<sub>10</sub></b>	US\$145m
<b>EBITDA</b>	US\$30.5m

**Products**



**Status**

Feasibility study Jun 2017  
 Bank technical review Aug 2017  
 Debt financing in progress

Feasibility study Dec 2017  
 Non-HF purification IP developed  
 Pilot plant commenced

**Pre-production cost**

US\$89m

Pilot plant/scale-up <US\$4m  
 5,000tpa US\$25m  
 20,000tpa US\$41m

**Early Works Construction**

GR Engineering  
 13mths

12mths

**IRR**

38.9%

34.3%

**Payback**

3.5yrs

3yrs

\*Refer ASX Announcements 21 June 2017 and 5 December 2017.



Epanko Graphite Project		Downstream Production Facilities	Status
Q1 2018	Develop project implementation terms	Establish pilot plant Commence SpG German test work program	Completed
Q2 2018	Meetings with Ministers and Bank of Tanzania Meetings with German & Australian Governments	Update customers on test work Finalise product branding and trade-marks Secure German Government funding	Completed
2H 2018	Detailed engineering design process Finalise EPC contract Lender term sheets Final credit committee submissions German Government UFK loan guarantee	Tanzanian Special Export Zone licence Finalise test work and plant data Scale pilot plant to produce 3,000tpa Complete plans for 5,000-20,000tpa purified SpG plant	Advanced Planning
2019	Construction & pre-production	Commence sales of unpurified SpG Construction of SpG purification facilities	
			

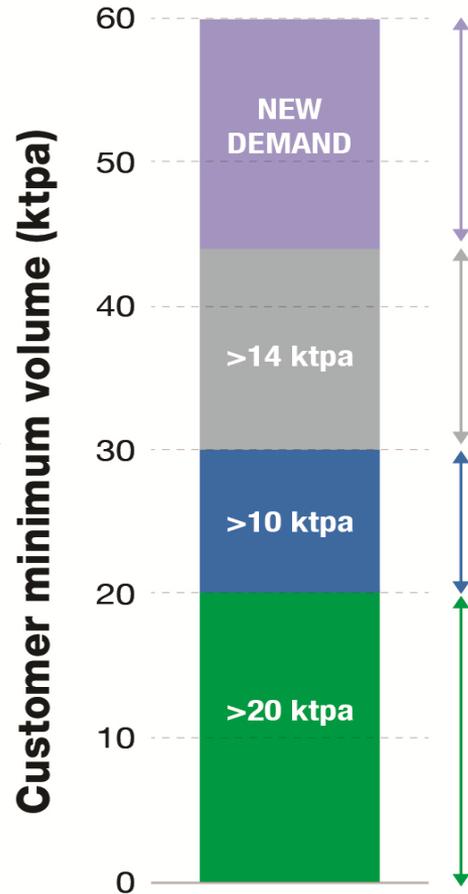
# OFFTAKE AND SALES AGREEMENTS MATCHED TO DEMAND AND POSITIONED FOR GROWTH MARKETS



## Battery Markets



## Traditional Markets



Advanced discussions with existing partners and leading German Carbon Groups



A leading footprint in both industrial and battery graphite markets in Japan and Korea



Established supplier of high value natural graphite products into European markets



Refractory grade graphite into Europe (including Russia, Turkey and Ukraine)

# A HIGH QUALITY GRAPHITE DEPOSIT WITH SCALE



- Mineral resource supports potential for depth and strike extensions of the Ore Reserve pit shells
- Mineralisation commences at surface with minimal cover
  - Average LOM strip ratio 0.4 : 1
- Favourable mineralogy delivers quality and drives robust project economics
  - High proportion of large flake sizes
  - Graphite is easily liberated and delivers high yield
  - Higher carbon grade achieved through simple processing
  - Low levels of in-situ deleterious elements

