

# Metals and Mining Note

## KEFI Minerals

13 June 2019

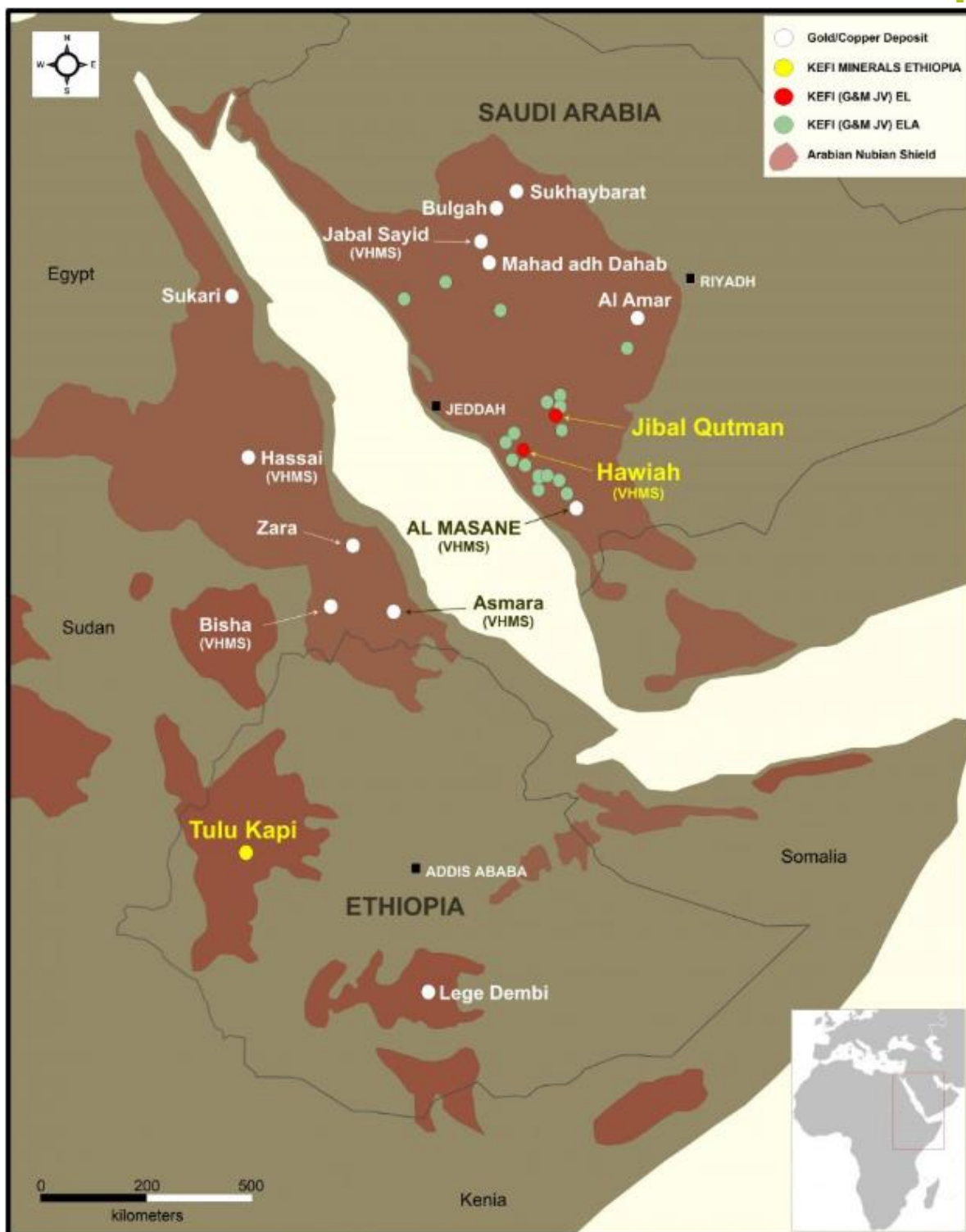
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Front page depicts location of the flagship Tulu Kapi gold project in western Ethiopia and most advanced permits in Saudi Arabia  
(Source: Company)

13 June 2019

### Stock Data

Ticker (AIM)	KEFI LN
Share Price	1.5p
Market Cap	£9m

### Price Chart



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# Mining Note

## KEFI Minerals\*

### KEFI LN

## Tapping into ANS mineral potential

KEFI Minerals is an AIM-listed gold and base metals mineral exploration/development company advancing DFS stage Tulu Kapi Gold Project in Western Ethiopia as well as a set of precious and base metals exploration permits in Saudi Arabia.

