

# **KEFI Minerals Ltd (KEFI LN)**

Mining - Re-Initiating Coverage

21 August 2015



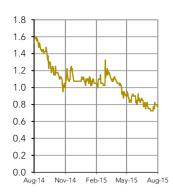
## **Stock Data**

 Share Price:
 0.80p

 Market Cap (M):
 £14.0

 EV (M):
 £13.3

# **Price Chart**



#### 52 Week Range

о.675р	1.775p

#### **Company Summary**

KEFI Minerals is an exploration company focused on the discovery, acquisition and development of vein-hosted gold and volcanogenic copper-zinc mineralisation in the Arabian Nubian Shield.

#### MAIN SHAREHOLDERS

Odey Asset Mgmt	14.02%
Capita Financial Managers	12.13%
Standard Life Investments	7.04%
TD Direct Investing	4.32%

HOLDING

# Source: Bloomberg Research:

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# **GOLD** on the Arabian Nubian Shield

#### **Investment Case**

An investment in KEFI is an investment in an emerging 100k oz pa gold producer with substantial upside potential. It is also one of the new breed of gold mines that are being developed in the light of lower gold prices. The cash operating cost for Tulu Kapi ("TK") is forecast to be US\$653/oz with an average all-in sustaining cost ("ASIC") of US\$779/oz. These figures are based on the use of contract mining.

#### Valuation

Brandon Hill Capital values the TK project on a 95% and leveraged basis at US\$82.2M or 5p/share, using an average gold price of US\$1268/oz over the life of the mine. The smaller Jibal Qutman project in Saudi Arabia is valued at US\$10.8M, or 0.3p for KEFI's 40% interest.

#### **Upside Potential**

The Tulu Kapi project has significant upside with the high grade core which runs through the centre of the open pit remaining open at depth. There is an underground resource of 0.12Mt grading 6.25g/t. There is also excellent exploration potential in the surrounding areas with huge potential to extend the mine life.

#### **Excellent Infrastructure**

The TK project, whilst being in a very much undeveloped country, benefits from the availability of grid electricity generated hydropower. This ensures a low cost and reliable source of power, with the grid passing only 47km from the mine site. The main road west from Addis Ababa, the Ethiopian capital is a sealed all-weather road that passes within 30km of the mine site.

#### **Capital Costs**

KEFI has performed a sterling job of lowering the capital costs for the project by approximately 50% and improving the viability of the project substantially. If a second hand crusher and milling circuit can be acquired, then there is the potential to reduce the forecast capital expenditure below the current forecast of US\$133M which includes working capital.

#### **ASIC** and Costs Discussion

The all in sustaining costs ("ASIC") for the Tulu Kapi project are US\$779/oz, way below the current gold price and below what we believe will be the bottom of the bear market. The cash operating costs are forecast at US\$653/oz over the life of the mine. These figures compare well with the world's leading gold producers where the ASIC is around US\$900/oz and cash operating costs are around US\$640/oz. These figures are also competitive with the new mines being developed by the smaller AIM listed companies.

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# **Executive Summary**

# **KEFI Minerals Strategy**

KEFI Minerals is exploring and planning the development of gold and base metal deposits in the highly prospective Arabian-Nubian Shield. KEFI has two development projects based on the Arabian-Nubian Shield in Ethiopia and Saudi Arabia and a pipeline of exploration projects.

## Tulu Kapi-Ethiopia

Tulu Kapi ("TK") is the company's key asset which they are planning to bring into production in 2017. TK is an open pit gold mine with an average annual gold production of around 90K oz over the first 10 years followed by the processing of stockpiles over 3 years with an average cash cost of US\$653/oz and an average all-in sustaining cost of US\$779/oz. KEFI owns 95% of the project, with the balance being owned by the Ethiopian Government who have a free carried interest.

# Jibal Qutman-Saudi Arabia.

KEFI's second development asset is the 40% owned and managed Jibal Qutman gold deposits in Saudi Arabia. These deposits currently contains 28.4Mt grading 0.8g/t and it is proposed to mine the near surface oxide resource of 6.6Mt grading 0.95g/t as a heap leach operation producing 28K oz of gold per year from 2018.

# Gold Grade and Deposit Size

Tulu Kapi, the key asset, has probable reserves of 15.4Mt grading 2.12g/t and containing 1.05M oz of gold. Of this, 12Mt grades 2.52g/t and contains 0.98M oz using a cut-of grade of 0.9g/t. It is proposed to process the higher grade ore and stockpile the lower grade ore for processing at the end of the open pit mine life.

Jibal Qutman has an oxide resource of 11.1Mt grading 0.8g/t and containing 287k oz of gold. In addition, there is a sulphide resource of 17.3Mt grading 0.80g/t and containing 446k oz of gold.

#### **Valuation**

Brandon Hill Capital has valued the Tulu Kapi gold project at US\$82.2M on a 95% basis, and the 40% share of the Jibal Qutman gold project at US\$10.8M, using net present values and a 10% discount rate, and an average gold price of US\$1273/oz. These valuations are based on the NPV 12 months out from the last set of published accounts.

### Infrastructure

The proposed Ethiopian mine has excellent logistics for an undeveloped site. The main sealed road leading west from Addis Abba is only 30km from the proposed mine site and the main electricity grid, sourced from hydro-electricity also passes near-by. The proposed sub-station to link this with the mine is 47km from the planned Tulu Kapi processing plant and will be the source of reliable, low cost electricity. With annual rainfall around 1800mm, sufficient water to run the mine will be available from the collection of run-off water which will be directed to a raw water diversion dam.

# What is the upside at Tulu Kapi?

There is excellent upside potential at Tulu Kapi. The high grade core of the open pit extends at depth and there is the potential to mine it using underground techniques. Using a 2.5g/t cut-off grade, there is a JORC compliant 1.2Mt grading 5.7g/t and it is open at depth. There are also excellent exploration opportunities for potential satellite deposits in the prospective geology within 25km of the mine over which KEFI holds the exploration rights.

#### And Jibal Qutman, Saudi Arabia

In the preliminary economic assessment used a recovery factor of 69% based on metallurgical test work of heap leaching over a five day period and only treating the oxide resources. We believe this figure is very conservative and a higher recovery would increase production and/or allow the cut-off grade to be reduced. The exploration potential of KEFI's leases is very good, and all the discoveries are open at depth. A full carbon in pulp circuit would enable the sulphide ores to be processed. Additionally, KEFI is waiting for further exploration licences to be issued which surround the Jibal Qutman EL.

# **Company History**

### Corporate

KEFI Minerals was formed on 24 October 2006 by EMED Mining and the AIM-listed fund, Starvest plc. with a mission to explore emerging markets in Eastern Europe and North Africa. The company shortly thereafter acquired the mineral properties and exploration databases held by EMED in Turkey and Bulgaria. EMED retained a significant shareholding in KEFI and also provided technical and administrative systems and personnel. In return for this support, a "non-compete" agreement was signed in November 2006, whereby KEFI agreed not to carry out exploration in countries in which EMED is interested. That agreement has now expired.

KEFI listed on AIM in December 2006 with assets in Bulgaria and Turkey. The sole Bulgaria licence (Lehovo) was relinquished in 2007 to allow the company to focus on the more prospective licences in Turkey. These consisted of 31 Exploration Licences in 7 Project areas. The Artvin licence in NE Turkey was subject to a joint-venture agreement, announced on 23rd October 2008, with Centerra Gold, a C\$1B Canadian-based mining and exploration company 53%-owned by Cameco Corp. Under the terms of the agreement, Centerra could earn 50% of Artvin by spending US\$3M in 3 years and a further 20% by spending a further \$3M in 2 years. In February 2009, KEFI announced that it was in "advanced discussions with possible additional strategic partners in Turkey and in the Kingdom of Saudi Arabia. KEFI formed the Gold & Minerals Joint Venture with the ARTAR Group in Saudi Arabia and when the Saudi Arabian licences were awarded in mid-2011, KEFI effectively exited Turkey and sold its assets in the country. In December 2013 KEFI acquired 75% of the Tulu Kapi licence from Nyota Minerals. In September 2014 KEFI acquired the remaining 25% of Tulu Kapi.

### **Projects**

KEFI currently has two development projects. There is the original project in Saudi Arabia, where the Jibal Qutman project has been steadily progressing since the initial exploration permit was first issued in June 2011 for the Selib North Project. The Saudi projects were effectively demoted into being the planned second priority when KEFI grasped the opportunity to buy 75% of the Tulu Kapi project from Nyota in December 2013.

#### Tulu Kapi

1930's	Small-scale surface mining had taken place at Tulu Kapi in the 1930's. SAPIE, an Italian mining company undertook commercial scale hydro-mining focusing on easily accessible gold-bearing saprolite (weathered rock) on the flanks of the Tulu Kapi deposit and reported a resource of 1,155 kg of gold(approximately 37,000 ounces).
1970's	Modern exploration of the Tulu Kapi area took place in the 1970's under the guidance of the UNDP, which undertook reconnaissance exploration over a wide area of western Ethiopia between 1969 and 1972. Between 1996 and 1998, TREC, a Canadian exploration company, acquired an exploration licence over an area that incorporated the current Tulu Kapi licence. Exploration by TREC between 1996 and 1998 comprised detailed geochemical soil sampling, mobile metal ion soil geochemistry and an induced polarisation survey. Five diamond drill holes totalling 366m and targeted on coincident geochemical soil and IP anomalies, were drilled in a 200m by 200m area immediately north of the old SAPIE mining area over Tulu Kapi.
2005	The Tulu Kapi & Ankore exploration licence was granted to Minerva Resources through its wholly owned subsidiary GPMC in May 2005, prior to the acquisition of the Project by Dwyka Resources Limited (subsequently renamed to Nyota Minerals Ethiopia Limited or NME) in August 2009.
July 2009- September 2011	Nyota undertook an aggressive exploration and evaluation programme, which resulted in the first NI 43-101 Preliminary Economic Assessment. Further extensive exploration and drilling allowed Nyota to file a DFS in December 2012 that served as a basis for a MLA based on a capital cost of \$289M, a 2Mtpa processing plant and annual production of 105,000 ounces of gold. However, depressed gold prices and challenging market environment forced Nyota to withdraw the MLA from the MoM in 2013.