## *Epanko Mineral Resource Estimate >8% TGC*

JORC Classification	Tonnage (Mt)	Contained Graphite (t)
Measured	7.5	738,900
Indicated	12.8	1,280,000
Inferred	10.4	1,030,600
<b>Total</b>	<b>30.7</b>	<b>3,049,500</b>

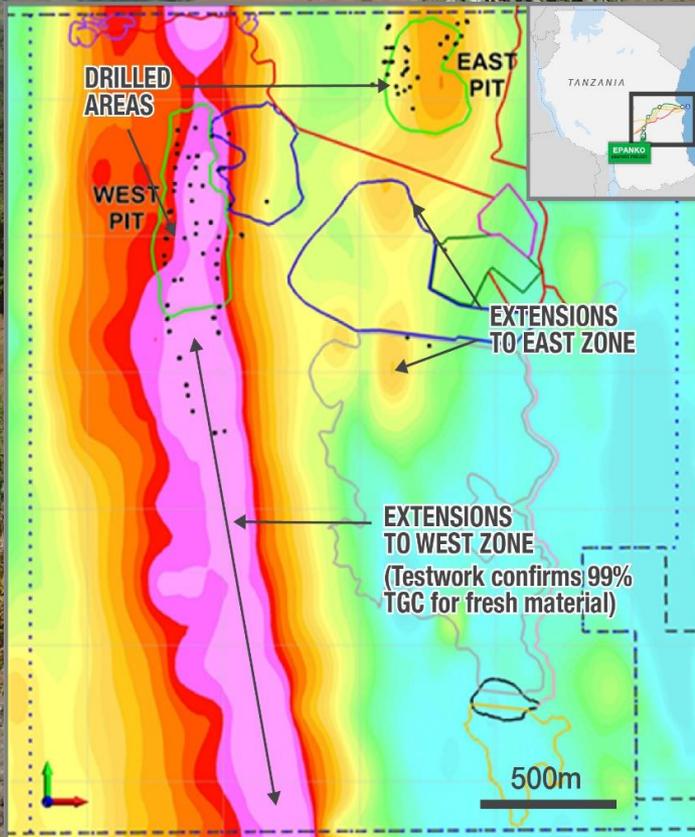
## *Epanko Drill Core Rock Texture*



Epanko rocks have undergone extremely high metamorphic pressure and temperature forces that have created unique 'cheetah' like rock textures.