- The 1.1moz Tulu Kapi Project is in final funding stages with community resettlement start scheduled for mid-2019 and full project funding closure before YE19 paving the way for a two year construction period with first gold in mid-21 (SPA schedule).
- The project is estimated to run at c.135kozpa and \$810/oz AISC generating an average of \$75mpa in EBITDA and \$96m NPV (DR10%, post debt/lease payments) using \$1,350/oz gold price and 28.0 USD:BIRR exchange rate (v current spot 29.0 and up to 38.0 in the black market). Our estimates exclude c.\$20m in buffer cash at the end of construction period included in NPV estimated by KEFI Minerals reflecting more conservative set of assumptions.
- KEFI holds a 45% effective interest in the project reflecting \$60m invested to date (including pre-KEFI investment by previous shareholders). With the development capex largely funded by equity partners (ANS and Government of Ethiopia) and proposed \$160m worth of infrastructure bonds proceeds, we estimate KEFI interest in the Tulu Kapi NPV at \$67m or 7.4p per share.
- The Company engaged an experienced and well respected team of mining (AMS) and EPC/EPCM (Lycopodium) contractors and Owners' Team for oversight of development minimising project development execution risk.
- KEFI has got support from the federal government that is contributing \$20m of infrastructure related spending in what is to become the first new major mining project in decades.
- The orebody remains open in the dip direction and down plunge with the current mineral resource for the 'below 1,400 RL' part of the deposit (ie >350m from surface) estimated at 0.2moz (90% in the Indicated category) and representing a potential source of high grade material from the underground operation (5.7g/t). Tulu Kapi UG resource contributes \$6m (45% interest) to the NPV or 0.7p.
- Additionally, the Company is in the process of renewing exploration permits over the 1,900km<sup>2</sup> of prospective ground offering growth potential as well as optionality to processing of new discoveries given adjacent future Tulu Kapi CIL plant.
- In Saudi Arabia, KEFI is a 40% investor and technical partner at Gold & Minerals, a local JV with a leading local industrial group ARTAR, focused on the central-southwestern part of the prolific Arabian Nubian Shield prospective for gold and VMS deposits. The team is planning to launch a drilling programme once Tulu Kapi construction is started testing gold oxide at surface and the underlying copper-gold-zinc sulphide mineralisation.
- Using our DCF valuation model (10%DR, \$1,350/oz) we arrive at NAVPS of 7.8p based on 644m shares in issue. The extent to which KEFI will be able to realise value gains depends on the amount of dilution the Company will incur funding operations through the Tulu Kapi development stage. Next major catalysts to the share price include start of relocation programme, infrastructure bond placing and start of construction.

Valuation	Interest	Att US\$m	GBp/shr
Tulu Kapi OP	45%	67	7.4
Tulu Kapi UG (50% risked)	45%	6	0.7
Jibal Qutman (50% risked)	40%	7	0.8
<b>Project Value</b>		<b>80</b>	<b>8.8</b>
Adjustments			
Net Debt		-	-
Corporate overheads		-9	-1.0
<b>Company NAV</b>		<b>71</b>	<b>7.8</b>

GBPUSD exchange rate 1.4, DR 10%, Gold price \$1,350/oz

## NAV Valuation

We are using a discounted cash flow-based NAV as our primary valuation tool for the flagship gold Tulu Kapi project along with value contributions from a potential underground operation as well as an opportunity to develop a heap leaching gold operation at Jibal Qutman in Saudi Arabia. We have risked the latter two value inputs (a discount of 50%) reflecting early status of both projects. Production, operating and capital costs estimates have been sourced from respective technical studies while applying our long term gold price (\$1,350/oz) and USDGBP exchange rate (1.4) assumptions. We arrive at NAV of \$71m or 7.8p per share using 10% discount rate with KEFI Minerals' 45% interest in the Tulu Kapi open pit project accounting for 84% of the Group NAVPS (NAV per share) using 644m shares currently in issue.

Valuation	Interest	Att US\$m	GBp/shr
Tulu Kapi OP	45%	67	7.4
Tulu Kapi UG (50% risked)	45%	6	0.7
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<b>Project Value</b>		<b>80</b>	<b>8.8</b>
<b>Adjustments</b>			
Net debt		-	-
Corporate overheads (TK LoM)		-9	-1.0
<b>Company NAV</b>		<b>71</b>	<b>7.8</b>

Long term GBPUSD exchange rate of 1.40 is used

Source: SP Angel

Development timeline used in the 2017 DFS has been updated and reflected in the 2018 Plan involving 24m of construction including early works. KEFI has reported that its project finance plan includes equity funding of first 6 months of development schedule from partners earning into the project and bond placement closure six months into the 24m development schedule. For our analysis, we assume start of Q3/19 trigger of the 24m schedule which leads to first gold pour in Q3/21, one year from the first SPV related payment in Q3/22. Main DCF assumptions are summarised below.