December 2013	KEFI acquired the initial 75% of the Project from Nyota in December 2013 for a total of £4.5m.
February – June 2014	KEFI updated the Resource estimate in February 2014 with the addition of 71 exploration drill holes to the database. KEFI continually tightened the resource estimate using additional structural data based on surface mapping and trenching, plus a small program of additional RC drilling targeted at infill drilling and maximising structural interpretation. This work was performed during March to June 2014.
September 2014	KEFI acquired the remaining 25% in September 2014 for £1.5M
February 2015	A final Resource Estimate was undertaken incorporating all drilling and the use of wire frames on all individual ore lodes in February 2015 which is the basis for the optimised DFS.
April 2015	On granting the Mining Licence in April 2015, the Ethiopian government was provided with a 5% free carry interest in Tulu Kapi.

Exhibit 1: Tulu Kapi Hill, showing area of small scale mining in the 1930's

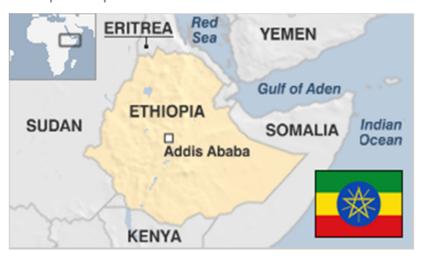


Source: Brandon Hill

# Ethiopia

Ethiopia is Africa's oldest independent country and it is second largest in terms of population. Apart from a five-year occupation by Mussolini's Italy, it has never been colonised. It is the fourteenth most populated country in the world and second most populated in Africa. The population is estimated at close to 97M (July 2014 est.). Average life expectancy at birth is 60 years and approximately 39% of the population are literate (2014 est.).

Exhibit 2: Map of Ethiopia



Source: KEFI Minerals

Ethiopia is divided into nine ethnically based states and two self-governing administrations. There are altogether around 80 different ethnic groups with the two largest being Oromo and Amhara, comprising around 71% of the total population. The capital city is Addis Ababa with a population of approximately 3 million people (2011 est.) and the total urban population rate is 17% (2011). The official national language is Amharic but Oromo is widely spoken in the state of Oromia. Approximately 43% of the population is Orthodox Christian, 34% is Muslim and a further 19% is Protestant Christian.

In the period following the overthrow of the monarchy in 1974, Ethiopia was one of the poorest countries in the world. However, today Ethiopia is the twelfth fastest growing economy in the world and is a regional powerhouse in East Africa.

Ethiopia has experienced strong growth over the past decade, averaging 10.6% per year in 2004 -2012 compared to the regional average of 4.9%. Private consumption and public investment explain demand side growth with the latter assuming an increasingly important role in recent years. Robust economic growth and growing foreign investment in the country is one of the key achievements of former Prime Minister Meles Zenawi. Under his rule, the government of Ethiopia started a number of economic growth initiatives.

Hailemariam Desalegn's government (2012 to present) continues on its predecessor's state-led Growth and Transformation Plan ("GTP"). The five-year economic plan has achieved high single-digit growth rates through government-led infrastructure expansion and commercial agriculture development. While GDP growth has been strong over the past decade, per capita income is still among the lowest in the world. The main components of Ethiopian gross domestic product ("GDP") comprise: agriculture – 47%, industry – 11%, services – 42%.

In an effort to combat inflation, in the context of a slowdown in global commodity prices and a hike in food prices, Desalegn's government pursued a tight monetary policy to control monetary expansion. This measure resulted in average annual consumer price inflation of 7.9% in November 2013, compared to 39% and 15.6% in November 2011 and 2012, respectively.

The GDP in 2014 was estimated to be US\$50.4B, following growth of 7.6%, giving a GDP per capita of around US\$500.

Despite all the challenges, the potential for growth in agriculture is enormous. Under the GTP, the government is pushing to transform the economy by developing the agricultural sector and through increased investment. The government's

strategy is to change the structure of current production to commercially oriented small-scale production by addressing such issues as rights issues, access to credit, security tenure and farm-size expansion through co-operatives.

According to African Economic Outlook Ethiopia 2014 report (AEO), in 2013, coffee continued to be the leading export item accounting for 24% of the total export receipts, followed by gold (19%), oilseeds (14%), chat (9%) and pulses (8%). The leading five export items accounted for close to 75% of export earnings. Gold has become the second most important export item in the past two years reaching record highs of US\$602M in 2012 and US\$579M in 2013. Secondary sector exports, especially manufacturing, are still very low, albeit increasing. Principal export trading partners are: China – 13%, Germany – 11%, US – 8%, Belgium – 8%, Saudi Arabia – 8%. Principal import products are: food and live animals, petroleum and petroleum products, chemicals, machinery, motor vehicles and textiles. Principal import trading partners are: China – 13%, US – 11%, Saudi Arabia – 8% and India – 5.4%. Ethiopia is in negotiation to join the WTO and continues to negotiate an Economic Partnership Agreement ("EPA") with the EU to further boost trade and reduce the trade deficit.

The government is pushing hard to diversify into manufacturing, textiles and energy generation. The Grand Renaissance Hydro-Electric Dam on the Blue Nile is the country's major development project at present and will supply cheap power to neighbouring countries as well as Ethiopia. The project construction is currently 30% complete and the total US\$4.7B cost will be mostly funded by Ethiopian government bonds. The banking, insurance, telecommunications and micro-credit industries are restricted to domestic investors, but Ethiopia has attracted significant foreign investment in textiles, leather, commercial agriculture and manufacturing. The Ethiopian flower industry began to emerge in early 2000s and within a decade became the fifth largest non-EU exporter to the EU market and the second largest flower exporter from Africa (after Kenya).

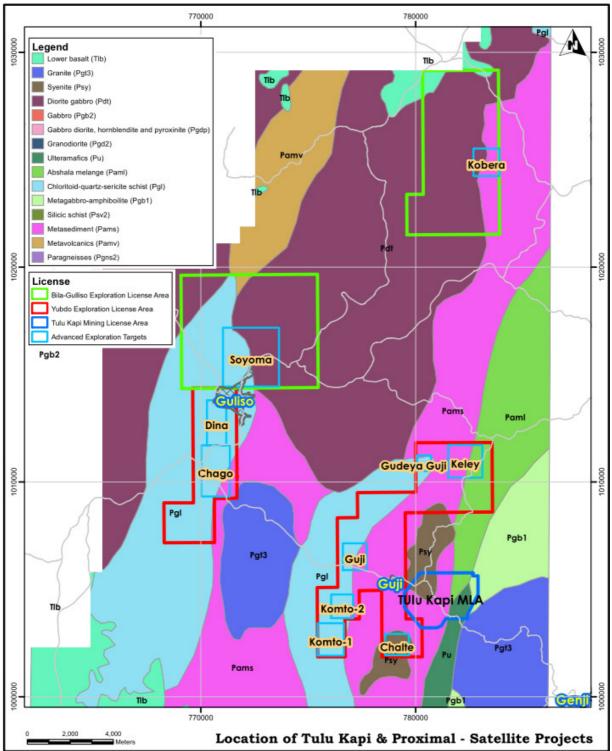
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**Exhibit 3: Location of Projects** 

Source: KEFI Minerals

Exhibit 4: Tulu Kapi Tenement Block Locations



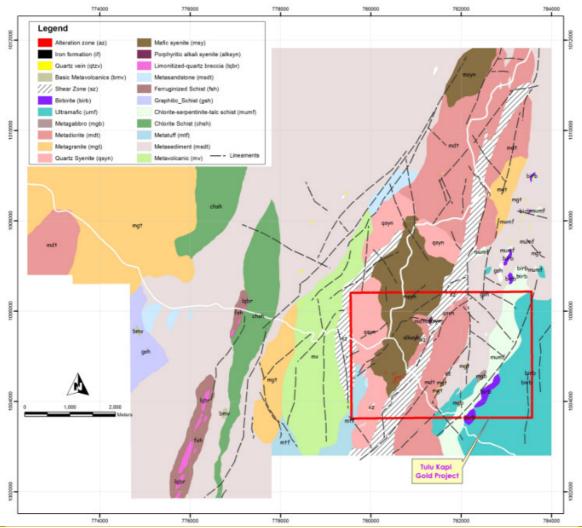
Source: KEFI Minerals

# Tulu Kapi - Exploration and Geology

# Regional and Local Geology of the Project

Tulu-Kapi is located within the Arabian-Nubian Shield which consists of Upper Proterozoic rocks in a granite-greenstone terrain. The area has been extensively folded, faulted and intruded by Pan African aged granites and lesser mafic to ultramafic intrusives and hosts a number of gold occurrences and deposits. A major regional shear is located to the SE of the Tulu Kapi area and strikes NE-SW for more than 100 km. A map of the regional geology is shown below.

**Exhibit 5: Geological Map** 

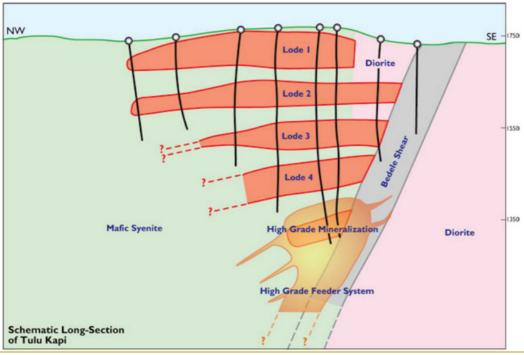


Source: KEFI Minerals

The Tulu Kapi area consists of rocks ranging from Pre-Cambrian to Tertiary in age. The gold mineralisation at Tulu Kapi is hosted by an Upper Proterozoic age intrusive, which comprises a coarse grained syenite pluton. These rocks have been intruded into a volcano-sedimentary sequence that was subsequently transformed to mafic and sericitic schists. A schematic long section of the deposit geology is shown below.

The deposit comprises a series of stacked gold-bearing quartz-carbonate veins, veinlets and stock work intimately associated with sub-horizontally dipping albite alteration zones. The mineralisation and alteration is hosted by a syenite pluton into which a swarm of dolerite dykes and sills have been intruded.

Exhibit 6: Schematic Long Section of the Tulu Kapi Deposit



Source: KEFI Minerals

#### **Resources and Reserves**

#### Resources

A number of resource estimates have been carried out at Tulu Kapi since 2009 by various consultants with an expanding database including H&S in September 2009, Venmyn in 2010, SRK in 2011 and Wardell Armstrong International ("WAI") in 2012. There has been over 120 kilometres of drilling at Tulu Kapi and over US\$50M spent on drilling, project due diligence and planning by previous owners.

