Mining licence and robust feasibility study in hand, Kibaran Resources Ltd is on track to fulfill its pledge to become one of Africa’s first modern graphite producers.

Kibaran and a host of other African graphite hopefuls shot to prominence in the first half of this decade, as a rise in prices for the carbon material coincided with a burst in new technological applications.

Market interest in East Africa’s graphite potential was piqued in April 2012 by Syrah Resources Ltd’s announcement of high-grade graphite samples from trenching on its Balama project in northern Mozambique.

Three years on, Syrah has received final regulatory approvals for Balama which is now the largest undeveloped graphite project in the world with a reserve of 81.4mt @ 16.2% total graphitic content (TGC) and a resource of 1.19bt @ 11% TGC.

Triton Minerals Ltd followed Syrah in Mozambique and with Balama, and the former’s Nicanda Hill project was quickly established as one of the largest East African graphite projects.

However, it is across the border in Tanzania where the most recent graphite activity has been taking place.

There, the likes of Kibaran, Magnis Resources Ltd, Walkabout Resources Ltd and IMX Resources Ltd have recorded exploration success in the last three years and as the market’s interest in graphite blossomed, they enjoyed substantial share price growth.

The Tanzanian deposits have so far failed to match the size and scope of their Mozambican neighbours, but in the nascent and often confusing graphite space, that is no impediment to development.

Investor interest in graphite has been fuelled by emerging uses in a range of 21st Century, hi-tech applications. The problem is, however, that current graphite demand does not reflect the buoyancy of long-term consumption forecasts meaning that projected supply from these developing projects far outstrips demand.

Further confusing investors is the complicated and opaque pricing system in the graphite space; a system in which the quality of a deposit is judged as much on flake size, purity and shape as it is tonnages and grade.

The unique nature of the graphite space means developers are competing, not only to build the best project but to do so in the shortest space of time.

“We learnt very quickly that graphite is not about tonnes and grade; it is about commercialisation, viability and strategic long-term partnerships,” Kibaran managing director Andrew Spinks told Paydirt.

Current consumption of flake graphite is 320,000 tpa and while Kibaran is as enthusiastic about future demand as any graphite company, Spinks said the company’s economic models and feasibility studies were still

Our strategy has always been structured around existing graphite supply/demand fundamentals. There is no doubt that we are at the beginning of the emergence of graphite as a mainstream commodity but when that takes affect; who knows?

A sample of the Epanko ore which grades 12.8mt @ 10% TGC for 1.28mt contained graphite
grounded in the present.

While other companies are considering plus-60,000 tpa operations, Kibaran is focusing on a smaller start-up proposition.

“Our strategy has always been structured around existing graphite supply/demand fundamentals,” Spinks said. “There is no doubt that we are at the beginning of the emergence of graphite as a mainstream commodity but when that takes affect; who knows?

“We wanted to design a project which fitted into that current demand so we decided a smaller project would be better. We think that at 40,000 tpa, Epanko will only fill 10% of the current demand and that feels about right.”

With more than a dozen ASX-listed companies pushing their graphite development aspirations, Spinks and executive director Grant Pierce are also confident a smaller operation will allow Kibaran to secure early advantages in the key areas of of-take and finance.

“Being one of the first into production is incredibly important,” Pierce said. “The market is so small and the potential partnerships so limited that being first will allow you access to the spot sales markets in Europe, the US and Japan, setting you up for future sales agreements.”

It could be a race to the line, however, Spinks dismissed any suggestions the graphite industry could disappoint in the same way the rare earths development sector has over the last five years.

At the beginning of this decade, China began placing export quotas on rare earths producers, leading to a surge in rare earths prices similar to the one in graphite. The price increases and supply uncertainty spurred on a new generation of developers from the ASX and TSX but five years on, the western world hopefuls are seemingly no closer to development than they were at the beginning of the boom.

“In some ways it is analogous to the rare earths market but it is also very different,” Spinks said. “In rare earths, China owns all of the resources and processing capabilities which is a very difficult and expensive business to establish. In graphite, while China currently dominates the market, mining and processing is relatively simple and cheap and the customers are largely outside China.

“There is more likelihood of three or four graphite mines getting up off the back of this surge than there was of one rare earths mine in the last boom; graphite doesn’t have the
massive capex requirements that have proved the major impasse in the rare earths sector.”

There may be more room for new entrants into the graphite market than there is in rare earths but competition for off-take and sales agreements is still intense given the lack of a transparent spot market.

In July, Kibaran came a few steps closer to achieving its goal of becoming one of the first producers when it announced it had received the Epangko mining licence and then, just a week later, released the results of the project BFS.

The BFS numbers highlight the robust nature of the project, even at prices based only on the current traditional demands from refractory and expandable graphite markets.

The study showed there were no technical, environmental or commercial impediments to development with the economics showing 40,000 tpa of graphite concentrate could be produced over 15 years for a pre-tax NPV of $US197.4 million, IRR of 41.2% and annual EBITDA of $33.6 million.

Capex for the 440,000 tpa operation was slated at $US77.5 million with cash costs of $US570/t of graphite concentrate.