Major assumptions		
Throughput	mtpa	1.9-2.1
Grade	g/t	2.13
Recoveries	%	93
Production pa	kozpa	136
Strip ratio	W:O	7.49
LoM	years	8
Royalty	%	7%
Tax rate	%	25%
TCC	US\$/oz	797
AISC (ex SPV payments)	US\$/oz	809
Gold price	US\$/oz	1350
USDETB	ETB per \$	28.00
DR	%	10%
NPV KEFI share	\$m	67
Capex (development)	\$m	177
- SPV contribution	\$m	109
First gold	\$m	Q3/21
SPV repayments per quarter	\$m	8.9
First SPV repayment		Q3/22
SPV repayments tax deductible		Yes
Tax losses carried forward at start of production	\$m	-55

Source: Company, SP Angel

We further enclose the year by year production and FCF to equity (ie post SPV lease and working capital debt and interest payments).

Tulu Kapi parameters		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Gold price	\$/oz	-	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Mined	kt	-	-	1,873	3,625	1,735	2,252	1,835	2,194	1,489	347
W:O ratio	x	-	-	6.0	5.1	11.7	8.8	10.9	7.3	4.9	5.0
Total material	kt	-	-	13,130	22,190	22,043	22,061	21,762	18,268	8,776	2,075
Throughput	kt	-	-	1,069	2,126	2,120	2,098	1,994	1,973	1,916	2,054
Grade	g/t	-	-	2.02	2.86	1.97	2.25	2.17	2.27	2.14	1.28
Recoveries	x	-	-	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Production	koz	-	-	65	181	125	141	130	134	123	79
TCC	\$/zo	-	-	959	710	977	875	926	804	579	560
EBITDA (ex corp GA)	\$m	-	-	25	116	47	67	55	73	95	62
EBITDA margin	x	-	-	0.29	0.47	0.28	0.35	0.31	0.40	0.57	0.59
Capex	\$m	-18	-28	-26	-4	-1	-1	-1	-1	-1	-0
SPV payments	\$m	-	-	-	-18	-36	-36	-36	-36	-36	-27
Other	\$m	-	-	14	-14	-2	-6	-4	-7	-21	-15
FCF (levered)	\$m	-18	-28	13	80	7	23	13	28	36	19
FCF (levered) to KEFI	\$m	-	-	11	36	3	11	6	13	16	9

Source: Company, SP Angel

KEFI and its predecessors had spent the first \$60m. KEFI has essentially negotiated that its new equity partners earn into the project by spending the next \$58m as from the trigger of the 24m development schedule, diluting KEFI effective interest to 45%. This is highlighted in the table above with KEFI attributable FCFs being virtually zero in 2019-H1/21 (apart from working capital requirements to cover the build-up in ore stockpiles) with the development capex covered by \$160m worth infrastructure bond proceeds as well as ANS Mining Share and Government of Ethiopia equity contributions. KEFI captures 45% of FCFs to equity from 2021 onwards.

KEFI per share value will largely depend on the amount of dilution the Company will incur as the team is funding its operations on a corporate level while the project is going through completion of funding for the construction period (ie two years from mid-2019). We estimate KEFI cash burn has been around £5-6m pending its partners taking responsibility for project funding of the Tulu Kapi project (mid-19), then dropping to c.\$2m pa for corporate costs (excl exploration). KEFI has also reported that the Project finance plans include refund for some project costs incurred by KEFI. The Company completed a £1.0m equity raise in February and drawn c.£1m on the £4m Sanderson convertible facility in Apr/19. Taking into account c.£3.5m in payables as of Dec/18 as well as assuming that cash burn reduces from mid-19 onwards, the above mentioned refund covers potential equity contributions in the Tulu Kapi while Sanderson facility is drawn down with all respective fees converted at 2p, the potential number of shares may increase by 500-550m versus current 644m diluting the NAVPS by nearly 50% to 4.3p. This would naturally increase if dilution is less than is assumed or should other assets in the portfolio be further de-risked adding value to the portfolio.

**NAVPS (target price) sensitivities**

We have prepared sensitivity tables with KEFI Minerals' NAV per share at various discount rates and gold price assumptions (SPA base case 10% DR and \$1,350/oz).

**NAV sensitivity to changes in discount rate and gold price (SPA assumptions \$1,350/DR10%)**

		Gold Price				
		1,150	1,200	1,250	1,300	1,350
DR	8%	3.0	4.5	5.9	7.2	8.6
	10%	2.7	4.0	5.3	6.6	7.8
	12%	2.4	3.7	4.8	6.0	7.1

Source: SP Angel

Additionally, we highlight that our financial model used the YE18 DFS USD:ETB exchange rate of 28 (current spot 29), although the Ethiopian Birr has been rapidly depreciating amid shortages of FX in the country with quotes reaching 38.0 in the black market. KEFI as a FX earner with around 30-40% of operating costs denominated in the local currency is set to benefit from further weakening of the currency, although strong inflation in the region is likely to reduce the positive impact of depreciation over time. We prepared NAVPS sensitivity to further depreciation in Birr for different gold price and discount rates assumptions.