The 2012 DFS resource estimate was carried out by WAI using a semi-constrained block model in Datamine using the dynamic anisotropy methodology. This was updated post-acquisition by KEFI in March 2014 in the first update as a means of verifying the WAI methodology and resource estimate, It was also used as a starting point for a small exploration infill drill program to confirm significant intercepts predicted by the model and for first pass mine planning of the proposed higher grade/reduced throughput operation.

The KEFI March 2014 estimate incorporated significantly more structural control than all previous estimates in the form of closely spaced strike and dip strings on section and in plan defining continuity of mineralisation based on structural measurements and from observations as known and agreed by the geologists experienced with the deposit. The 2014 estimate also used all available data, including 16,000m drilled by Nyota late in 2012 which missed the cut-off date of the data base (September 2012) used in the 2012 WAI resource estimate. KEFI Minerals Ethiopia Limited,("KME") also corrected errors in the Nyota/WAI drill database which (along with the missing 16,000m) had resulted in the underestimation of the Indicated Resource via a lack of downhole survey data being applied to selected drill hole azimuth and dip. The March 2014 estimate was carried out on a  $5 \times 5 \times 1$ m block model.

The additional data input by KME (under KEFI) in March 2014 allowed for a 69% increase of the Indicated Resource from 1.1Moz to 1.86Moz Au.

KEFI further refined the resource estimate using additional structural data based on surface mapping and trenching plus a small programme of additional reverse circulation targeted at infill drilling and maximising structural interpretation. This work was performed between March and June 2014.

The August 2014 resource update of 1.9M oz Au (23.7 Mt at 2.51g/t Au) took into account all drilling and trenching conducted to date along with improved understanding of geological and structural controls and was signed-off by Snowden. The estimate was carried out on a 10 x 10 x 1.5m block model.

In February 2015 KEFI announced the latest JORC compliant independently verified Indicated Resource of 18.8Mt at 2.67g/t Au for 1.62 Moz Au completed to finalise the basis for the 2015 DFS. As part of the 2015 DFS, the updated Indicated Resource was derived from "wireframing" the mineralised structures and has now been used as a base for further refining pit design, mine scheduling and Ore Reserve estimation. The Total Indicated Resource above 1,400m relative level and in the potential open pit area is 17.7 Mt at 2.49 g/t Au for 1.42 Moz Au (August 2014 estimate was 17.3 Mt at 2.37 g/t Au for 1.31 Moz Au) and high grade mineralisation immediately below the planned open pit (in underground potential) is 1.08 Mt at 5.63 g/t Au for 0.20 Moz Au (August 2014 Indicated Resource estimate was 1.07 Mt at 5.88 g/t Au for 0.20 Moz Au).

**Exhibit 7: Resources Summary** 

Resource Category	Reporting Elevation	Tonnage (Mt)	Gold Grade (g/t)	Contained Gold (Mozs)			
	Open Pittable at 0.4	5g/t Cut-Off Grade					
Indicated	above 1,400m RL	17.7	2.49	1.42			
	Underground Mining at	2.5g/t Cut-Off Gra	de				
Indicated	below 1,400m RL	1.08	5.63	0.20			
Total Indicat	ed Resources	18.8	2.67	1.62			
Open Pittable at 0.45g/t Cut-Off Grade							
Inferred above 1,400m RL		1.28	2.05	0.08			
	Underground Mining at	2.5g/t Cut-Off Gra	de				
Inferred below 1,400m RL		0.12	2 6.25				
Total Inferre	ed Resources	1.40	2.40	0.10			
Total Indicated &	Inferred Resources	20.2	2.65	1.72			

Source: KEFI Minerals

For the avoidance of doubt, the downsizing of the operations by KEFI and the current LOMP envisages open-pit mining only. The underground resource demonstrates the underground mining potential and a PEA is under internal review.

#### Reserves

Snowden has updated the Ore Reserve based on the February 2015 Mineral Resource estimate. Pit optimisation was carried out by Snowden using Whittle pit optimization software, staged pit design production scheduling and mine cost modelling. A cut-off grade of 0.9 g/t Au was applied for the Run of Mine (ROM) high grade and a 0.5 g/t – 0.9 g/t cut-off used for the low grade stocks.

The April 2015 Ore Reserve estimate is presented below:

**Exhibit 8: Reserves Summary** 

Reserve category		Tonnage (Mt)	Gold Grade (g/t)	Contained Gold (Mozs)			
	Cut-Off G	irade (0.90g/t Au)					
Probable - High g	rade	12.0	2.52 0.9				
Cut-Off Grade (0.50-0.90g/t Au)							
Probable - Low gr	ade	3.3	0.73	0.08			
Total		15.4	2.12	1.05			

Source: KEFI Minerals

### Mining

The operations will be carried out using conventional open pit mining methods, consisting of drilling, blasting, loading, hauling and crushing. The mining function will be carried out by a mining contractor. A short list has been assembled from preliminary bids received and final bids were called for in July, following the DFS -sign-off in June 2015. Short-listed contractors include AMS (Australian), DTP (French), Ozdogu (Turkish),PW Mining (Irish) and PGM (Australian). The short-listing was based on preliminary bids based on the 2014 Mine Plan and final bids will be based on the 2015 Mine Plan inside the 2015 DFS. The mining schedule was developed by Snowden with the assistance of Cube who bring a grade-control specialisation and practical expertise of mining in the field.

Total material moved over LOM is 131.2 Mt comprising 115.8 Mt of waste and 15.4 Mt of ore resulting in an average strip ratio is 7.5:1. Peak mining volumes occur in Years 4 and 5 with 18.5 Mtpa, declining thereafter. Peak ore mining occurs in Year 2 with approximately 2.6 Mt and declining thereafter. The processing plant capacity is 1.2 Mtpa and lower grade ore will be stockpiled and treated at the end of the mine life.

The Project will produce 918,000 ounces over the first 11 years of open pit mining and another 43,000 ounces from low grade stockpile processing.

# Metallurgy

Extensive metallurgical test work for the PFS and 2012 DFS on various samples of oxide and fresh Tulu Kapi ore types was carried out by ALS-Ammtec ("Ammtec") and reviewed by Orway Minerals Consultants. Test work in 2012 was carried out to confirm gold recovery efficiencies and to support the process design parameters for a conventional gold recovery plant.

The mineralization modelled and metallurgical test work available indicates that conventional CIL extraction can be used, to produce gold as dore. The gold is free milling and all the unit processes included in the design are standard and common to many current gold operations. The test work programme included:

- comminution test work
- flotation test work
- cyanidation test work
- oxygen uptake
- gravity recoverable gold test work
- thickening test work
- cyanide detoxification

Variability test work was conducted on samples from different lithologies and also from different ore zones and was mainly aimed at defining the differences in ore hardness (or grindability) and gold recovery. Samples were taken from 11 geographically diverse oxide ore locations for grindability and extraction test work, 16 samples from spatially diverse fresh

ore sources for extraction test work and five samples from spatially diverse fresh ore sources for both comminution variability and extraction test work. There are no deleterious metals identified.

The metallurgical factors and the grade recovery algorithms were developed by SENET and reviewed by Snowden. Metallurgical recoveries were applied to the Snowden optimisation, Snowden production schedule and KEFI's financial model. The overall recovery over LOM was estimated to be 91.5% and LOM recoveries by ore type are listed in the table below.

**Exhibit 9: Ore Types** 

Ore type	Recovery	Percent Processed		
Oxide Ore	95.9%	6%		
Fresh Ore	94.1%	66%		
Fresh Hard Ore	89.6%	28%		
Average	91.5%	100%		

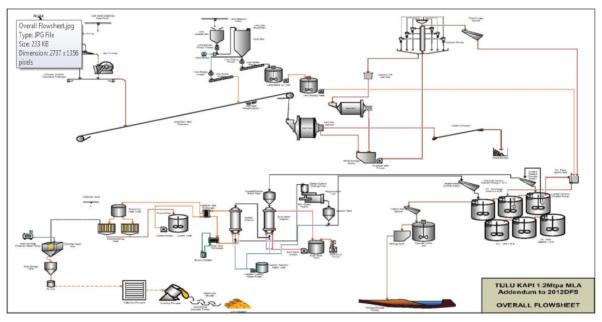
Source: KEFI Minerals

# **Processing Route**

ROM ore will be transported from the pit to the ROM pad using dump trucks. The ROM ore will be dumped directly onto the static grizzly on top of the tipping bin. The grizzly mounted above the ROM bin, will scalp off the oversize material which can be broken down to the right size using a rock breaker. During production, the crushing plant will be treating feed ore from a maximum lump size of 600 mm to a product size of 80% passing 150 mm suitable for SAG milling.

Ore will be reclaimed from the ROM bin using a variable speed apron feeder and will be discharged into the primary jaw crusher. The apron feeder dribblings together with jaw crusher discharge will report to the crusher discharge conveyor. The combined stream will be discharged onto the mill feed stockpile. Crushed ore will then be conveyed from the mill feed stockpile to the grinding circuit, which will use the SAG mill as the primary mill and a ball mill for the regrinding. The milling circuit will handle 150 tph of a blend of oxide and softer fresh ore during the first few years of the LOM and thereafter 150 tph of a blend of soft and harder fresh ore following the installation of a secondary crusher, pebble crusher and auxiliary equipment. Freshly crushed ROM ore will be mixed with cyclone underflow (circulating load) and feed water in the ball mill head chute to achieve the required 72% solids feed concentration for optimum milling efficiency.

**Exhibit 10: Typical Gold Process Plant** 



Source: KEFI Minerals

Exhibit 11: Base Case Model Assumptions

Description	
Gold spot price	US\$1,250 per ounce
Mining (LOM) Waste Ore Total Material Moved	114.2 million tonnes 15.4 million tonnes 129.6 million tonnes
Strip Ratio	7.52
Oxide Ore Processing (LOM) Tonnes Oxide Grade Average Recovery	0.937 million tonnes 1.56 g/tonne 92.7%
Fresh Ore Processing (LOM) Tonnes Fresh Grade Average Recovery	10.1 million tonnes 1.99 g/tonne 92.2%
Fresh Hard Ore Processing (LOM) Tonnes Fresh Hard Grade Average Recovery	4.4 million tonnes 2.54 g/tonne 89.4%
Total Ore Processed (LOM) Tonnes Grade Total Recovery	15.4 million tonnes 2.12 g/tonne 91.5%
Recovered Gold (LOM)	961,333 ounces
Initial investment	\$133.1 million including working capital
Sustaining capital (LOM)	\$19.2 million including, processing, tailings and re-settlement costs \$11.9 million of closure costs \$6.5 million plant salvage value and the end of mine life
Operating Costs Mining	\$3.20 per tonne of material mined
Processing Oxide Ore Fresh Ore Hard Fresh Ore	\$9.98 per tonne milled \$7.63 per tonne milled \$10.60 per tonne milled
G&A	\$7.1 million per annum
Refining & Transport	\$8.88 per ounce (inclusive of refining cost, payables and transport)
Royalties	7% of net revenues after refining and transportation costs
Corporate Income Tax	Tax rate of 25% Four years straight line depreciation
Working Capital	Assumed 2 month buffer required in initial capital Assumed 1 month buffer during operations

Source: KEFI Minerals

# **Capital Costs**

The capital costs for developing Tulu Kapi are currently around US\$133.1M pre-financing and US\$120M after adjusting for early working capital movements. This figure assumes a contractor mining scenario. The contractor mining environment is currently very competitive due to the down turn in metal prices.

