

## **Enhanced Definitive Feasibility Study Completed Presents a Stronger Kwale Project**

### **HIGHLIGHTS**

- **Pre-production capital cost estimate of US\$256 million (including allowance for a US\$20 million contingency).**
- **Ore reserve increased by 20% to 140.6 million tonnes at 4.9% THM, giving a mine life of 13 years.**
- **Changes to mining method and processing flow sheet design for simplicity and reduced risk.**
- **Further improved long term product price outlook with TZMI increasing their price forecasts for ilmenite, rutile and zircon.**
- **Project NPV<sub>10</sub> of US\$395 million and IRR of 42%.**
- **Life of mine free cash flow (post-tax real) of US\$930 million.**
- **Implementation plan for first shipment in 3<sup>rd</sup> quarter of 2013.**

**Base Resources Limited (ASX:BSE)** ("Base") is pleased to announce the completion of the Enhanced Definitive Feasibility Study ("EDFS") for the Kwale Project and its confirmation as a highly robust project exceptionally well positioned to take advantage of the forecast sustained opportunity in the mineral sands market and a clear "company maker".

With a capital cost estimate of US\$256 million (including a US\$20 million project contingency), projected NPV<sub>10</sub> of US\$395 million and net cashflow surplus over the life of the project of US\$930 million, the EDFS clearly provides a sound basis on which to proceed with financing and development of the Kwale Project.

In February, following the completion of an extensive drilling program, an updated JORC-compliant resource estimate was announced showing an increase in resource tonnes, contained mineral and value of the mineral assemblage. This Resource has formed the basis of the EDFS and, with improved economics, has resulted in an Ore Reserve estimate of 140.6 million tonnes at 4.9% THM, an increase in tonnes of 20% over the previous Reserve, with 61% in the "Proven" category. On the basis of this Reserve, mine life has increased from 11 to 13 years.

The EDFS incorporates a number of concept and design changes that were initially identified and evaluated in the comprehensive Process Design Review conducted during the second half of 2010 on the 2006 Definitive Feasibility Study that had been completed by the prior owners. These changes include the use of a dozer trap mining unit in place of a bucket wheel excavator as the mining method, the simplification of the processing flow sheet, improvement to the tailings disposal strategy and connection to grid power. The outcome has been an improved project in terms of both returns and risk profile.

The outlook for mineral sands producers has continued to improve over the past 6 months, with prices achieved increasing steadily, greater acceptance of the likelihood of an enduring uplift in price ranges and shifts in the structure of contract arrangements to shorter tenors and market-based pricing mechanisms. Following their latest review of projected industry supply/demand balances, respected industry expert TZ Minerals International (“TZMI”) is now forecasting long term real prices of US\$145, US\$1,000 and US\$1,715 per tonne for sulphate ilmenite, rutile and zircon respectively beyond 2015.

In relation to project financing, pleasing progress is being made with respect to the implementation of the previously announced US\$150 million debt facility. The banking syndicate has also confirmed its intent to make available a US\$20 million cost overrun facility to cover any expenditure required under the US\$20 million project contingency included in the EDFS. The terms of the cost overrun facility are similar to the US\$150 million senior debt facility.

Separate announcements providing updates on the implementation of the debt facilities and the product off-take negotiations currently underway will be made in the near future.