**NAV sensitivity to changes in USDET B FX rate and gold price (at 10% DR)**

		Gold Price				
		1,150	1,200	1,250	1,300	1,350
USDET B depreciation v 28.0 used	0%	2.7	4.0	5.3	6.6	7.8
	10%	3.3	4.6	5.9	7.1	8.4
	15%	3.6	4.9	6.1	7.4	8.6
	20%	3.8	5.1	6.4	7.6	8.9
	25%	4.0	5.3	6.6	7.8	9.1
	30%	4.2	5.5	6.8	8.0	9.2

Source: SP Angel

**NAV sensitivity to changes in discount rate and USDET B FX rate (at \$1,350/oz)**

		Discount rate		
		8%	10%	12%
USDET B depreciation v 28.0 used	0%	8.6	7.8	7.1
	10%	9.2	8.4	7.7
	15%	9.5	8.6	7.9
	20%	9.7	8.9	8.1
	25%	10.0	9.1	8.3
	30%	10.2	9.2	8.4

Source: SP Angel

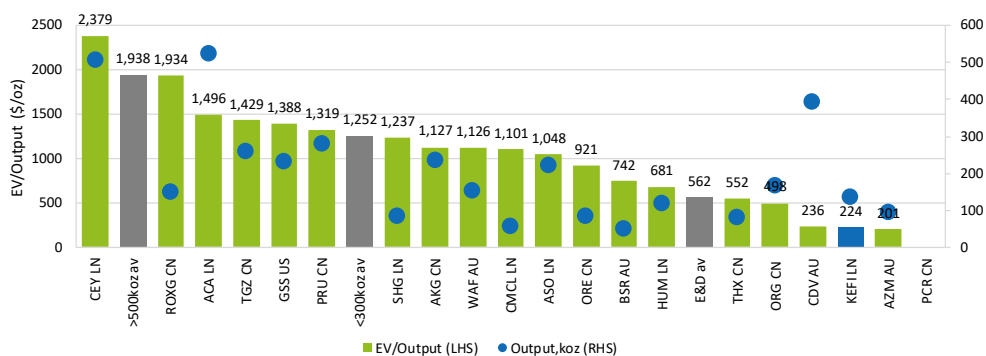
## Valuation yardsticks – where KEFI stands vs other development companies and how Tulu Kapi compares to other projects

### EV multiples point to a potential rerating once Tulu Kapi funding closed and construction works start

On attributable ounces in reserves and resources (45% in Tulu Kapi and 40% in Jibal Qutman), KEFI trades at the lower end of our *Explorers&Developers* range (\$29/15/13 per ounces in PP Reserves, MI Resources and MII resources, respectively) highlighting delays caused by local politics on securing final tranche of funding (\$160m infrastructure bonds) and start of relocation programme and development works at Tulu Kapi (see table on page 9). Once final hurdles are cleared, we would expect KEFI valuation to rerate.

On EV/Production basis, KEFI again rates low at \$224/oz compared to \$1,126/oz for West African Resources that develops the Sanbrado gold project in Burkina Faso with first production due in Q3/20 (used average LoM 154koz; when estimated at 217koz average for first five years EV/Production comes to \$797/oz) and an average of 1,252/oz for Africa based junior producers (<300koz).

### EV/Output (2019e or LoM PFS/FS projected)

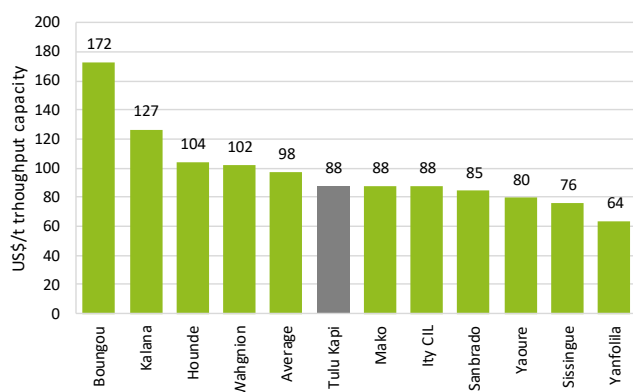


Source: Company, SP Angel

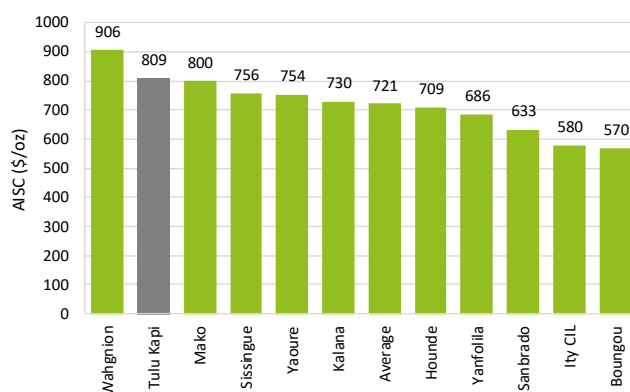
### Capital intensity and OPEX comparison v other development/recently commissioned mines