There is a potential scenario whereby the Ethiopian Government funds some of the infrastructure expenditures. This would include such items as the access roads, airstrip and water dam. This would reduce the total capital expenditure by around US\$20M but it is not sure whether that would lead to an increased ownership in the project by the Ethiopian Government. Under this scenario, he capex could drop to US\$113.1M with KEFI having to fund the non-streaming/debt component of US\$13.1M.

In the capex estimates in the DFS, early cash flows of US\$7.4M during the commissioning stages of the mine were ignored. If these are included, it lowers the peak funding requirement to US\$105M.

**Exhibit 12: Capex Breakdown** 

	Total (\$'000s)		
Mining infrastructure	3,044		
Processing Plant	49,144		
Tailings Facility	8,186		
Infrastructure	27,868		
EPCM & Project Insurances	10,753		
Owners' Costs	8,854		
Total Construction Capital (Excl Contingency)	107,849		
Contingency	9,953		
Total Construction Capital	117,802		
Re-Settlement Action Plan	7,415		
Pre-Production Mining Costs	2,413		
Working Capital	5,481		
Total Capital Cost (Pre-Financing)	133,111		

Source: KEFI Minerals

The cost of the processing plant was estimated to be US\$65.6M, but this price was based on work conducted by Senet in the 2012 DFS, and updated in 2014. This estimate has been refined to \$49.4M and we believe that the cost may be less than this figure. The reason for this is there is the potential to use some second hand equipment. Whilst KEFI did pursue buying a complete second hand mill, the opportunity did not present itself. However, there are still opportunities to buy a second hand crushing plant and a mill.

Sustaining capital over the currently budgeted life of mine is currently estimated to be US\$19.2M, the bulk of which is required for extending the tailings dam.

#### Infrastructure

The selected Tulu Kapi site is an undeveloped mining site without any significant existing infrastructure except for the existing exploration camp. However there is a main road from Addis Ababa that passes within 30km of the mine and has recently been sealed. The main electricity grid, sourced by hydro-electricity also passes nearby. It is proposed to source grid power from a sub-station in Gimbi town, owned by the Ethiopian Electric Power Corporation. This sub-station is only 47km from Tulu Kapi, and an agreed power line route has been surveyed. All other infrastructure will have to be built by KEFI. This includes a water dam which will collect rain water and a 2MW emergency generator designed to provide emergency back-up power in the event of a grid power failure.

# **Upside Potential**

The most obvious upside potential is to take the mine underground later in its life, mining the high grade core. This averages between 5 and 6g/t and runs through the planned open pit and has been partially drilled out. It remains open at depth. This underground material, which is the ore below the 1,400 RL is an indicated resource of 1.08Mt grading 5.63g/t and an inferred resource of 0.12Mt grading 6.25g/t. The cut-off grade for underground mining was 2.5g/t.

If a custom built 1.2Mt pa plant is bought, in all probability it would perform at higher throughputs. We have run a scenario with a 1.3Mt pa throughput. This is difficult to model precisely without a detailed mining plan, but we estimate that it adds approximately 10% to the net present value. There are two major benefits of operating at a higher tonnage. Firstly it spreads the fixed costs of operating the mill over a larger tonnage and secondly, we have assumed that instead of stockpiling the low grade ore, much of it is fed directly to the mill avoiding haulage and rehandling costs. Under such a scenario, there is also the possibility that the cut-off grade could be lowered, reflecting the lower cost profile.

In an exploration update issued on the 4th of June 2015, the company stated that two parallel shear zones immediately west of Tulu Kapi, the Komto-Guji Shear and the Bila-Gulliso Shear, are host to a number of gold prospects that have similar geology to Tulu Kapi and have potential to provide satellite ore feed to the planned Tulu Kapi processing plant.

At the Komto 1 and Komto 2 prospects, mineralisation is hosted in a ferruginous stockwork in meta-sandstone. The mineralisation style has potential to host a bulk tonnage open cut resource. Only one drill hole had previously been drilled, in the 1970s at the Komto 1 prospect, and it returned a 10.5m intercept at 1.5g/t Au.

The Komto 1 and 2 shear zone and ferruginous stockwork continues north for a further 2km where it joins the Guji prospect, where previous drilling has identified a low grade gold resource in saprolite (weathered) rock. KEFI performed a limited drilling programme at Guji in 2014 and extended the mineralisation 200m north and south (which remains open along the strike length) with a best intercept of 44m at 1.7g/t Au. The Guji and Komto prospects are within 7km of the proposed Tulu Kapi mine, and also have the potential to host heap leachable oxide resources. Further trenching and reverse circulation drilling is planned.

There is also the Soyoma prospect, which is located on the Bila-Gulliso Shear, 15km north-west of Tulu Kapi. Gold mineralisation is hosted in quartz veins. Previous wide-spaced trench sampling returned 14.2m at 8.2g/t Au. A small gravel pit for road base was recently excavated over the top of two trenches, which revealed a series of flat-lying stacked quartz veins. These individual veins have been channel sampled and returned best results of 3m at 4.2g/t Au, 2m at 2.75g/t Au and 1m at 2.65g/t Au. The vein zone and historic workings have been mapped over a 2km strike and further trenching and RC drilling is planned.

Located close to the Soyoma prospect are the Dina and Kobera prospects. Dina has had one diamond drill hole drilled on it and the results included 7.1m grading 30.3g/t and 3.8m grading 2.4g/t. Kobera has been trenched, but no drilling conducted yet. The trench results include 6.0m grading 1.35g/t and 6.8m grading 2.0g/t.

There is also the Chalte prospect. This is a 1.2km gold in soil geochemical anomaly with an airborne geophysical signature. The geology is very similar to Tulu Kapi.

Before it sold the leases, Nyota had identified multiple targets within a 20km radius of the proposed Tulu Kapi mine site and they are all relatively under explored. KEFI plans to submit work programmes for proximal licences for review by the Minister of Mines together with licence extension applications.

# Timeline of key Historical Events for Tulu Kapi since acquisition by KEFI

Date	Event
Dec-13	Acquisition of Interest in Tulu Kapi & Placing of new Ordinary hares
Dec-13	Completion of 75% of the issued capital in Nyota Minerals (Ethiopia) Limited
Mar-14	Upgraded JORC Resource at Tulu Kapi
May-14	Increased targeted Open Pit Mine Production at Tulu Kapi
Jun-14	Acquisition of remaining 25% interest in Tulu Kapi
Jun-14	Renewal of Exploration Licence for Tulu Kapi
Jul-14	Tulu Kapi Acquisition Update
Jul-14	Tulu Kapi DFS Update
Aug-14	Tulu Kapi Resource Update
Oct-14	Independently Reviewed Cost Estimates for Tulu Kapi Open-Pit Replacement
Oct-14	Independently Verified Ore Reserve Reporting On Tulu Kapi Gold Deposit in Ethiopia
Oct-14	Tulu Kapi Update: Reactivation of Mining Licence Application & Indicative Financing Plan
Feb-15	Tulu Kapi Resource Update
Mar-14	Tulu Kapi Update
Apr-15	Ethiopian Council of Ministers Approves Tulu Kapi Gold Project and grants Mining Licence
Apr-15	Update on Project Financing and DFS for Tulu Kapi
Apr-15	Tulu Kapi Ore Reserve Statement
Jun-15	2015 DFS and Financing Update for Tulu Kapi Gold Project
Jun-15	Exploration Update – Licences Adjacent To Tulu Kapi
Jun-15	Completion of 2015 DFS & Development Funding Plan
Jun-15	Final Bidding Triggered for Project Contractors for Tulu Kapi Project

Source: KEFI Minerals

# **Gold Stream**

In our modelling we have assumed that KEFI funds US\$100M of its capital requirements with a senior secured gold stream facility. The model assumes that KEFI repays 275K oz of gold over the period 2017 to 2030. This represents approximately 29% of the total gold production and is repaid at a gold price of US\$450/oz., which is escalated at 1% per year from 2019. Under this arrangement, KEFI believes that it will repay US\$127M and the loss of revenue due to streaming will be US\$216M.

In the Brandon Hill modelling of the gold stream facility, we have assumed an interest rate of 10.5% on the principal borrowed, plus capital repayments. We did this purely on the assumption that the interest component would be tax deductible. We are also using a different gold price profile over the life of the mine, which flat lines at US\$1280/oz from 2020, rather than the flat US\$1250/oz over the life of the mine.

KEFI has to ensure, assuming that it does use a gold stream facility that it is only subject to the open pittable gold in the Tulu Kapi pit. This is important as we are assuming that additional capital expenditures would be required to develop any additional open pits that are likely to be found by exploration or the development of an underground operation.

# Saudi Arabia

## **Country Profile**

Saudi Arabia is the birthplace of Islam and home to Islam's two holiest shrines in Mecca and Medina. The king's official title is the Custodian of the Two Holy Mosques. The modern Saudi state was founded in 1932 by ABD AL-AZIZ bin Abd al-Rahman Al SAUD (Ibn Saud) after a 30-year campaign to unify most of the Arabian Peninsula. One of his male descendants rules the country today, as required by the country's 1992 Basic Law. King SALMAN bin Abd al-Aziz ascended to the throne in 2015 and placed the first next-generation prince, MUHAMMAD BIN NAYIF bin Abd al-Aziz, in the line of succession as Crown Prince. It is a Monarchy, with an Islamic (sharia) legal system with some elements of Egyptian, French, and customary law. However, several secular codes have been introduced; with commercial disputes handled by special committees

It is located in the Middle East, between the Persian Gulf and the Red Sea, bordering Yemen United Arab Emirates and Oman to the south and Iraq, Jordan and Egypt to the north. The country covers an area of 2,150km<sup>2</sup>. It is largest country in the world without a river; extensive coastlines on the Persian Gulf and Red Sea provide great leverage on shipping (especially crude oil) through the Persian Gulf and Suez Canal.