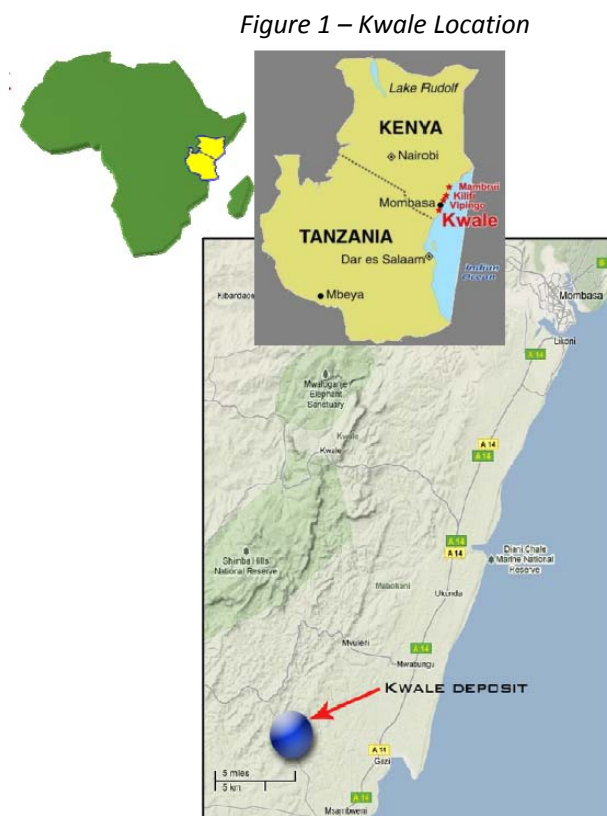
## OVERVIEW OF EDFS

### 1. Introduction and Background

The Kwale Project is located in Kenya, approximately 50 km south of Mombasa (Kenya’s principal port facility), and 10 km inland from the Indian Ocean (Figure 1).

Following an extensive due diligence exercise and the securing of approval from the Government of Kenya, Base completed the acquisition of the project from Vaaldiam Mining Inc (formerly Tiomin Resources Inc) (“Vaaldiam”) in July 2010. Vaaldiam had spent 15 years and in excess of US\$60 million progressing the project through resource definition, development of a Definitive Feasibility Study (“DFS”) and government approvals.

Following the acquisition, Base undertook a capital cost update on the original DFS as well as a Process Design Review study. The Process Design Review Study identified and evaluated to scoping study level a range of design and



concept changes that provided the basis and scope of the EDFS now completed.

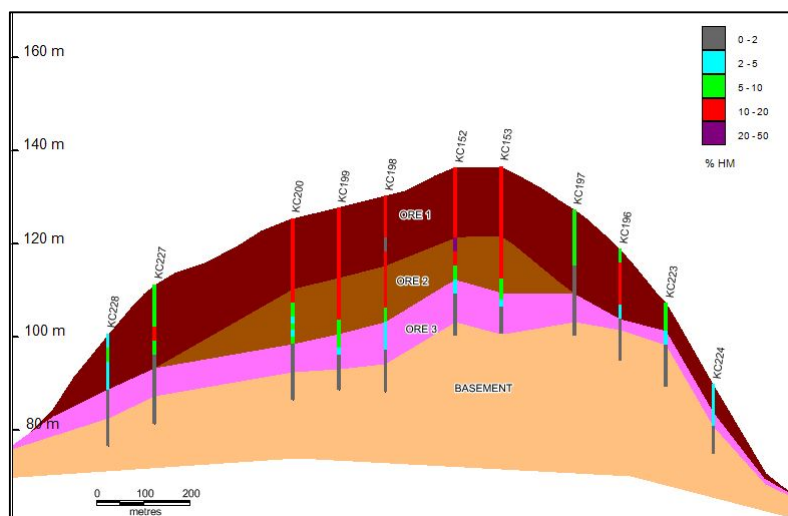
The Project has in place a full suite of licences and permits required for development, including a Special Mining Lease, an Investment Agreement with the Government of Kenya and an Environmental Impact Assessment (“EIA”) licence, with the following exceptions. The authorisation to construct the Mukurumudzi Dam, which the Project has held for the past 3 years, is currently subject to renewal. Final approval for 5 boreholes in the Gongoni Forest is also pending. All requirements for the issue of these permits have been met and their issuance is expected in the near future. As a consequence of the change in concept in some aspects of the Project design in the EDFS, EIA Addenda reports are currently being prepared and their approval sought. Due to the nature of the changes, these approvals are expected as a matter of course.

## 2. Mineral Resources

The Magarini Sands which host the Kwale deposit are believed to be of aeolian origin, deposited as coastal dunes after conditions of intense erosion. The Kwale deposit generally is poorly stratified and contains a fraction of clay and silt of about 24%. HM, mainly ilmenite, rutile and zircon, are concentrated locally and are abundant in some places.