Tulu Kapi ranks well on capital intensity when compared to recently commissioned operations and projects in development right in the middle of the sample on \$/t of processing capacity (\$88/t v \$98/t average) and towards the lower end of the range on \$/koz annual gold production (\$1,293/oz v \$1,497/oz average).

#### Tulu Kapi capital intensity v recently commissioned/advanced project



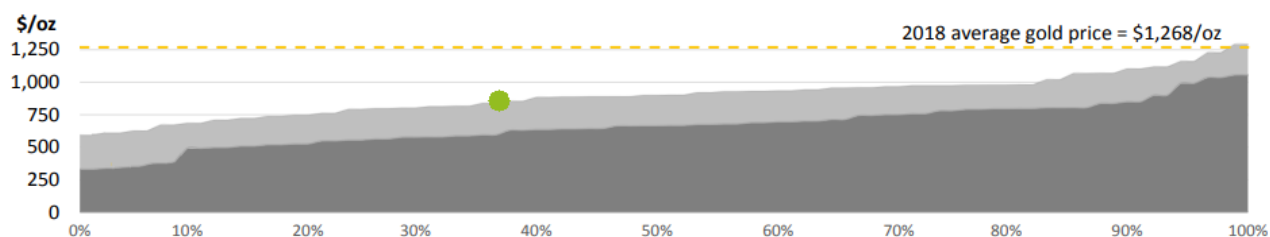
#### Tulu Kapi AISCs v costs in the sample



Source: Company (KEFI AISC are reported ex SPV payments)

On AISC, the project ranks at the higher end of the sample (\$809/oz v \$721/oz) although it is still below the average for 50% of global supply (see chart below).

## World AISC curve with TK forecast cash costs (excl SPV payments) marked in green



Source: Polyus Gold presentation (Feb/19), SP Angel

Production and costs/capex data for developed and recently commissioned projects (ranked from highest to lowest capital intensity, Reserves 100% based) is presented below.

Project	Company	Location	Production start	PP, moz	PP grade, g/t	LoM, years	Mill, mtpa	LoM output, koz pa	LoM AISC, US\$/oz	Capex, US\$m	Cap intensity, \$/mill	Cap intensity, \$/koz pa
Boungou	SEMAFO	Burkina Faso	Q3/18	1.5	4.11	9	1.3	161	570	231	172	1,437
Kalana	Endeavour	Mali	2021	2.0	2.82	18	1.4	101	730	171	127	1,693
Hounde	Endeavour	Burkina Faso	Q4/17	1.7	1.97	10	3.0	191	709	313	104	1,643
Wahgnion	Teranga	Burkina Faso	Q4/19	1.6	1.61	13	2.4	113	906	240	102	2,118
Tulu Kapi	KEFI	Ethiopia	Q1/22	1.1	2.13	8	2.0	136	809	176	88	1,293
Mako	Toro	Senegal	Q1/18	1.0	2.24	8	1.8	116	800	158	88	1,365
Ity CIL	Endeavour	Cote d'Ivoire	Q2/19	3.0	1.56	14	4.0	173	580	351	88	2,029
Sanbrado	West African Resources	Burkina Faso	Q3/20	1.7	2.37	10	2.2	154	633	186	85	1,211
Yaoure	Perseus	Cote d'Ivoire	Q4/20	1.5	1.76	9	3.3	168	754	263	80	1,567
Sissingue	Perseus	Cote d'Ivoire	Q1/18	0.4	2.04	5	1.4	78	756	107	76	1,372
Yanfolila	Hummingbird	Mali	Q1/18	0.7	3.14	7	1.2	107	686	79	64	738
Average					2.34				721		98	1,497