It has an oil-based economy with strong government controls over major economic activities. It possesses about 16% of the world's proven petroleum reserves, ranks as the largest exporter of petroleum, and plays a leading role in OPEC. The petroleum sector accounts for roughly 80% of budget revenues, 45% of GDP, and 90% of export earnings. Saudi Arabia is encouraging the growth of the private sector in order to diversify its economy and to employ more Saudi nationals. Diversification efforts are focusing on power generation, telecommunications, natural gas exploration, and petrochemical sectors. Over 6M foreign workers play an important role in the Saudi economy, particularly in the oil and service sectors, while Riyadh is struggling to reduce unemployment among its own nationals. Saudi officials are particularly focused on employing its large youth population, which generally lacks the education and technical skills the private sector needs. In 2014 the Kingdom ran its first budget deficit since 2009, and faces budget deficits for the foreseeable future because it requires an oil price greater than \$100 per barrel to balance its budget. Although the Kingdom can finance high deficits for several years by drawing down its considerable foreign assets or borrowing, it probably will begin to reduce capital spending if oil prices stay low through the next year. It has a GDP of US\$777.9B at official exchange rates which rises to US\$1.6T at purchasing power parity. It has a population of 27.7M people with 46% of the population being younger than 24.

## The Saudi Assets

#### **Background**

KEFI's Saudi Arabian assets are held and are being developed by Gold & Minerals JV ("G&M"), the JV company held 40% by KEFI and 60% by the major Saudi Arabian construction company Abdul Rahman Saad Al-Rashid & Sons Company ("ARTAR"). KEFI is the technical partner and operator of the JV company.

G&M, through ARTAR, has been awarded 4 Exploration Licences ("EL"s) and has another 19 EL applications being processed. During the site visit Brandon Hill Capital visited the JV's most advanced project at Jibal Qutman, the licenses at Hikyrin, several areas for which the licenses are currently pending and had a meeting with ARTAR. The overall quality of the assets is excellent and fast progress being made. Furthermore although Saudi Arabia doesn't have a large mining sector, proactive Government action to diversify the economy outside of oil and gas and the low fuel and labour costs will significantly improve the economics of any project. Furthermore, according to G&M, the state also offers debt financing of up to 75% of the capex for new equipment at a nominal interest subject to the approval of a full BFS.

#### Jibal Qutman

At the project level, Jibal Qutman is shaping up to be a significant project and it is always a difficult balancing act between wanting to drill out the entire project and taking it into production. There is significant upside on the current resource, but we believe that G&M has adopted the right approach in looking at developing multiple shallow pits to feed a low cost

heap leach operation. The revenue from this will allow the Company to drill out the rest of the resource and look at deeper mineralisation probably adding a CIL plant to improve recoveries without increasing dilution for existing shareholders.

What is significant about this project that apart from the mineralisation outcropping on the hills, the rest is covered by unconsolidated sand cover which is why the scale of the mineralisation has gone unnoticed. However, as sand cover gets moved by the wind, "new outcrops" are sometimes revealed, particularly after periodic sandstorms. In addition to the recently announced 3K Hill, mineralisation remains open along strike and has been identified at 5K Hill and to the east of the main zone and south zones as shown in Exhibit 13.

The Jibal Qutman EL occurs in the central southern region of the Arabian Shield on the Nabitah – Tathlith Fault Zone, a 300km-long structure along which the BRGM mapped over 40 MODS's or mineral occurrences. The Nabitah – Tathlith Fault Zone itself is the southern part of the complex transpressive Nabitah suture zone between the western composite arc terrane and the eastern Afif terrane. Needless to say this is a structurally complex area.

Exhibit 13: Just Completed RC Hole at 3K Hill Awaiting Surveying and Drilling in the West Zone





Source: Brandon Hill Capital

Exhibit 14: Ancient Workings in South Zone and Grindstone Found Close By





Source: Brandon Hill Capital

The current licence area was originally known as Bani Qutman and in 1980 the USGS drilled 3 holes for 350m in what is now called the Main Zone. The best results included 5m @ 5.2 g/t Au and 90 g/t Ag (with highlights of 0.5m @ 13.0 g/t Au and 180 g/t Ag, 0.4m @ 12.5 g/t Au and 173 g/t Ag); and 1.6m @ 6.8 g/t Au and 66 g/t Ag. However, this was pre-wire line drilling and combined with a possible lack of due diligence resulted in core recoveries of only 15 per cent. G&M has at times used short runs of down to 20cm using 3 tubes to get good recoveries of core.

The licence was granted In July 2012 and after initial mapping, the first phase of 50 diamond drill holes for 4,569m on 50m sections with holes spaced between 25m and 40m on each section. This identified two new zones of mineralisation called the South and West Zones in addition to the original Main Zone with 31 holes drilled on the Main Zone, 10 on the West zone and 9 in the South Zone.

# Resources at Jibal Qutman

In May 2013 KEFI released a maiden JORC resource for Jibal Qutman of 312,532oz at 0.94g/t. Of this 207,988oz at 0.89g/t was in the West Zone, 51,328oz at 0.81g/t was in the South Zone and 53,328oz at 1.55g/t in the Main Zone. This was based on sectional 1m composites with a 0.2g/t cut-off grade, a 20g/t top-cut and estimated specific gravity ("SG") of 2.6 which may be a little low based on test work to date indicating SG of ~2.75. An updated ore resource was published on the 11th May 2015. This is the fifth ore resource upgrade since the March quarter of 2013, reflecting the fast pace of exploration in Saudi Arabia. The Company is focusing on the possibility of an open cut heap leach operation at Jibal Qutman in order to lower capital requirements and expedite the potential development schedule. The new ore resource includes an oxide resource of 11.1Mt grading 0.80g/t and containing 287,329oz of gold.

**Exhibit 15: Resources** 

	OXIDE RESOURCE			SULPHIDE RESOURCE			OXIDE + SULPHIDE RESOURCE		
ZONE	TONNES	GRADE	OZ	TONNES	GRADE	oz	TONNES	GRADE	OZ
3K	1,607,964	0.99	51,027	2,320,780	0.99	74,139	3,928,745	0.99	125,166
SC	2,887,929	0.69	63,775	4,915,937	0.79	125,392	7,803,866	0.75	189,167
4K	1,646,603	0.62	32,765	2,156,146	0.50	34,690	3,802,749	0.55	67,454
Main	1,452,188	0.89	41,406	1,302,766	0.77	32,323	2,754,954	0.83	73,729
West	2,581,090	0.87	72,361	5,282,494	0.86	145,712	7,863,584	0.86	218,073
Red Hill	832,564	0.89	23,880	1,300,354	0.79	32,989	2,132,918	0.83	56,869
Pyrite Hill	134,308	0.49	2,114	33,980	0.43	471	168,288	0.48	2,585
TOTALS	11,142,647	0.80	287,329	17312457	0.80	445716	28,455,104	0.80	733,045

Numbers may not add up due to rounding

Source: KEFI Minerals

# **Preliminary Economic Assessment**

Metallurgical test work on four of the main oxide deposits has shown that a coarse crush, cyanide heap leach will average a 69% gold recovery over five days. Preliminary pit shells have been drawn, using a US\$1,250/oz gold price which indicates a potential open pit mining resource of 6.6Mt grading 0.95g/t and containing 201,600oz of gold. The company intends to commence a preliminary feasibility study in Q3 2015 which is expected to be completed in mid-2016 and brought into production in 2017. A preliminary economic assessment has shown that the project would require an investment of approximately \$30M in 2017, to be comprised of a local development loan of \$22.5m and equity of \$7.5m (with KEFI being accountable for 40% of the equity portion).

Based on the Company's preliminary economic assessment of these results, the project now warrants a PFS to confirm the basis for a mine licence application. Results to date indicate gold production 139,000 oz over an initial 4.5 years life of mine, at an average grade of 0.95 g/t Au, Au recovery of 69% and a strip ratio of 2.18. Opex would be in the order of \$597/oz. This is based on a mining cost of US\$1.60/t, heap leach processing costs of US\$5.50/t and G&A costs of US\$2/t. Operating costs are expected to be around US\$600/oz, assisted by low diesel and power prices in Saudi Arabia. Annual production would total about 28k oz with KEFI's share being 11.5K oz pa.

Such a development, if validated by independent studies, approved by the authorities and committed by G&M, would involve an investment of \$30M, potentially funded as 75% by local finance institutions with KEFI's 40% share of equity funding being \$3M. This potential development would be a source of funding of G&M's regional exploration programs and its timing could be along the lines of completing the technical studies and permitting in 2016/17 and development thereafter.

Although this looks like a very small mine, the initial thrust is to make the Saudi Arabian joint venture self-funding. KEFI is very confident of its ability to find more oxide pits which would extend the mine life, perhaps significantly. Further, the cash-flow from the heap leach operation could fund the addition of a carbon in leach circuit, opening up the possibility of processing the sulphide mineralization.

The preliminary economic assessment used a very conservation heap leach gold recovery of 69%. We believe this to be very conservative. Whilst this recovery might be an accurate assessment for the recovery over a 5 day period, we believe that by continuing to treat the heaps with cyanide solution for much longer periods, significantly higher recoveries can be achieved and we have run some sensitivity analysis on this.

# Time Line of key Historical Events for Jibal Qutman

Date	Event
Jan-12	Two Exploration Licences granted in Saudi Arabia
Apr-12	Progress at Hikyrin South and Selib North projects, Saudi Arabia
Jun-12	Exploration Update Selib North project, Saudi Arabia
Jul-12	Exploration Licence granted in Saudi Arabia
Jul-12	Exploration Update Jibal Qutman licence
Sep-12	Exploration Update Saudi Arabia
Nov-12	Jibal Qutman drilling update
Dec-12	Second Exploration Licence Awarded in Saudi arabia
Dec-12	Exploration Update
May-13	Maiden Resource at Jibal Qutman
June-13	Excellent Trenching Results from a New Gold Discovery at Jibal Qutman
Aug-13	Continued Expansion of Mineralisation at Jibal Qutman
Sep-13	Increased JORC Resource at Jibal Qutman
Nov-13	Upgraded JORC Resource for Jibal Qutman
Jan-14	Continued expansion of Mineralised Zone at Jibal Qutman
Mar-14	Upgraded JORC Resource at Jibal Qutman Project
Jul-14	Exploration Update Saudi Arabia: Jibal Qutman Project
Mar-15	Exploration Update-Saudi Arabia
Apr-15	Exploration Update at Hawiah - Saudi Arabia
May-15	Exploration Update: Jibal Qutman, Saudi Arabia

#### Hawiah EL

On 5 December 2014, KEFI received confirmation that the 95km2 Hawiah EL had been granted to KEFI's partner, ARTAR, on behalf of the KEFI operated Gold and Minerals Joint Venture Company G&M. Exploration work commenced immediately and the initial focus has been on the large Volcanic Hosted Massive Sulphide ("VMS") target. Testing began along a 4km-long gold mineralised gossan.