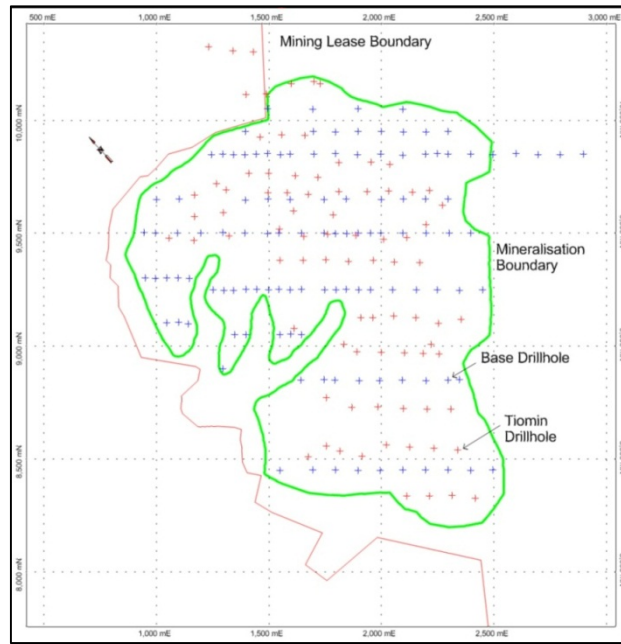
The general stratigraphic sequence of the Kwale deposit is composed of a brown sand at the surface, followed by orange or reddish sand, becoming more beige or pinkish at depth. The base of the deposit is weathered sandstone from the basal formation. White sand and clay are also described at the bottom of several holes. A typical cross-section of the Kwale Central Dune is shown in Figure 2.

*Figure 2 – Typical Cross-Section – Central Dune*



Vaaldiam drilled 249 holes into the deposit in 1997 and Base completed a further 275 holes in late 2010. Figure 3 illustrates the density of drilling over the Central Dune.

Figure 3– Central Dune Mineralisation Outline, Mining Lease and Drillholes



The Mineral Resource estimates for Kwale are compliant with the JORC (2004) code for reporting Mineral Resources. At a HM cut-off grade of 1%, the Mineral Resource estimates for the Central Dune and South Dune deposits are summarised in Table 1. All tonnes and grade information has been rounded, hence small differences may be present in the totals. All of the Mineral Resource information is inclusive of Ore Reserves.

Table 1– Mineral Resource Statement

Dune	Classification	Resource	HM	Ilmenite		Rutile		Zircon	
		(Mt)	(%)	(Mt)	(%)	(Mt)	(%)	(Mt)	(%)
Central	Measured	46.2	7.1	3.3	4.01	1.85	0.93	0.43	0.20
	Indicated	29.9	4.6	1.4	2.47	0.74	0.61	0.18	0.08
	<b>Total</b>	<b>76.2</b>	<b>6.1</b>	<b>4.6</b>	<b>3.40</b>	<b>2.59</b>	<b>0.81</b>	<b>0.61</b>	<b>0.36</b>
South	Measured	40.0	3.8	1.5	1.95	0.78	0.54	0.22	0.09
	Indicated	29.8	3.4	1.0	1.36	0.40	0.39	0.12	0.05
	<b>Total</b>	<b>69.9</b>	<b>3.6</b>	<b>2.5</b>	<b>1.70</b>	<b>1.18</b>	<b>0.47</b>	<b>0.33</b>	<b>0.14</b>
Combined	Measured	86.2	5.5	4.8	3.05	2.63	0.75	0.65	0.29
	Indicated	59.8	4.0	2.4	1.91	1.14	0.50	0.30	0.13
	<b>Total</b>	<b>146.0</b>	<b>4.9</b>	<b>7.1</b>	<b>2.59</b>	<b>3.78</b>	<b>0.65</b>	<b>0.95</b>	<b>0.29</b>

### 3. Mining and Ore Reserves

A dozer trap mining unit (“DMU”) has been selected as the optimum mining method. The DMU is a simple cost effective method of mining, best suited to free-flowing, friable, incompetent material as present at Kwale, and is preferred over the use of a large bucket wheel excavator as proposed by Vaaldiam.

Over a 13-year Life-of-Mine (“LOM”), 1.2 Mt of waste will be relocated and 140.6 Mt of ore mined and processed, producing 4.7 Mt of final product for sale. Figure 4 shows the location of the Central and South mine pits in relation to the processing plant, tailings facility and water supply dam.