Source: Company  
SP Angel

## Market valuation multiples for selected Africa-based explorers, developers and producers

Company	Ticker	Price	Mcap \$m	EV \$m	PP(att), moz	MI(att), moz	MII(att), moz	Output (100%)	AISC	EV/PP	EV/MI	EV/MII	EV/Output	Stage
Pinecrest Resources	PCR CN	.18	8	8	-	-	1.0	-	-			8		Exploration
Cardinal Resources	CDV AU	.34	90	93	4.5	5.9	6.3	394	769	21	16	15	236	PFS
KEFI Minerals	KEFI LN	1.43	12	14	.5	.9	1.1	136	809	29	15	13	224	FS
Orezone Gold	ORE CN	.48	76	41	1.0	4.3	5.0	83	736	74	18	15	921	FS
Orca Gold	ORG CN	.37	58	33	2.0	2.3	3.9	167	783	29	25	15	498	FS
Azumah Resources	AZM AU	.02	11	10	.5	.8	1.3	95	886	19	12	8	201	FS
Thor Explorations	THX CN	.16	44	44	.4	.5	.6	80	662	109	94	70	552	FS
Bassari Resources	BSR AU	.02	26	26	.1	.2	.7	50	803	235	110	37	742	Development
West African Resources	WAF AU	.29	173	125	1.5	2.2	4.4	154	633	116	80	40	1,126	Development
Explorers/Developers Average										79	46	24	562	
Caledonia Mining	CMCL LN	425.00	58	60	.4	.7	1.5	55	978	138	89	40	1,101	
Hummingbird Resources	HUM LN	13.13	59	80	.6	3.0	5.1	118	900	141	27	16	681	
Roxgold	ROXG CN	1.02	281	290	.7	.8	1.6	150	780	387	348	182	1,934	
Shanta Gold	SHG LN	6.35	63	101	.6	1.1	1.7	82	770	162	95	60	1,237	
Perseus Mining	PRU CN	.42	361	371	3.1	4.9	6.5	281	963	119	75	57	1,319	
Asanko Gold	AKG CN	.76	128	119	2.3	3.0	3.1	235	1,050	52	40	39	1,127	
Teranga Gold	TGZ CN	3.37	270	368	3.9	6.6	8.3	258	950	95	56	45	1,429	
Golden Star	GSS US	3.44	375	319	1.6	5.4	11.9	230	915	198	60	27	1,388	
Avesoro Mining	ASO LN	94.00	97	231	2.0	2.8	3.2	220	1,145	118	82	71	1,048	
<300koz Producers Average										157	97	60	1,252	
Centamin	CEY LN	101.15	1,484	1,202	3.6	9.7	12.5	505	920	331	123	96	2,379	
Acacia	ACA LN	167.70	873	786	4.6	9.2	18.1	525	890	171	85	44	1,496	
>500koz Producers Average										251	104	70	1,938	

Reserves (PP) and Resources (MI, MII) are reported on attributed basis

EV/ multiples for Orezone, Orca and West African Resources used Mcap given exploration/development stage of companies meaning cash will be directed towards assessment/construction

Output/AISC for 'Explorers/Developers' is based on latest PFS or FS and refers to potential production; Output and AISC data for producers based on 2019 guidance (100% based), except )

EV/Output have been adjusted for % ownership for KEFI (45%), Orca (70%), Azumah (52%), Bassari (70%) and Asanko (45%) (ie EV/Output ratio is higher than it would have been on 100% basis)

Prices as of 06/06/19

Source: Bloomberg, Company data, SP Angel

## Risks

We touch on a number of risks below which are by no means exhaustive that typically involve exploration and mining related risks including geological, operational, political, environmental, financial and market issues.

### Execution and operational risk

Mining dilution is one of the major risks to the project given around 50% of the contained gold at Tulu Kapi is hosted within up to 3m thick gold lodes. Snowden mining consultants who were responsible for the geological block model and mine plan in the latest Tulu Kapi DFS argued the effect of dilution “could be potentially high unless a selective mining approach is adopted... (although) the ore (white albite alteration) and waste (green) contact is very visual at Tulu Kapi and this will assist in reducing edge dilution”. Engaging an experienced mining contractor should also help with minimizing mining dilution.

### Credit risk

Tulu Kapi project funding is a combination of project level equity and debt that improves KEFI investment returns. Equity funding of the first six months of development prior to drawing down the institutional bond leads to 12 months of gold production before the first debt repayment is due. Under current provisional plan payments to SPV start in mid-22 (ie 12m into production and 2.5 years post placing of the bond) and run at \$36m per annum. The Company estimates cash balance to build to \$80m over 12m period before the first lease payment to minimise the risk that a delay to commissioning, operating costs’ overrun or failure to ramp up production as expected could potentially jeopardise service of liabilities under the proposed SPV funding agreement.

KEFI has reported that it has agreed banking arrangements with the central bank in order to satisfy project financiers. This is because, the central bank has many restrictions that would otherwise impede the project financing, including that it is known to exercise capital controls delaying repatriation of foreign currency which would otherwise risk the TKGM ability to meet lease repayment schedule.