The BFS also highlighted Etango’s metallurgical qualities with 85.7% of the resource greater than 106 microns and final average carbon concentrate grades of 96.3%, a marked increase from the scoping study.

“The feasibility study has made strides on the metallurgy with significant improvements on the scoping study,” Pierce said. “It lays out a simple model; open pit mining followed by a two-stage flotation process to produce natural flake graphite of 94-97% purity.”

Pierce believes the conservative approach the company has taken to pricing will also give it more legitimacy with customers and off-take partners.

“With this feasibility study we are demonstrating that Epangko can provide long-term, sustainable, stable supply which can also compete pricing-wise with the graphite coming out of China.”

“That is essential because the rest of the world is currently reliant on Chinese supply and is desperate for new sources. These customers are putting their foot into Tanzania and so want certainty. They want to know projects are robust because they don’t want to have to go back to China because things in Tanzania have failed.”

With the approval of the mining licence and successful completion of the BFS, Kibaran has become the only graphite junior in Africa with regulatory approval, feasibility study and marketing agreements in place.

In November 2014, the company signed a letter-of-intent (LOI) with German company ThyssenKrupp. The LOI covers an exclusive long-term commercial agreement between the parties for the sale of an initial and minimum 20,000 tpa of natural flake graphite products in Russia, Korea and the EU 27 (excluding Germany, but including Turkey).

It was the second off-take agreement struck by Kibaran, following a 10,000 tpa deal with a European trader announced earlier in 2014.

Spinks is confident that completion of approvals and BFS will prove the catalyst for conversion of those LOIs into formal sales agreements.

“Now that we have the BFS out we hope to receive the final stamp of approval from ThyssenKrupp for the sales agreement and the market will then begin to realise the strength of this project.”

Spinks said being the first to have all three elements – feasibility, approvals and off-take – in place was crucial to successfully executing the company’s early start-up strategy.

“Given where we are at with our licence and feasibility study, we will soon be ready to move to the next stage,” he said. "Getting finance is going to be crucial in the graphite space and given that..."
banks have already approached us, we are in a good position."

Spinks said the BFS also highlighted the infrastructure advantages Epanko and Tanzania as a whole enjoyed over other emerging graphite regions.

“The importance of cheap, accessible power is one of the major advantages which came out of the BFS,” he said.

“We had always been promoting the importance of flake size and carbon content to commercial viability but the feasibility study highlighted how crucial power and access to existing infrastructure also are.”

Power availability as an advantage may come as a surprise to anyone who has travelled to Tanzania over the last decade but with several new projects in place, the Tanzanian Government is addressing an issue which has blighted commercial development.

Recent gas discoveries in the country’s south have quadrupled Tanzania’s known resources. A new gas pipeline, necessary for new gas generation from southern Tanzania to Dar es Salaam is under construction and scheduled for completion in late 2015 and will provide gas for a new power plant at Kinyerezi.

“Tanzania’s power problem is reliability because of its reliance on hydro,” Pierce said. “So, the gas pipeline to Dar es Salaam should go a long way to improving reliability.”

The feasibility study assumes the project will use diesel-generated power for the first two years of production while the Rural Energy Agency of Tanzania constructs a new substation at Ifakara. During the second year of production, Kibaran will construct a 33kV power line from the Ifakara substation to Epanko.

Power costs will then be reduced from 28.8c/kwh to 9c/kwh. The capital cost of the power generation plant at Kinyerezi is calculated as $100 million, in addition to costs associated with infrastructure and power plant construction.

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For Kibaran executive director Grant Pierce, starting such programmes early and maintaining access to dialogue with the community is the only way to succeed in Tanzania.

“We have a good relationship with all stakeholders, including the Epanko community, the district government and the regional government,” Pierce said.

If anyone should know about community and stakeholder engagement in Tanzania, it is Pierce.

Having first worked in Tanzania in the mid-1990s during the building of Resolute Mining Ltd’s Golden Pride mine, Pierce subsequently spent three years as Barrick Gold Corp’s country manager in Tanzania. He has also worked in the DRC and Ghana during a 25-year career in mining and considers Tanzania the best place to do business.

He also recognises the importance of ensuring mine development brings economic opportunity to host communities.

Epanko could be in construction by the end of the year following the completion of a successful BFS in July and with that ramp-up in mind, the company is drawing up labour, training and local content strategies.

Pierce said local employment and training would be a key part of the company’s CSR and business plans.

“We will look to maximise local content and employment from the area,” he said. “That is a smart move for a range of reasons, not least because it brings further benefits to the host community.”

It is an area Kombani is keen to see Kibaran excel in.

“Employment on the project can then be a step towards community members setting up their own businesses and pay for their children’s education, etc,” she said.

The major gold operations in Tanzania’s north have been blighted by artisanal mining problems but there is no small-scale mining activity around Epanko, a definite benefit according to Pierce.

“It is a real advantage not having to displace artisanal miners,” he said. “We are not preventing opportunity, we are bringing opportunity to the area and that is exactly how the community perceives it.”