*Figure 4 – Site Layout Plan*

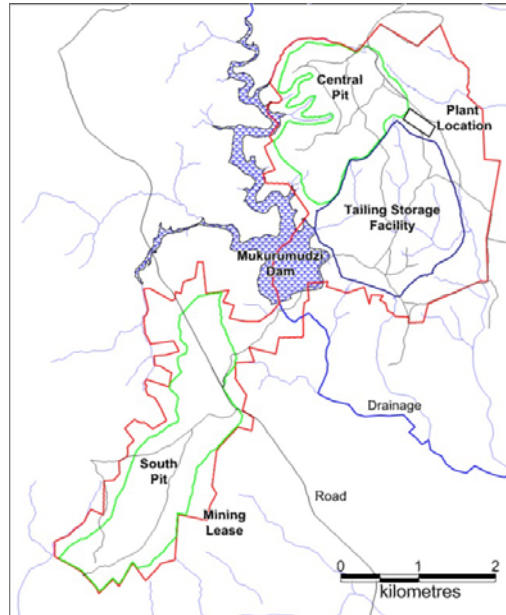


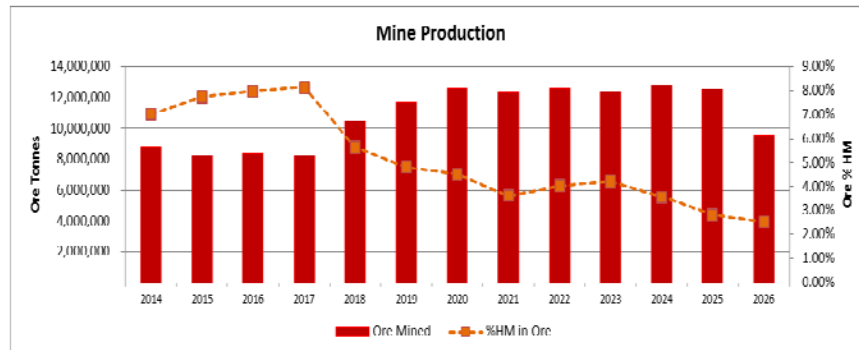
Table 2 lists Kwale Ore Reserves by classification and dune. The Ore Reserves are estimated using all available geological, relevant drill hole and assay data, including mineralogical sampling and test work on mineral recoveries and final product qualities. The Ore Reserve estimates are determined by the consideration of all of the modifying factors in accordance with the JORC Code 2004, and for example, may include but are not limited to, product prices, mining costs, mining dilution and recovery, metallurgical recoveries, environmental considerations, access and approval. The mineral assemblage is reported as a percentage of insitu ore.

*Table 2 - Ore Reserve Statement*

Dune	Classification	Tonnes (Mt)	THM (%)	Slime (%)	Oversize (%)	Ilmenite (%)	Rutile (%)	Zircon (%)
Central	Proven	46.3	6.9	24.6	0.4	3.93	0.91	0.42
	Probable	29.2	4.5	24.5	1.0	2.45	0.61	0.26
	Proven and Probable	75.5	6.0	24.6	0.7	3.36	0.80	0.36
South	Proven	39.9	3.7	26.5	1.7	1.89	0.52	0.22
	Probable	25.2	3.4	29.2	4.8	1.42	0.40	0.17
	Proven and Probable	65.1	3.6	27.6	2.9	1.71	0.48	0.20
<b>Total</b>	<b>Proven</b>	<b>86.2</b>	<b>5.4</b>	<b>25.5</b>	<b>1.0</b>	<b>2.99</b>	<b>0.73</b>	<b>0.33</b>
	<b>Probable</b>	<b>54.4</b>	<b>4.0</b>	<b>26.6</b>	<b>2.7</b>	<b>1.97</b>	<b>0.51</b>	<b>0.22</b>
	<b>Proven and Probable</b>	<b>140.6</b>	<b>4.9</b>	<b>25.9</b>	<b>1.7</b>	<b>2.59</b>	<b>0.65</b>	<b>0.29</b>

Mining will commence in the higher-grade Central Dune before moving to the lower-grade South Dune in the 8<sup>th</sup> year of operations. Annual mining rates and average heavy mineral grades for the LOM are shown in Figure 5.

Figure 5 – LOM Production Rates and THM Grade



#### 4. Processing

##### a. Metallurgical Test Work

A series of metallurgical test programs, including pilot plant testwork and closed-circuit trials, were conducted between 1997 and 2005, culminating in the design of a wet concentrator plant ("WCP") and a mineral separation plant ("MSP") in 2006 as part of Vaaldiam's DFS.

Base reviewed the previous testwork and plant design and determined that potential existed to simplify the circuits by:

- converting the desliming circuit from two-stage cyclone separation to a single-stage cyclone plus constant density tank separation circuit;
- using more modern mineral separation equipment to simplify the ilmenite circuit;
- removing wet high intensity magnetic separation ("WHIMS") from the ilmenite circuit, which also removed the need for ilmenite stockpiling and drying stages; and
- using a series of high tension ("HT") electrostatic separators and rare earth roll magnetic ("RER") separation stages to simplify the rutile circuit.