### Dilution risk

In absence of revenue generating assets in the portfolio, KEFI relies on capital markets for funding of its day-to-day operations. Given our estimated first gold pour in mid-21, we would expect the Company to require more capital for working capital purposes in the meantime. KEFI raised c.£1.0m (57m shares at 1.7p) in February and also drawn £1.0m on the £4m Sanderson convertible facility in April which allows KEFI to continue with preparatory works for the start of the relocation programme and eventual onset of construction works. KEFI annual cash burn rate is estimated at £5-6m pending its partners taking responsibility for project funding of the Tulu Kapi project, then dropping to \$2m pa for corporate expenses. The Company has also access to the remaining £3m under the Sanderson facility as well as expecting a refund of some of Tulu Kapi related costs incurred by KEFI post closure of full project funding.

### Operating costs inflation risk

Major cost centres are labour, fuel, reagents, power and grinding media for the mill. Power cost is likely to go up as the government is looking to privatise power generation capacities, although it only accounts for 5% of processing costs as per the 2017 DFS.

### Gold price risk

While the final funding package may involve a requirement for some gold price hedging including the use of forward contracts and put options, we assumed KEFI maintains 100% exposure to spot gold price.

## KEFI Minerals Financials

£m unless stated (YE Dec)

Market data			Income Statement (£m)		FY14	FY15	FY16	FY17	FY18
Ticker		KEFI LN	USDETB (YE)		20.3	21.2	22.4	27.6	28.3
Last price	GBp	1.46	Gold price	US\$/oz	1,266	1,160	1,249	1,259	1,270
GBPUSD		1.27	Copper price	US\$/t	6,830	5,493	4,870	6,198	6,550
Mkt cap	GBPm	9.4	Gold production	koz	-	-	-	-	-
	USDm	11.9	AISC	US\$/oz	-	-	-	-	-
EV	GBPm	9.4	Revenues		-	-	-	-	-
	USDm	11.9	EBITDA		-3.5	-2.8	-1.0	-3.9	-4.5
Av # of sh in issue	mln	643.6	margin		-	-	-	-	-
Av # traded, 100d	mln	2.8	EBIT		-3.5	-2.8	-1.0	-3.9	-4.5
Prices as of 06/06/19			Net Interest		-0.4	-0.3	-0.1	-0.1	-0.6
			PBT		-4.0	-3.2	-1.2	-6.3	-5.0
			Tax		-	-	-	-	-
			PAT		-4.0	-3.2	-1.2	-6.3	-5.0
			EPS basic, pence		-0.40	-0.20	-0.04	-1.99	-1.04
			EPS diluted, pence		-0.40	-0.20	-0.04	-1.99	-1.04
			Cash flow (£m)		FY14	FY15	FY16	FY17	FY18
			CFO		-2.4	-3.0	-2.3	-0.1	-3.3
			Interest paid		-	-	-	-	-
			Tax paid		-	-	-	-	-
			Net CFO		-2.4	-3.0	-2.3	-0.1	-3.3
			Capex (incl Exploration)		-2.3	-2.7	-2.4	-2.2	-2.5
			JV contributions		-1.6	-0.8	-0.6	-0.4	-0.3
			CFI		-3.9	-3.5	-3.0	-2.6	-2.8
			Issue of shares		4.0	6.9	5.6	3.2	5.4
			Dividends paid		-	-	-	-	-
			Proceeds from borrowings		-	-	-	-	0.6
			Repayment of borrowings		-	-	-	-	-
			CFF		3.7	6.5	5.2	2.8	5.7
			Net cash flow		-2.6	-0.1	-0.2	0.1	-0.4
			Cash cf		0.6	0.6	0.4	0.5	0.1
			Balance Sheet (£m)		FY14	FY15	FY16	FY17	FY18
			Cash		0.6	0.6	0.4	0.5	0.1
			Receivables/prepayments		0.3	0.4	3.1	0.1	0.1
			Inventories		-	-	-	-	-
			Current assets		1.1	1.0	3.6	1.0	0.3
			Exploration & PPE		9.3	11.9	14.1	16.3	19.9
			Non-current assets		9.3	11.9	14.1	16.3	19.9
			Total assets		10.4	12.9	17.6	17.3	20.2
			Payables, provisions		3.2	2.0	2.1	2.9	3.7
			Borrowings ST		-	-	-	-	-
			Current liabilities		3.2	2.0	2.1	2.9	3.7
			Borrowings LT		-	-	-	-	-
			Other		-	-	-	-	-
			Non-current liabilities		-	-	-	-	-
			Total liabilities		3.2	2.0	2.1	2.9	3.7
			Net assets		7.2	10.9	15.5	14.5	16.4
			Key financial metrics		FY14	FY15	FY16	FY17	FY18
			Net debt/(cash)		-0.6	-0.6	-0.4	-0.5	-0.1
			Av # of sh (diluted)		952	1,578	3,314	315	476
			EV/EBITDA		-	-	-	-	-
			PER		-	-	-	-	-
			FCF (NCFO-Capex)		-6.3	-6.6	-5.3	-2.8	-6.1
			FCF yield		-	-	-	-	-
			DY		-	-	-	-	-
			ROA		-	-	-	-	-
			P/BV		2.08	1.13	0.91	1.08	0.71
			Interest coverage		-	-	-	-	-
			Net Debt/EBITDA		-	-	-	-	-