WESTERN ZONE MINERALISATION

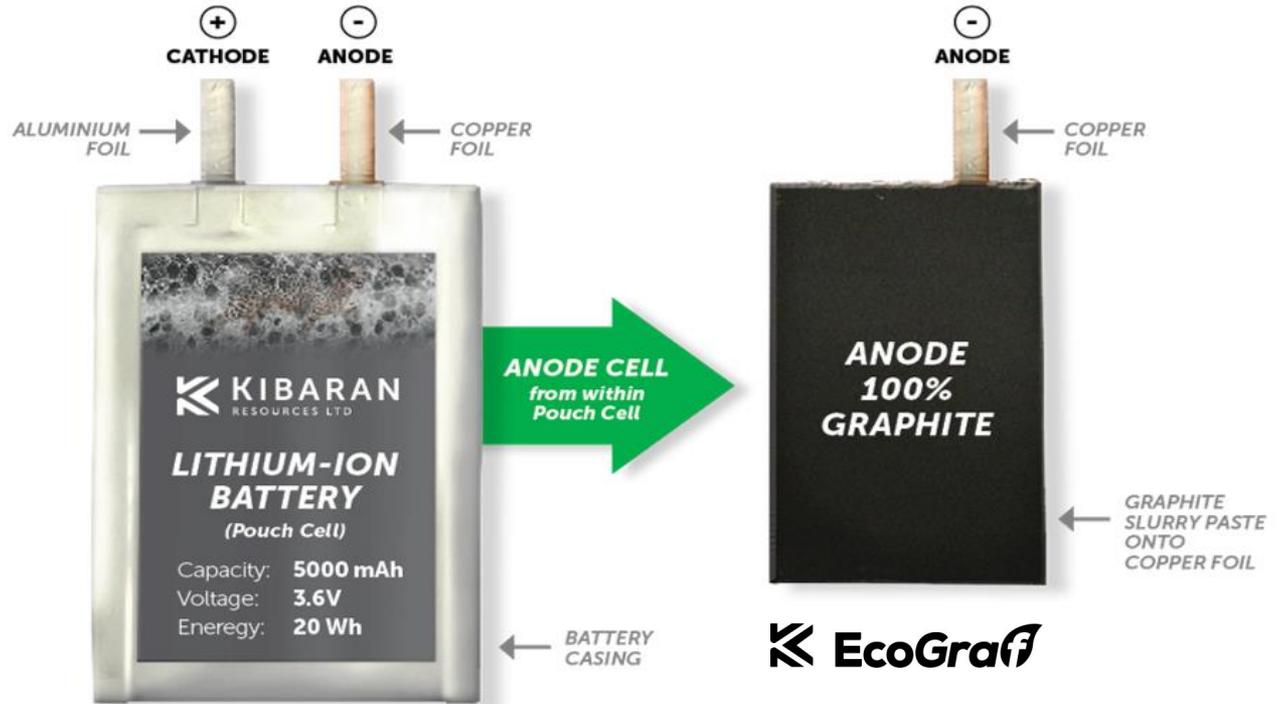
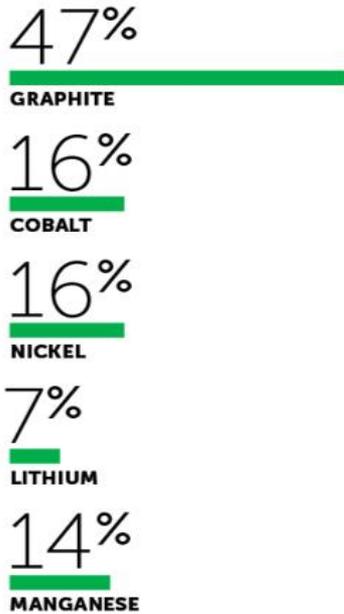


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## GRAPHITE IS THE MAJOR BATTERY COMPONENT

### BATTERY RAW MATERIAL COMPOSITION



- Battery anode produced with Kibaran product sample SPG 14.5 in a leading German research institute



- Feasibility Study for 20,000tpa production of battery graphite – NPV<sub>10</sub> US\$145m
  - Targeting 30% of market demand outside of China by 2020
- Major breakthrough with proprietary ‘green’ purification method
  - No hydrofluoric (HF) acid required to achieve spherical graphite specification of +99.96%.
  - Provisional patent lodged - supported by trademarks
- Product qualification
  - Product samples meet specifications of leading battery manufacturers in Asia and North America
  - First product sample produced via optimised flowsheet
- Pilot plant test work commenced with phased expansion to meet demand
  - Evaluation of graphite sources other than Epanko enables early production



## DOWNSTREAM PRODUCTION FACILITY

Spherical Graphite (SpG)  
(F) Fines  
(UN) Unpurified  
(P) Purified





## German Pilot Plant Update

- Preparing product samples for SPG trials customised for end users
- Optimised purification testwork expected to further reduce consumable and energy consumption leading to lower operating costs
- Funding support from the German Government for pilot equipment
- Plans to expand pilot plant facilities to Stage 1 production on schedule with strong interest for the development from German organisations and Government
- Application of the new eco-friendly purification process to existing graphite feedstocks from Africa, South America, Europe, India and Asia has commenced – initial results expected shortly

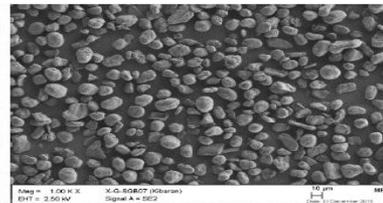
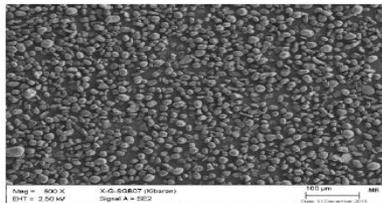