Testwork at Allied Mineral Laboratories was performed on a sample of the heavy mineral concentrate ("HMC") produced from the 2004 pilot plant operation. This testwork confirmed the performance of simplified circuit design and the revised flowsheet was used as the basis for the redesign of the Mineral Separation Plant ("MSP") conducted during the EDFs.

##### b. Process Plant Description

The processing plants for the Kwale Project are designed to process ore to recover three separate products, ilmenite, rutile and zircon and generate a number of reject streams.

Ore will be received at the WCP from the DMU via a slurry pipeline. The WCP is designed to remove slimes, at a particle size less than 45 µm, concentrate the valuable HM (ilmenite, rutile and zircon) and reject most of the non-valuable, lighter gangue minerals. The WCP will contain a number of gravity separation steps, utilising spiral concentrators. The HMC will contain 90% HM.





### b. Power supply

Power to the site will be supplied from the national grid via a 132 kV power line from the nearest substation at Galu, 14 km away. The average power demand over the first six years will be approximately 6 MW. This will increase as the ore pumping distance increases to peak at an average of about 13 MW in 2024.

### c. Roads

A new 8 km paved site access road will be constructed, predominantly along existing road reserves, to connect the site to the existing A14 highway from Msambweni to Mombasa.

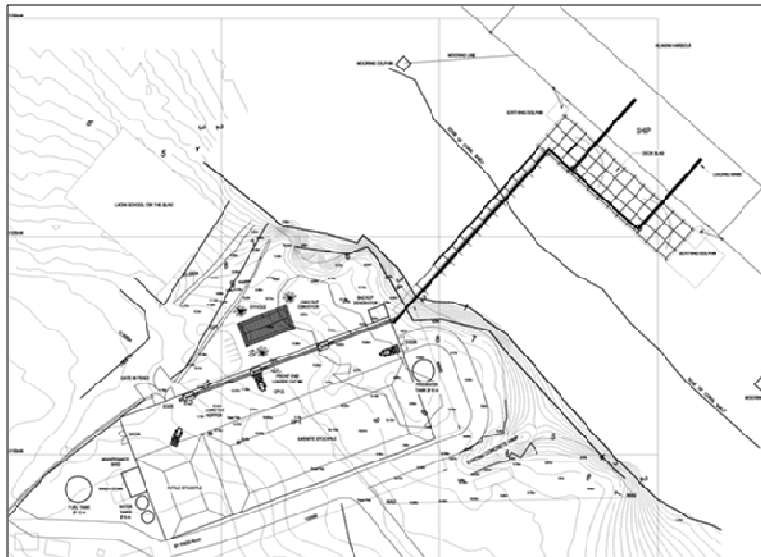
### d. Port facility

A port facility will be constructed at Likoni, 50 km north of the mine site along the A14 highway and on the southern side of the existing shipping channel servicing Mombasa Port. The site for the facility has been secured. This facility, the layout of which is shown in Figure 8, will consist of:

- a storage shed capable of holding 45 000 t of ilmenite and 15 000 t of rutile;
- reclaim facilities;
- wharf facilities capable of handling up to 45 000 DWT vessels; and
- shiploading facilities.

Bulk ilmenite and rutile will be transported from the processing facility by truck and off-loaded in the storage shed where they will be stacked separately in preparation for shipping. The product will be reclaimed from the stockpiles by front end loaders and transferred by conveyor to one of the two shiploaders at 1,000 t/h.

*Figure 8 – Port Layout*



Zircon and some rutile will be shipped in containers through the Kenya Port Authority container terminal on Mombasa Island.



## 6. Capital Cost Estimate

The overall Capital Cost Estimate is presented in US dollars ("US\$"), as the functional currency of the Project, and has a base date of the first quarter 2011 ("1Q 2011"). The DFS estimate has an accuracy range of  $\pm 15\%$  for the scope indicated.

The estimate of the total pre-production capital costs is summarised by area in Table 3. The estimate covers the design and construction of the Kwale Mineral Sands Project DMU facility, WCP and MSP, supporting site infrastructure and off-site infrastructure such as port facilities at Likoni, access road and power supply.