This lease was one of the higher priority ELA's being processed for ARTAR on behalf of the G&M JV. The unusually large structure exposed at surface at Hawiah is considered by KEFI as analogous to large copper-gold-zinc VHMS deposits in the Arabian-Nubian Shield ("ANS"), which also have well preserved, mature oxidised zones enriched in gold at surface. Other examples of large VHMS deposits in the ANS include Bisha (Nevsun) and Asmara (Sunridge) in Eritrea, Hassaiin NE Sudan (Ariab), and in Saudi Arabia at Jabal Sayid (Barrick and Ma'aden) and Al Masane (Arabian American).

A first pass trenching program was completed in the first quarter of 2015, comprising 53 trenches over a 6km long gossan horizon which is thought to overlie VMS copper-gold mineralisation. Almost all the trenches contained anomalous gold. This was followed up by completing a self-potential ("SP") geophysical survey over the southern half of the outcropping gold structure. The results identified an intense SP anomaly with a continuous maxima of 350 millivolts (mV), located between 125m and 300m below surface with an 800m strike length and a parallel SP anomaly, showing similar but less continuous intensity, has been identified 600m further east. Further geophysical work is planned prior to drill testing.

# **Valuation**

# **Background**

KEFI Minerals has been valued on the basis of its advanced Tulu Kapi project in Ethiopia and its Jabul Qutman project in Saudi Arabia, and we have applied a number of scenarios that will assist with understanding the value inherent in this project.

## Valuation Technique

We have valued the two projects using Net Present Values. Both projects have been modelled on a quarterly basis, using the same gold prices.

# Tulu Kapi

The proposed start-up date is in the June quarter of 2017 with quarterly production meeting the designed rate the following quarter. The mine life extends until the end of the second half of 2027 although processing of the low grade stockpiled ore continues for a further three years. All this material is open pittable with a strip ratio of 7.5:1. The ore body is known to extend at depth but any underground potential has been ignored. In the first seven years the average mining cost is well below US\$3/t, but the average is pulled upwards as the harder deeper rock is mined towards the planned end of the open pit.

The assumptions used are:

Gold Price	US\$1,268/oz
f:US\$ Exchange rate	1.64
Mining Rate	1.2Mtpa
Strip ratio	7.5:1
Average annual production(oz)	83,000
Discount rate	10%
Mining cost	US\$4.0/t
Processing cost	US\$8.4/t
G&A costs	US\$5.95/t
Opex(per tonne ore)	US\$39.6
Average cash cost/oz	US\$653
Average all-in sustaining cost/oz	US\$774
Recovery	91.5%
Government Royalty	7.0%
Tax	25%
Government Free Carry	5%
Initial Capex	US\$133M
Sustaining capex	US\$4M pa

Brandon Hill Capital has used an average gold price of US\$1,268/oz across the life of the mine. This gave a net present value of US\$82.2M using a 10% discount rate. This figure is based on a mine life of 13 years and 95% ownership of the Tulu Kapi ore body, a 7% royalty rate and a 25% tax rate. Due to using a "gold stream" to finance a substantial part of the funding requirements, the mine is modelled including the debt, so it is a leveraged valuation.

NB Please note that the currency used for the above valuations is US\$. In the financial summary on page 26, the same figures are quoted in sterling, the currency KEFI uses for reporting in its annual financial statements. Further, the NPV of Tulu Kapi is based on KEFI's actual 95% ownership.

# Jibal Qutman

The proposed start-up date is in the December quarter of 2017 with quarterly production meeting the designed rate in that quarter. The mine life extends until the end of the first half of 2022 although at that point there are millions of tonnes of resources remaining, and given the speed with which KEFI has been increasing its resources, we would anticipate the discovery of more ore and the development of deeper mines and a carbon-in-leach processing plant. All this material is open pittable with a strip ratio of 2.2:1. The ore bodies are known to extend at depth but any sulphide ores have been ignored.

The assumptions used are:

Gold Price	US\$1,268/oz
f:US\$ Exchange rate	1.64
Mining Rate	1.5Mtpa
Strip ratio	2.2:1
Average annual production(oz)	28,000
Discount rate	10%
Mining cost	US\$1.60/t
Processing cost	US\$5.50/t
G&A costs	US\$2.00/t
Opex(per tonne ore)	US\$12.59
Average cash cost/oz	US\$600
Average all-in sustaining cost/oz	US\$774
Recovery	69%
Government Royalty	0.0%
Tax	30%
Government Free Carry	NA
Initial Capex	US\$30M
Sustaining capex	US\$1M pa

Brandon Hill Capital has used an average gold price of US\$1,268/oz across the life of the mine. This gave a net present value of US\$10.3M for KEFI's 40%. This figure is based on a mine life of 4.5 years and 40% ownership of the Jibal Qutman ore body, a 0% royalty rate and a 25% tax rate. This is an unleveraged model.

# **Potential Upside**

The scenario for Jabil Qutman calls for the processing of 6.6mt of ore and the production of 139.1k oz of gold, but only utilises four of the known oxide deposits. In total there are currently seven known oxide deposits and all of them have a sulphide resource under the oxide resource. Our expectation is that further oxide resources will be discovered and that the metallurgical plant will be developed so that the sulphide ore can be processed. On known resources, this would indicate a mine life of around 10 years.

The only scenario that we have reviewed other than the gold price, is upside to the recovery. The 69% recovery is based on a coarse crush and a 5 day leach period. The crush size could probably be optimised and the 5 day leach period looks minimal. There is no reason why the heaps cannot continue to be leached for the length of the mine life, so long as they are recovering gold. Consequently, we have looked at recoveries of 75%, 80% and 85% and believe that recoveries higher than these could be achieved.

# Sensitivities

# Tulu Kapi

For the Tulu Kapi mine we have reviewed the sensitivities to:

- Gold price
- A small change in the recovery
- Processing at 1.3Mt pa, a 0.1Mt pa increase in the base case
- Operating costs

		Gold P	rice		
Change:	-10%	-5%	Base	+5%	+10%
NPV (\$m):	61.5	68.9	82.2	87.8	95.7
		Operating	g Cost		
Change:	-10%	-5%	Base	+5%	+10%
NPV (\$m):	103.1	91.4	82.2	66.6	54.6
Recovery Rate inc	crease by 0.5%:	Increase NPV to	\$85M from \$82.	2M	

# Jibal Qutman

For the Jibal Qutman project, we only looked at the gold price and recoveries.