- Phased commercialisation strategy for **EcoGraf**

Phase		Battery (Spherical) Graphite	Fines Products
<b>Stage 1</b>	<b>Pilot Plant Test Work Expansion<sup>1</sup></b>	Epanko + Other existing feedstocks 3,000tpa customer trials and sales	<3,000tpa
<b>Stage 2</b>	<b>Commercial Launch</b>	5,000tpa	<5,000tpa
<b>Stage 3</b>	<b>Commercial Expansion</b>	20,000tpa	<20,000tpa

\*Refer ASX Announcement 5 December 2017 and the Company confirms there are no material changes to the assumptions in that release.



# NATURAL BATTERY GRAPHITE SUPPLY CHAIN



## Natural Graphite (Purified Spherical Graphite)



### Specification measurements

- Purity C%
- Quantitative level of impurities
- Scanning electron microscopy
- Particle size analysis
- X-ray diffraction
- BET (Surface area)
- Tap density
- Helium Pycnometry

## Battery Anode Cells (Coated Spherical Graphite)



posco  
CHEMTECH

MITSUBISHI  
CHEMICAL

Hitachi Chemical  
Working On Wonders

BTR  
power your life

杉杉科技  
Shanshan Technology

## Battery Systems (Integrated Cathode/Anode Cell)



LG Chem

SAMSUNG  
SAMSUNG SDI

TESLA

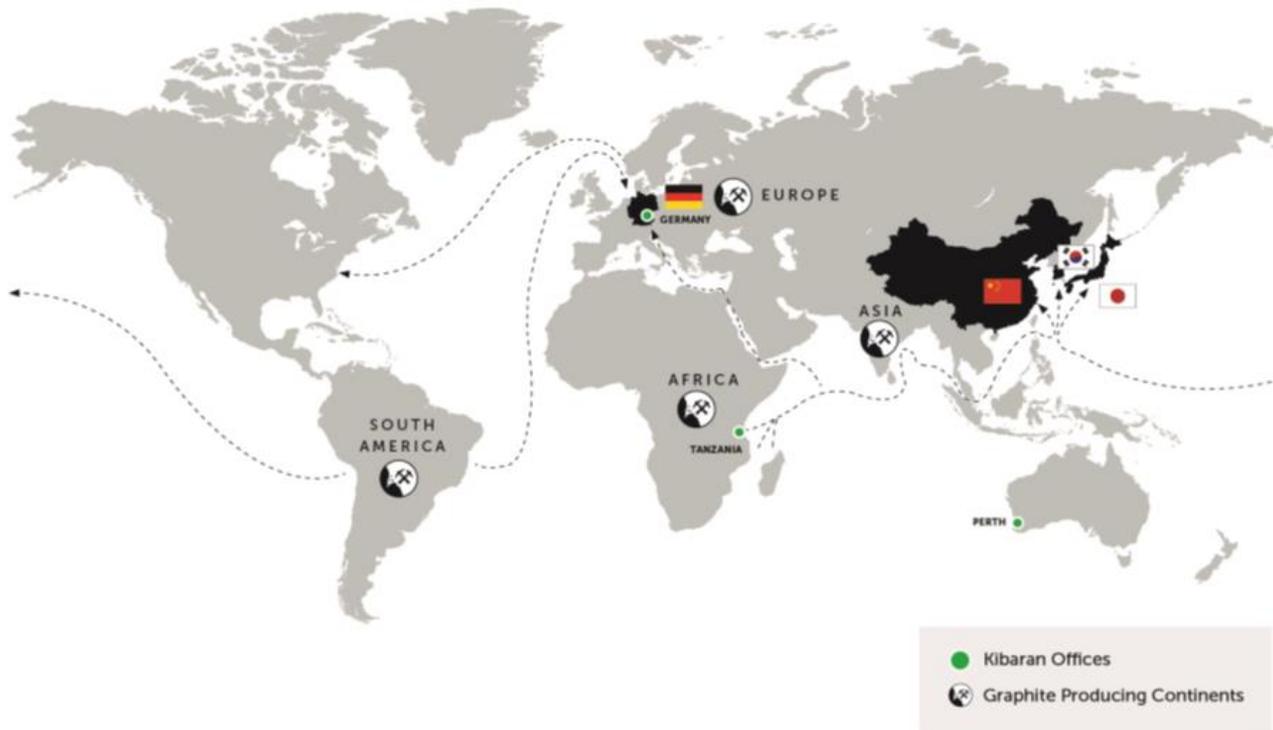
Panasonic

BYD

CATL

Source: UBS and Company Reports

# MINING, PRODUCTION AND SALES NETWORK



20ktpa  
Refractory  
Grade



10ktpa  
Global



14ktpa  
Asia

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<b>Tanzania</b>	Mining and production of natural flake graphite (initially 60ktpa) Micronising and spheronising of battery graphite (Dar es Salaam)
<b>Germany</b>	Spherical graphite - pilot plant and expansion up to 3,000tpa
<b>Europe/Asia</b>	Spherical graphite – commercial plant(s) <ul style="list-style-type: none"> <li>• 5-20,000tpa purified spherical graphite</li> <li>• 4-17,000tpa unpurified fines</li> </ul>



## Bridge2Aid

Kibaran is a founding donor to Bridge2Aid Australia which commenced last year. The charity is now up and running, with several Australian volunteer dentists already travelling to Tanzania in May this year.