*Table 3 – Capital Cost Summary*

Area	Preproduction (US\$M)
Mining	8.3
Process Plant	64.6
Tailings Storage Facility	17.2
Onsite Infrastructure	20.1
Off Site Infrastructure	16.4
Marine Loading Facilities	17.8
Temporary Construction Facilities	12.7
EPCM and Fee	37.2
<b>Process Plant and Infrastructure</b>	<b>194.2</b>
Mobile Equipment/Spares/First Fills	18.0
Owners Costs	24.1
<b>Total Below the Line Costs</b>	<b>42.1</b>
<b>Capital Cost Estimate</b>	<b>236.3</b>
Project Contingency	20.0
	<b>256.3</b>

The capital costs in Table 3 include an 8.7% estimating provision. This is in addition to the separate US\$20 million project contingency, which is expected to be covered by a specific cost overrun facility as part of the debt financing component.

In addition, sustaining capital expenditure totalling US\$32.5 million (equivalent to US\$250,000/month) as well future capex associated with increases in throughput and the move of the DMU to the South pit have also been factored into the Project financial evaluation.

Given the current exchange rate volatility, it is important to note that, while the base currency of expenditure is the USD, a number of currencies were involved in the build-up of the capital cost estimate. The most significant of these is the AUD, due to the significant proportion of AUD-denominated costs in the capital estimate – totalling approximately A\$80 million. The AUD:USD exchange rate used in

calculating the base case capital cost estimate is 0.9906. At the currently prevailing exchange rate of around 1.075, the capital cost estimate would be approximately US\$8 million higher.

However, as the equity proportion of the project development funding is being funded in AUD, and the AUD spend will be less than the equity proportion of the funding, a natural hedge is effectively in place against the falling USD.

## 7. Operating Costs

Total life-of-mine estimated operating costs for the Project are summarised in Table 4. The estimate has a base date of first quarter 2011 ("Q1 2011") and is reported in US\$. No escalation has been included in the estimate.

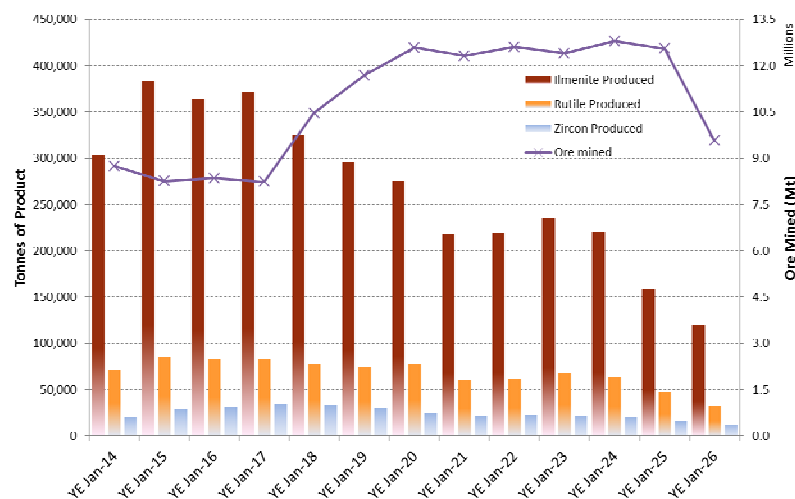
*Table 4 – Life-of-Mine Operating Cost Summary by Activity*

Activity	Total Cost (US\$M)	Average unit rate (\$/t ore)
Mining	157.799	1.12
Tailings and Rehabilitation	42.569	0.30
Wet Plant	90.407	0.64
Dry Plant	105.054	0.75
Product Handling	42.531	0.30
Royalties	118.005	0.84
Kenyan Overheads	100.552	0.72
<b>Total</b>	<b>656.918</b>	<b>4.67</b>

## 8. Production Profile

Ore mining and production are scheduled to commence in July 2013 with annual volumes over the 13-year LOM of shown in Figure 9. Over the first 7 years of operations, production volumes average 330kt for ilmenite, 79kt for rutile and 30kt for zircon respectively. Over the final 6 years, production volumes average 200kt for ilmenite, 55kt for rutile and 19kt for zircon. Production totals over the LOM are shown in Table 5.

*Figure 9 – Mining and Production Schedule*



*Table 5 – LOM Production Totals*

Ore Mined	Mt	140.6
Ilmenite Produced	kt	3,490.2
Rutile Produced	kt	884.8
Zircon Produced	kt	319.7

## 9. Product Prices

The long term price forecasts published by TZMI in April 2011 have been adopted as the basis for pricing assumptions used in the financial analysis in the EDFS. All prices are expressed in 2010 terms and on an FOB basis. A summary of the pricing assumptions utilised is presented in Figure 10.