Gold Price						
Change:	-10%	-5%	Base	+5%	+10%	
NPV (\$m):	6.7	8.5	10	12.1	13.9	

		Recovery		
Recovery	69% (Base)	75%	80%	85%
NPV (\$m):	10.3	13.6	16.3	19

# **Financial Summary**

<b>KEFI Minera</b>	als						Curren	t: 0.8p	
KEFI (AIM)									
December year	r-end	2013	2014	2015F	2016F	2017F	2018F	2019F	SHARE PRICE PERFORMANCE
PROFIT & LOSS	(£ M)								CPn
Sales revenue		0.0	0.0	0.0	0.0	34.7	89.4	97.5	3.50 GBp Share price
Dividends received		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other revenue		0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.00
Operating costs		1.1	2.4	2.0	6.5	22.6	46.8	55.5	WY
Exploration write off		0.1	0.1	0.0	0.0	0.0	0.0	0.0	2.50
Depreciation/amortisa	ation	0.0	0.0	0.0	0.0	16.0	23.5	23.3	2.00 - 1.50 - 1.
Other expenses		1.4	1.0	0.0	0.0	0.0	0.0	0.0	2.00
EBIT		(2.6)	(3.6)	(2.0)	(6.5)	(3.9)	19.1	18.8	"" "V\"
Net interest expense		(0.0)	0.4	(0.1)	1.5	(0.4)	(0.5)	(1.2)	1.50
Pre-tax profit		(2.6)	(4.0)	(1.9)	(8.0)	(3.5)	19.5	19.9	Maria Maria
Income tax expense		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00
Minorities, pref divs	at itoma\	0.0	0.0	(10)	0.0	(0.3)	1.4	1.4	
NPAT (inc significar	it iterris)	(2.6) (2.6)	(4.0)	(1.9) (1.9)	(8.0) (8.0)	(3.3)	18.1 18.1	18.5 18.5	0.50
NPAT (equity) Significant Items (po	et tav)	0.0	(4.0) 0.0	0.0	0.0	0.0	0.0	0.0	
NPAT (exc significant		(3)	(4)	(2)	(8)	(3)	18	19	0.00 7/13 12/13 5/14 10/14 2/15 7/15
TNI AT (exc significal	iii iidiiis)	(3)	(4)	(2)	(0)	(3)	Ю	Ю	7/13 12/13 5/14 10/14 2/15 7/15
DIVISIONAL EBIT	(£ M)								52-week lowhigh GBp 0.067 / 1.775
Jibal Qutman	(~ IVI)	0	0	0	0	1	4	4	Market value (£ M) 14.0
Tulu Kapi		0	0	0	(5)	(3)	17	17	(& IV) IT.U
raia rapi		Ū	Ů	Ü	(0)	(0)		.,	Valuation HD15 NPV @% value
									Jibal Qutman (£M) 6.1 100% 6.06
									Tulu Kapi (£M) 48.8 100% 48.76
Total Divisional EBIT	-	(3)	(4)	(2)	(7)	(4)	19	19	(£101) 15.5 15575 40.70
		(-)	( -)	(-)	(-)	( )		-	
CASHFLOW (£ M	)								
EBITDA	,	(2.6)	(3.6)	(2.0)	(6.5)	12.1	42.5	42.0	Hedging (£M) 0.0
Exploration write off		0.1	0.1	0.0	0.0	0.0	0.0	0.0	Exploration (£M) 6.3
Tax paid		0.0	0.0	0.0	0.0	0.0	0.0	0.0	CorporateOther (£ M) 16.7
Working capital /oth	er	1.3	1.4	0.0	1.5	0.0	0.0	0.0	Total (£M) 77.8
Gross operating cash	n flow	(1.2)	(2.0)	(2.0)	(5.0)	12.1	42.5	42.0	Less net debt (cash) (£M) -6.1
Capex / exploration		0.0	(0.0)	(2.3)	(48.6)	(44.5)	(3.7)	(1.6)	Valuation (£M) 83.9
Net investments		(1.1)	(1.1)	0.0	0.0	0.0	0.0	0.0	Total diluted shares (M) 1818.7
Other investing		(1.1)	(2.7)	0.0	0.0	0.0	0.0	0.0	Valuation per share (GBp) 4.6
Free cash flows		(3.4)	(5.9)	(4.3)	(53.7)	(32.4)	38.9	40.4	
Change in net debt		(1.4)	2.6	(2.2)	55.1	32.0	(39.3)	(41.6)	
Equity raised		5.1	3.7	6.4	0.0	0.0	0.0	0.0	SENSITIVITY -10% -5% +5% +10%
Dividends paid		0.0	0.0	0.0	0.0	0.0	0.0	0.0	valuation (GBp) for % change in
Other financing		0.0	(0.4)	0.1	(1.5)	0.4	0.5	1.2	Capex 12.5% 8.0% -10.0% -18.1%
Financing cash flows	S	3.7	5.9	4.3	53.7	32.4	(38.9)	(40.4)	Operating costs 25.4% 11.2% -19.0% -33.6%
									Gold 25.2% -16.2% 6.8% 16.4%
BALANCE SHEET	(£ M)								
Cash & deposits		3.3	0.6	2.8	48.6	20.3	59.6	101.1	
Trade debtors		0.7	0.3	0.0	0.0	0.0	0.0	0.0	
PPE		0.3	0.2	2.5	51.1	79.6	55.1	26.4	2013 2014 2015F 2016F
Exploration		0.0	0.0	0.0	0.0	0.0	0.0	0.0	Diluted shares on issue 579.5 959.9 1,614.8 1,744.3
Other assets		7.0	9.2	0.1	0.1	0.1	0.1	0.1	EPS pre amortisation (c) (0.5) (0.6) (0.2) (0.5)
Total assets		11.2	10.4	5.4	99.8	99.9	114.7	127.6	EPS growth (%) NA 0.2 (0.6) 1.2
Current borrowings		0.0	0.0	0.0	0.0	0.0	0.0	0.0	PER (x) (3.3) (2.7) (3.9) (17)
Non-current borrowin	ngs	0.0	0.0	0.0	101.0	104.6	104.6	104.6	Enterprise value (£ M) * 10.7 13.4 11.2 66.3
Other liabilities		0.0	3.2	(0.2)	1.3	1.1	(5.2)	13.6	EV*/EBITDA (x) (1.6) (0.7) (2.5) (14.7)
Total liabilities		3.4	3.2	(0.2)	102.3	105.7	99.4	118.3	ROA (%) -32.9% -36.5% -78.6% -12.8%
Total shareholders' e	equity	7.8	7.2	5.5	(2.5)	(5.8)	15.3	9.3	ROE (%) 1437% -59.9% -30.1% -258%
									Effective tax rate (%) 30.0% 30.0% 22.6% 10.0%
EQUITY PRODUC							40.0	40.0	Net debt/equity (%) -42.0% -8.9% -50.8% -2119%
Jibal Qutman Tulu Kapi	(koz) (koz)	0.0 0.0	0.0	0.0 0.0	0.0 0.0	3.2 44.2	12.6 102.4	12.6 113.6	Net debt/net debt+equity (%) -72.5% -9.8% -103% 105.0% Net interest cover (x) 649.3 -8.6 36.7 -4.4
ι αια ιναμι	(NUZ)	0.0	0.0	0.0	0.0	44.2	1∪∠.4	16.0	* forecasts based on current market cap
Total production	(koz)	0.0	0.0	0.0	0.0	47.4	115.1	126.2	To obtain subod on our one mainte out
·	. ,								
CASH COSTS	(0)					F0F -	For -		
Jibal Qutman Tulu Kapi	(£/oz)	0.0 0.0	0.0	0.0 0.0	0.0 0.0	597.3 841.1	597.3 694.9	597.3 744.7	
·	(£/oz)								
Total cash costs	(£/oz)	0.0	0.0	0.0	0.0	824.9	684.2	729.9	
ASSUMPTIONS Gold	(US\$/oz)	<b>2013</b> 1,418.5	<b>2014</b> 1,266.5	<b>2015F</b> 1,158.9	<b>2016F</b> 1,115.0	<b>2017F</b> 1,190.0	<b>2018F</b> 1,250.0	<b>2019F</b> 1,250.0	
Copper	(USc/lb)	333.5	309.7	261.6	275.3	277.0	280.0	294.0	
British Pound	USDGBP	1.56	1.65	1.53	1.55	1.60	1.61	1.65	

# **Investment Risks**

#### **Gold Price**

Tulu Kapi is a gold project with no by-products and its viability is therefore solely dependent on the gold price. Gold has been in a bear market for the past four years and many commodity forecasters believe that as the US starts to raise interest rates, then the price will continue to decline with the critical level seen as US\$1,050/oz. If this level is breached than the next support level is US\$850/oz.

However, gold has been in a four year bear market since the high point of US\$1890/oz was reached on the 5th September 2011. In the short term gold prices are anticipated to go lower but longer term we do not see a bear market extending for the mine life. Therefore we believe that there is upside to the gold price.

# Geological

We have no concerns over geological risk. Both Tulu Kapi and Jibal Qutman have had sufficient drilling to give us confidence that the gold does exist and that the grades are high enough to be economic at today's gold price.

#### **Political**

Both Ethiopia and Saudi Arabia are very interested in developing their mineral industries. In the case of Ethiopia, this is to diversify the economy away from one based purely on agriculture. In Saudi Arabia, one has to have a Saudi Arabian partner who majority owns the projects, but the government has a stated intention of diversifying its economy away from being based solely on oil and gas and to develop the mineral potential of the country. So long as KEFI sticks to the rules, which it has clearly demonstrated we see no significant problems.

# Financing - Tulu Kapi

For the financing of the Tulu Kapi gold project we have assumed that there is a gold streaming arrangement which raises US\$100M of the required US\$130M. It has further been assumed that the debt to equity ratio is 5:1. This suggests that there is about US\$20M of equity to be found. In reality, this figure is likely to be reduced by the use of second hand crushing and grinding equipment and the potential of the Ethiopian Government to seek additional equity in the project which it will have to buy. These steps could reduce the funding gap to as little as US\$5M which Brandon Hill Capital believes could easily be funded by equity.

# **Geological Risk**

Given the extent of drilling at Tulu Kapi and the thorough and detailed analysis undertaken by both KEFI and numerous consultants we do not believe that there is any significant geological risk at Tulu Kapi. Similarly, the very nature of shallow open pit mining at Jibal Qutman should alleviate any geological risk.

#### Political risk

Political risk does not concern us in Ethiopia currently. The country is pro-development and has recently lowered its tax and royalty rates. At the current gold price we see little chance that this decision will be reversed. We see substantially more risk in Saudi Arabia. The low oil price is putting severe strains on the Saudi budget, where historically oil has provided around 90% of government royalties. If oil prices remain at current levels, the largesse of the Saudi Government will be curtailed and we would anticipate the removal of fuel subsidies. This could lead to civil unrest and far more expensive energy for the Jibal Qutman project.

## **Environmental and Social**

Community-level engagement was re-activated and elevated since KEFI acquired Tulu Kapi and the company is now engaging social issues and stakeholder engagement in order to ensure that trust is rebuilt and reliable within the community, which was surprised that the project was suspended in 2013.

The reconfigured mine plan is expected to reduce community disruption and yield a number of environmental and social benefits. This has been achieved by reducing the number of households for resettlement, reducing the potential areas needed for infrastructure and reducing the need for environmental mitigation measures associated with closure planning. Water is a key issue in the area, and support to improve supply will form a key element of the Project's Community Development Plan and land management strategy. In addition, health facilities will need to be improved in order to ensure that there is sufficient capacity to deal with existing and planned mine employees, but also in support of improvements to community health. Further, as part of the Company's commitment to adding value to the local communities, the bulk of the steady state Tulu Kapi workforce will be sourced from the local villages and towns. Positions that cannot be filled locally will be staffed with suitably qualified expatriates on fixed term contracts, with the ultimate goal of developing qualified Ethiopian individuals for these jobs. The combination of all these measures should see the environmental and social risks minimised.

#### **Technical**

Both the proposed mines use standard and well-tried processing techniques. However, processing plants tend to be made specifically for the ore being treated so may be subject to commissioning problems

# Appendix A - Directors & Management

Harry Anagnostaras-Adams Executive Chairman

Harry Anagnostaras-Adams was founder or co-founder of Citicorp Capital Investors Australia, investment company Pilatus Capital, Australian Gold Council, EMED Mining, KEFI Minerals and Cyprus-based Semarang Enterprises. He has overseen a number of start-ups in those and their related organisations principally through the roles of Chairman, Deputy Chairman or Managing Director. He qualified as a Chartered Accountant while working with PricewaterhouseCoopers and has a Master of Business Administration from the Australian Graduate School of Management.

Jeff Rayner Exploration Director

Jeff Rayner is a geologist with over 27 years' experience in gold exploration and mining in Australia, Europe and Asia. He started his career in Australia with BHP Gold and later Newcrest Mining Limited. He was involved in the early exploration discovery of the Cracow and Gosowong epithermal deposits and the Cadia Hill deposit, currently all of which are operating mines. In 1998, He joined Gold Mines of Sardinia plc as exploration manager, responsible for exploration and mining in Sardinia and project generation in Europe. During part of his time at Gold Mines of Sardina plc, he lead the exploration discovery of the Monte Ollasteddu gold deposit in Sardinia. He joined EMED Mining in 2006 and managed its Eastern European projects, resulting in the early drill discovery of the Biely Vrch gold deposit in central Slovakia. He became Managing Director of KEFI Minerals in November 2006. He is a Member of the Australasian Institute of Mining and Metallurgy and a Member of the Society of Economic Geologists.