## Sponsorship of Local Youth – Training & Employment within the Local Community

A screening process was conducted by Kibaran identifying 32 youth in the project’s catchment area and as a result has sponsored 6 youths that have passed the VETA entrance exam to attend VETA in Ifakara for 2 years. VETA is akin to TAFE in Australia. Half of the group are completing fitter/mechanics courses, several are doing carpentry and a others are doing masonry/bricklaying. The intent being to offer them a job when they have completed their course. Employment opportunities within the local community will continue to grow as our project progresses.

## Keep-A-Girl in School

In terms of hygiene and health, the Company donated 12 months’ supply of female hygiene products to every girl at both Nawenge Secondary School and Celina Kombani Secondary School under the banner of Keep- A- Girl-In-School. Feedback from both schools showed an increase in attendance of the girls at school and an increase in academic performance.

## School Donations

The Socks for Schools initiative, coordinated by Mr Mark Ould of Malibu Podiatry in Western Australia and supported by other WA podiatrists, continued this year. The socks were distributed by Kibaran to children in various secondary schools in the Ulanga District along with footballs and netballs. Cement was donated to Ulanga Secondary School to assist with construction of classrooms.

***“Development of Kibaran’s graphite project will be to the benefit of all key stakeholders with genuine and lasting benefits for all the local community”***

- Direct employment and training of over 200 Tanzanians during operations. Multiplier effect is expected to reach 10-15 times
- Over US\$500m will be invested in Tanzania via taxes, royalties, inspection fees, salaries and wages, purchases of goods and services in the first 20 years
- Positive economic and social impacts for the Ulanga District and Morogoro Region





EPANKO BANKABLE FEASIBILITY  
STUDY - 60KTPA

DEBT FINANCING  
& MINE DEVELOPMENT

 **TANZGraphite**

Total pre-tax  
NPV<sub>10</sub> US\$356m  
vs US\$30m KNL  
enterprise value  
*(geared, nominal terms)*

BATTERY GRAPHITE FEASIBILITY  
STUDY - 20KTPA

 **EcoGrafi**

PILOT PLANT UNDERWAY IN  
GERMANY

\*Refer ASX Announcements 21 June  
2017 and 5 December 2017.





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