*Figure 10 –Product Price Assumptions (Real US\$ 2010 Basis)*

## 10. Financial Evaluation

A discounted cash flow (“DCF”) analysis has been undertaken on the Kwale Project incorporating the estimated capital costs (including the US\$20 million contingency), operating costs and revenue assumptions outlined above. The key financial statistics for the project are set out in Table 6.

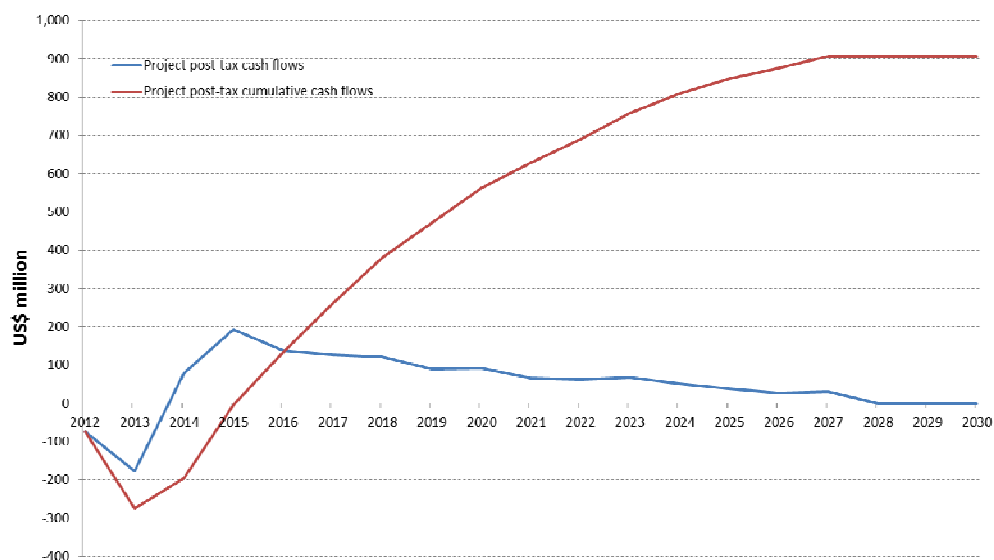
*Table 6 – DCF Results*

	Unit	Total
NPV (at a discount rate of 10%)	US\$ M	395
NPV (at a discount rate of 15%)	US\$ M	261
IRR	%	41.8
Capital Payback Period	Months	23

	Unit	Total
Initial Capex	US\$ M	256.3
LOM Operating Costs	US\$/t ore	4.67
LOM Cash Margin	US\$/t ore	10.10
LOM Free Cash Flow (post-tax)	US\$ M	930

The net annual project cash flow (pre-funding) is illustrated in Figure 11. While the maximum negative position is around US\$275 million during construction (on the assumption that the full US\$20 million project contingency is spent), Figure 11 clearly shows the strength of the operating cash flows after production begins, with payback expected to occur during the second half of the financial year ending 30 June 2015.

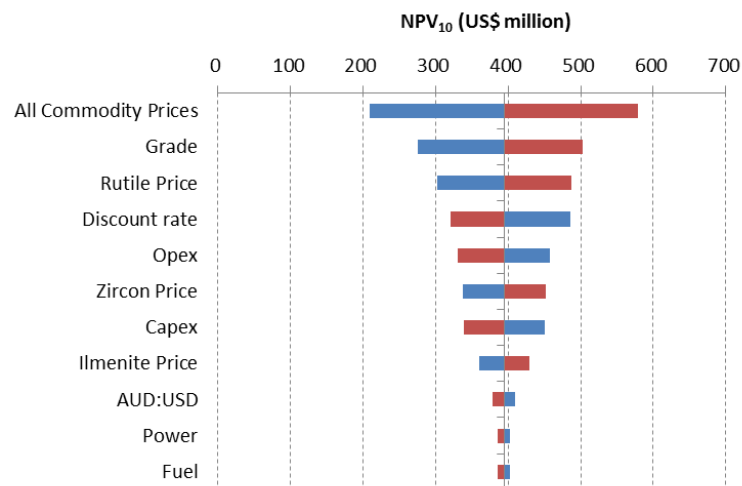
*Figure 11 – Projected Project Cash Flows*



A sensitivity analysis was completed to understand the influence of key variables on NPV valuations. Each of the key variables analysed was flexed by  $\pm 25\%$  from that used in the base case analysis.