Ian Plimer Non-Executive Deputy Chairman

Ian Plimer (B.Sc. [Hons], PhD, FTSE, FGS, FAIMM) is Emeritus Professor at The University of Melbourne where he was Professor and Head of the School of Earth Sciences (1991-2005). He was Professor of Geology (University of Newcastle 1985-1991) and Professor of Mining Geology (University of Adelaide 2005-2012). He serves on the Boards of ASX-listed companies Silver City Minerals Ltd and Niuminco Group Ltd and unlisted companies Hancock Prospecting companies, TNT Mines Ltd and Perth Resources Ltd. He represents Hancock Prospecting on the Lakes Oil N.L. Board (ASX: LKO).

John leach Non-Executive Finance Director

John Leach has over 25 years' experience in senior executive positions in the mining industry internationally and is currently also the Chief Financial Officer of EMED Mining. He holds a Bachelor of Arts (Economics) degree and a Master of Business Administration. He is a Member of the Institute of Chartered Accountants (Australia), a Member of the Canadian Institute of Chartered Accountants, and is a Fellow of the Australian Institute of Directors.

Norman Ling Non-Executive Director

Norman Ling was a member of the British diplomatic service for more than 30 years, for the last ten with the rank of ambassador. He has served in a wide range of countries in the Middle East and Africa. His last post, before retirement, was as Ambassador to Ethiopia, Djibouti and the African Union. For the last two years he has been actively involved with development of the mining industry in Ethiopia.

# Senior Management Team

#### Wayne Nicoletto

# Managing Director Ethiopia and Group Head of Operations

Wayne Nicoletto is a metallurgist, general manager and country head with 30 years' experience. He specialised in design, start-up and operation of gold mines in Africa, Central Asia and Australia over the last 15 years. His previous positions in the gold mining industry include Mill Metallurgist at North American Metals Corp., VP Operations at Borroo Gold Company in Mongolia, General Process Manager at Crew Gold in Guinea as well General Manager at Perseus Mining in Ghana. Wayne has direct in-country experience having spent two years in Ethiopia as a Mill and Site Manager with Midroc. He completed his Bachelor of Science, Extractive Metallurgy at Curtin University of Technology, Kalgoorlie, Western Australia and also has graduate degrees from Western Australian School of Mines in Mining and Mineral Economics.

# Simon Cleghorn

# Resource Manager

Simon Cleghorn is a geologist with 24 years' experience in mining geology and project development with emphasis on resource and reserve estimation in primarily gold and base metals mines. He completed his Bachelor of Engineering in Mineral Exploration & Mining Geology (Honours) at the Western Australia School of Mines in Kalgoorlie. His experience has been with international projects in Armenia, Georgia, Russia, south East Asia and project review in Europe and South America as well as Australia. He has been responsible for production geology management, due diligence project review and management of mining studies and project upgrades as well as resource and reserve work for feasibility and scoping studies for project finance and development. This has included geological assessment of projects leading to acquisition in Armenia, Georgia and South East Asia. Simon is a Member of the Australasian Institute of Mining and Metallurgy.

#### Fabio Granitzio

# Manager Exploration

Fabio Granitzio is a geologist, BSc Geological Science, Cagliari University, Ph.D. Mineral Prospecting, Cagliari University with over 17 years' experience in mining geology, project evaluation and management. He gained his experience with international projects in Europe, Latin America, North Africa and Australia, where he has been responsible for management of all aspects of exploration and mining activities, resource and reserve calculations, budgeting, planning, generation of new opportunities, project assessments, acquisitions and further development. He has also been involved in development of projects from grassroots exploration to production with a leading European supplier of processed minerals to the ceramic, glass and performance markets. Fabio has written several research papers covering different aspects of geology for the 8th International IAEG Congress in Canada (1998), 8th International Platinum Symposium in South Africa (1998), 5th SGA Meeting in London (2010), 9th Chilean Geological Congress (2000).

#### Sergio Di Giovanni

#### Metallurgist and Development Manager

Sergio Di Giovanni is a metallurgist with 20 years' experience in both project development and operations management roles at gold, base metals and iron ore mines. He completed his Bachelor of Science, Mineral Science (Extractive Metallurgy) at Murdoch University, Perth, Western Australia. His wide experience has been gained with international mining projects in Spain, Norway, Italy, Mexico, Armenia, Indonesia, Philippines, Central America and Australia, where he has been responsible for production management, mining and processing, commissioning, process and engineering plant design, productivity improvements, human resource management, financial control, financial modelling, project evaluation, project development and metal concentrate sales and marketing. He has been involved in assessments of metallurgical aspects of potential acquisition opportunities in Saudi Arabia, Morocco and Turkey.

#### Dr Kebede Hailu Belete.

# Country Manager

Dr. Kebede Hailu Belete is a geologist with over 25 years' experience in conducting, planning and managing exploration and operational activities, geological and structural mapping, identifying new base and precious metals projects. He completed his Bachelor of Science degree in Applied Geology at Addis Ababa University, Ethiopia and his Doctor of Philosophy degree at University of Graz, Austria. Dr. Kebede also holds a Master of Philosophy degree from University of

Leicester, UK. He has held the positions of Junior and Senior Geologist, Project Coordinator, Geo-Technical Engineer, General Manager and Country Manager with several minerals prospecting companies exploring base and precious metals deposits throughout Ethiopia. During his career, Dr. Kebede has also worked for the Ethiopian Institute of Geological Survey and the Ethiopian Ministry of Water Resources.

Laki Catsamas, Financial Controller

Laki Katsamas is a Fellow of the UK Chartered Association of Certified Accountants, recipient of the UK Association of Corporate Treasurers diploma. His academic achievement include the CIS& CIMA UK qualification in cost and financial accounting, investment analysis and portfolio management and a Master's degree in international accounting from the University of Johannesburg. Having started his career as an accountant in the Department of Finance Office in South Africa, his experience has been in with carbon producing and healthcare industries prior to arriving at EMED Mining and KEFI Minerals as a Group financial controller. As an accountant and financial controller, Laki has been responsible for cost and tax reviews, budgeting, forecasting, due diligence activities, internal audit and compliance with financial requirements, internal controls. This has included preparation of funding proposals for renewable energy projects, structuring of IT start-up business and looking for new business development opportunities.

# Appendix B – Comparables

	k	(efi	Hummingbird		Amara		Shanta	
Project	Tulu Kapi	Jibal Qutman	Yanfolila	Dugbe	Yaoure	Baomahun	Luika	Singida
Ownership (%)	95	40	85	100	100	100	100	~100
Country	Ethiopia	Saudi Arabia	Mali	Liberia	Cote d'Ivoire	Sierra Leone	Tanzania	Tanzani
	KEFI L	N Equity	HUM L	N Equity	AMA LI	N Equity	SHG L	N Equity
Market Cap (US\$M)	2	1.86		9.36		.49		2.73
Cash (US\$M)	1	.00	10	0.34	13	.56	1	4.96
EV (US\$M)	20	D.85	38	3.83		.53	7	0.93
Production Commences	2017	4Q 2017	H1 2016				2012	
								Advance
_		PFS in						early
Stage	Financing	progress		DFS underway	PFS	FS		develom
Reserves:								
Tonnnes	15.4				70.43	23.3	1.59*	
Grade	2.12				1.18	1.62	4.8	
Ounces (Moz)	1.05				2.663	1.21	0.245	
OP or UG	OP	OP	OP	OP	OP	OP/UG	OP/UG	
Reseve cut-off grade (g/t)	0.9				0.33	0.50		0.5
Pit shell optimisation price (US\$/oz)	1,250	1,250			1,250	1,100		
Resources:	20.0	20.5	20.1	70.4	1/0.2	4 -	/ -	14/0
Tonnnes (Mt)	20.2	28.5	20.1	72.1	169.3	45	6.5	14.68
grade (g/t)	2.65	0.8	2.8	1.42	1.25	1.914	4.9	2.08
ounces (Moz)	1.72	0.73	1.82	4.23	6.82	2.78	1.03	0.98
Mine life	13	4.5	6.5	20	10	11.5		10
Ave annual production (Koz)	74	6.6	79	125	279	98.46		
LOM production (Koz)	961	139	514	2,500	3,000	1,130	72-77	450
Annual mill throughput (Mt)	1.2	1.5	1.00	3.5	6.5	2.00	0.60	
Mining cost (US\$/t)	28		29.20			19.57	11	
Grind size (microns)	75		106	75		75		
LOM Grade (g/t)	2.1	0.95					9.9	5.43
Strip ratio	7.4:1	2.2:1	10.6:1	4.4:1	4.9:1	8.25:1	~8.4:1	
Plant type	CIL	Heap leach	CIL	CIL	CIL	CIL		
Recovery (%)	91.5	69	94	90	95	93.4	91	
Gravity recovery (%)				40		Yes		
Power cost (USc/Kwh)	3		24	24				
Processing cost (US\$/t)	8	5.5	15.61	18	10.03	12.76	40	
Mining costs (\$/t ore)	28	5.1	29.2		11.81	16.5		
Cash costs (\$/oz)	661	597	641	904	594	759	834	
AISC costs (\$/oz)	780		733	922	624		1157	
All in costs (\$/oz)	906	850	873	1007	743			
Capex (US\$M)	133	30	72	212	357	253.1		
Sustaining capex	19.2		,,	<u> </u>	557	33.3		
sacrag capex	17.2							
Government free carry	5	0			10			
Company tax rate (%)	25	20	35	25	25	25		
Royalty (%)	7	0	4	3.0	3*	3.0	4.0	
After tax NPV (US\$, 8%)	94.1	12.7	72.4		613			
Gold price used (US\$/oz)	1,250	1,250	1,250		1,250			
After tax IRR (%)	51.7 *	46.7	35.1		33			
					* Increases		* Does not	
					with gold		include UG	

Source: Bloomberg, Company Websites, Brandon Hill (for KEFI projects)

#### **Peter Rose**

Peter has 29 years' experience in equities as a resources analyst; he has been at Brandon Hill Capital, formerly Fox-Davies Capital for 7 years. Prior to that he spent 11 years with Deutsche Bank in Australia. Prior to this he spent 2 years with Prudential Bache and 6 years with James Capel. Peter's industry experience includes 16 years as a metallurgist, 3 years with De Beers in South Africa and 8 years in the uranium industry, 5 of which were spent at the Ranger Uranium mine. Peter holds a BSc degree in Applied Mineral Science from Leeds University UK and a Bachelor of Commerce from the University of South Africa. Peter is also a member of the Institute of Materials, Mining & Metallurgy and a chartered engineer.

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Research disclosure as of 21 August 2015

Company Name	Disclosure
KEFI Minerals	1. 2. 7

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