Kibaran gets CSR mix right

Expectation versus opportunity – the challenge for being a good corporate citizen in Africa is never simple but in the case of Kibaran Resources Ltd, early activity and a strong communication strategy has paved the way for a successful relationship with its host communities.

Kibaran’s flagship asset, the Epanko graphite project, is looming as the most important economic development in the Ulanga district in Tanzania’s east. While the project sits on the edge of a forest reserve, such is the importance of it to the future of local employment and business, Kibaran already enjoys the full backing of local MP and national Minister of State, Celina Kombani.

“I am very supportive of the project because Mahenge is not an area of large-scale agriculture, people struggle to find employment and there are few things bringing employment,” Kombani told Paydirt. “After this project is established I think the district will attract more investment and widen its economic parameters.”

Kibaran has achieved so much since first entering the district in 2012 because it had been open and honest with both local leaders and community members, Kombani said.

“It has been about sharing progress from the beginning.”

Kibaran already has a well-established CSR programme. In August 2014, the company donated 148 school desks to Epanko Primary School and in October that year donated 30 wheelchairs to vulnerable children in the Ulanga district. The wheelchairs were made by Australian volunteer organisation Wheelchairs for Kids.

Andrew Spinks and Grant Pierce of Kibaran flank Tanzanian president Joseph Kikwete as they celebrate the donation of school desks at Mahenge Primary School and in October that year donated 30 wheelchairs to vulnerable children in the Ulanga district.

For Kibaran executive director Grant Pierce, starting such programmes early and maintaining relationships and keeping dialogue with the community open is the only way to succeed in Tanzania.

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Kibaran's executive director Grant Pierce and senior exploration geologist Julius Namfua discuss the results of the BFS drilling programme.
line is estimated to be $US8.5m which the company intends to fund out of cash flow.

The importance of power to Kibaran’s plans becomes even more apparent as Spinks and Pierce lay out the company’s longer term strategy.

“Again, here you see the influence of cheap power and a proactive government,” Spinks said. “The Tanzanian Government is striving to develop a manufacturing sector and being a source of graphite offers opportunities in that regard.”

The Government has introduced policies to encourage manufacturing and value-adding, particularly in agribusiness, textiles, leather and minerals processing.

The Ministry of Industry and Trade has established 17 special economic zones across the country with a particular focus on Dar es Salaam and Bagamoyo where a new port is being constructed.

Deputy Mines Minister Hon. Charles Kitwanga told Paydirt value-addition was a key goal of the Government.

“[The goal set for industry] is to achieve 100% domestic minerals value addition before export,” he said.
Pierce said he planned to meet with the Tanzanian Minister of Industry to discuss the company’s options.

Value-adding opportunities include the production of spherical and expanded graphite. Currently produced only in China, battery grade spherical graphite is a physically and chemically altered form of natural graphite and is the optimum product for use in anodes for battery technology; the more spherical the graphite the greater the reduction in irreversible charge loss.

According to Syrah – which is also investigating the potential to build a spherical graphite facility in the US – recent discussions with potential customers suggest coated spherical graphite would fetch $US7,000-10,000/t.

Among the emerging applications for expanded graphite are its uses as thermally conductive panels in energy-efficient buildings and as a fire retardant. “Once we get Epanko into production there is enormous opportunity to participate in downstream processing because the rest of the world is totally reliant on China for those products,” Spinks said. “Graphite has hundreds of different specifications so broadening your ability to sell can be crucial to being viable.”

Kibaran’s second Tanzanian project, Merelani East, will play a key role in this diversification strategy.

While Epanko represents the easiest, quickest and least expensive development in the portfolio, Merelani East – in the Arusha region of northern Tanzania – already has a resource of 17.2mt @ 6.5% TGC, but it is the flake size distribution and purity of the graphite which has Kibaran excited about its potential to bring diversity to the company’s production portfolio.

More than 32% of Merelani East’s flake graphite is considered jumbo and of high carbon content, likely making it highly conducive to downstream processing into spherical and expanded graphite products. “Merelani East is not just about increasing production, it would also bring more product diversity,” Spinks said. “We would like to see Merelani East come on line before Epanko is expanded.”

Again, Kibaran believes rapid development of Epanko will give it advantages when it comes to developing Merelani East.

“With Epanko in production it means we will have the track record with customers, we will have built a reputation and we can then go back to those same customers to discuss Merelani East’s development.”

Spinks said the company was already preparing for this next stage of development. “We are now doing a scoping study on value-adding opportunities using a manufacturing model. It sounds great but in reality you need a strong strategic partner; both for the IP and to ensure off-take. But there is no doubt that establishing downstream products can add value for both our shareholders and the country as a whole.

“Epanko is just the beginning of the story in Tanzania.”

Building a cutting-edge manufacturing business in Africa is an ambitious goal but when mixed with the more traditional approach to Epanko’s development, Kibaran is giving itself the opportunity to achieve it.

– Dominic Piper

The Mahenge community is not used to mining activity but given the lack of economic opportunity in the area, communities are excited by the prospect of new investment.

The rig tracks can be seen on the side of the hills. Epanko is the highest grade deposit in the emerging Tanzanian graphite sector.