The degree of sensitivity to a  $\pm 25\%$  change in each key project parameter is represented in the Tornado diagram in Figure 12.

Figure 12 – Sensitivity Analysis



## 11. Project Implementation Plan

It is intended that the Project be implemented on an EPCM basis with an Integrated Management Team co-ordinating and integrating a suite of separate contract packages, namely:

- CP1 – process plant and site support infrastructure
- CP2 – off-site infrastructure (access road, port)
- CP3 – power supply
- CP4 – water supply
- CP5 – tailings facility
- CP6 – Owner's integration activities
- CP7 – Owner's operational activities

Indicative key milestones in the implementation schedule are:

- |   |           |
|---|-----------|
| • Approval to commence EPCM Detailed Design | Sept 2011 |
| • Project Funding Completed                 | Sept 2011 |
| • Site earthworks commence                  | Mar 2012  |
| • WCP at practical completion               | Mar 2013  |
| • MSP at practical completion               | June 2013 |
| • Port ready to receive concentrate         | July 2013 |
| • Commissioning                             | Q3 2013   |
| • First shipment                            | Q4 2013   |

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**COMPETENT PERSONS STATEMENTS**

*Information in this announcement that relates to Mineral Resources at the Kwale Project is based on information compiled by BSE's Manager – Geology, Scott Carruthers, who is a member of The Australasian Institute of Mining and Metallurgy. Mr Carruthers 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 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Carruthers consents to the inclusion in this announcement of the information based on his work in the form and context in which it appears.*

*Information in this announcement that relates to Ore Reserves at the Kwale Project is based on information compiled by Scott Carruthers and Per Scrimshaw, both of whom are Members of The Australasian Institute of Mining and Metallurgy. Mr Carruthers is a full time employee of BSE. Mr Scrimshaw is employed by Creative Mined Enterprises. Both Mr Carruthers and Mr Scrimshaw have 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 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Both Mr Carruthers and Mr Scrimshaw consent to the inclusion in this announcement of the information based on his work in the form and context in which it appears.*

**FORWARD LOOKING STATEMENTS**

*Certain statements made in this announcement contain or comprise certain forward-looking statements regarding the capital cost and production and financial performance of the Kwale Project. Although Base believes that the expectations reflected in such forward-looking statements are reasonable, no assurance can be given that such expectations will prove to have been correct. Accordingly, results could differ materially from those set out in the forward-looking statements as a result of, among other factors, changes in economic and market conditions, success of business and operating initiatives, changes in the regulatory environment and other government actions, fluctuations in commodity prices and exchange rates and business and operational risk management. Base undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events.*

**Board of Directors:**

Andrew King	Non Executive Chairman
Tim Carstens	Managing Director
Colin Bwyne	Executive Director
Sam Willis	Non Executive Director
Winton Willesee	Non Executive Director/Company Secretary

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**About Base Resources**

**Base Resources Limited** (ASX:BSE) is developing the world-class Kwale Mineral Sands Project in Kenya, East Africa. Kwale is an advanced and highly competitive project in a sector with a significant forecast supply shortfall widely expected to emerge in the medium term.

The Kwale Project represents an advanced development opportunity with all material project approvals, permits and licenses required for development currently in place and a full definitive feasibility study (DFS) having been completed.

The Project enjoys a high level of support from the Government of Kenya as well as the local community and, located just 50km from Mombasa, Kenya's principal port facility, is well serviced by existing physical infrastructure.

Importantly, two pilot plant operations at Kwale provide confidence in processing behaviour and indicate a suite of readily marketable products. The Project's high value mineral assemblage and low stripping ratio result in a projected revenue to cash cost ratio that would place Kwale in the top quartile of world producers.

Financing and product off-take negotiations are currently underway and scheduled to be concluded in the September quarter of 2011. A realistic development time line should see the Kwale Project in production in 2013.

Base Resources also has a portfolio of early stage exploration projects in Western Australia's Mid West region, with established targets for iron ore, gold, base metals and uranium. The Company continues to progress the granting of the tenements, the evaluation of their potential and the consideration of the various development alternatives to maximize realized value.

The Board of Base Resources brings together a diverse skill set and considerable experience in all aspects of exploration and development, operations, finance, corporate development and capital markets - together with a commitment to unlock value for its shareholders from the Company's growing and diverse portfolio of assets in both Africa and Australia.