Source: SP Angel, Company

## Corporate structure and operations overview

KEFI Minerals is an AIM listed (since 2006) precious and base metals developer/explorer with two advanced gold development projects located within the highly prospective Arabian Nubian Shield. KEFI is incorporated and registered in England and Wales with head office in Cyprus. KEFI key assets are in Ethiopia and Saudi Arabia.

### Ethiopia

The Company secured an exposure to gold assets in Ethiopia in 2013/14 through an acquisition of Nyota Minerals' Tulu Kapi project in the country. The flagship asset is the development-ready DFS-level Tulu Kapi gold project while a portfolio of up to 1,900km<sup>2</sup> of exploration tenements surrounding the 7km<sup>2</sup> mining license offers an exciting opportunity to grow the resource/reserve base. Under the latest funding package, KEFI will be majority controller of the project with 80%-owned local subsidiary, KEFI Minerals (Ethiopia) Ltd (KME) to hold 59% of Tulu Kapi Gold Mines Share Company (TKGM), a holder of the mining permit. This represents a 45% beneficial interest, with the remainder owned by the Ethiopian government (5% free carry + 17% equity contribution) and ANS, a consortium of local investors (33% equity contribution). Exploration ground lies outside the TKGM agreement and is to be owned by the 80%-owned local subsidiary, KEFI Minerals (Ethiopia) Ltd (KME).

### Saudi Arabia

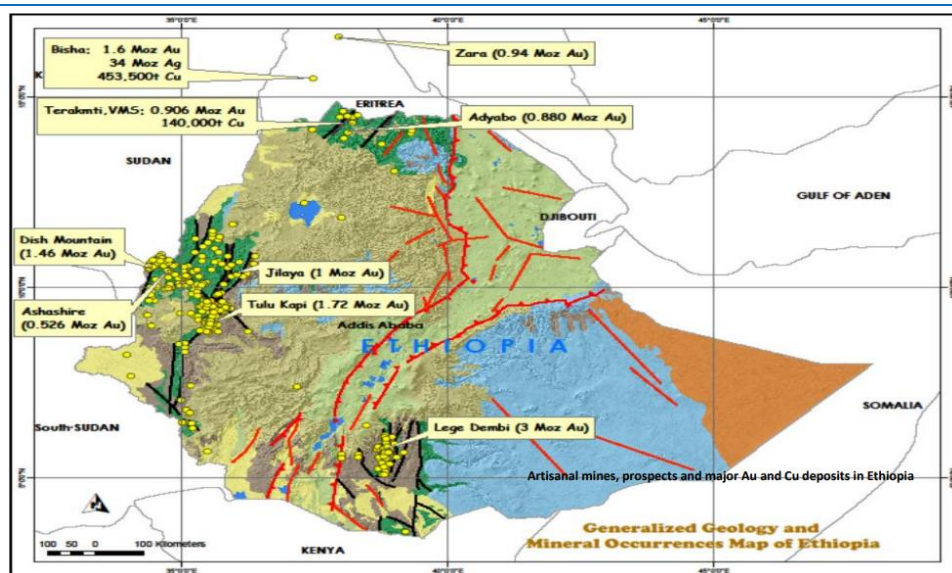
The Company operates in Saudi Arabia through Gold and Minerals Ltd (G&M), a JV between KEFI and Abdul Rahman Saad Al Rashid and Sons Limited (ARTAR), a local partner, established in 2009 to explore for gold and associated metals in the Arabian Nubian Shield (ANS). ARTAR is a Saudi Arabian conglomerate owned by Sheikh Al Rashid and his family with interests in a number of sectors including construction, property, agriculture, healthcare and mining both in the Kingdom of Saudi Arabia and abroad. KEFI holds a 40% in G&M and acts as a technical partner and an operator of the JV. KEFI assets portfolio comprise more than 800km<sup>2</sup> of exploration ground held through G&M under Exploration Licenses (EL) and pending Exploration License Application (ELA). Two of the most advanced assets are the Jibal Qutman Exploration License (EL) Au and the Hawiah EL Au-Cu-Zn.

## Tapping into a hard rock gold mining potential in Ethiopia

### Tulu Kapi (45%)

Tulu Kapi gold project located in western Ethiopia is the most advanced asset in the KEFI portfolio that is expected to see shortly the start of a relocation programme paving the way for construction works. The \$175m project is fully permitted with the team finalising the funding package comprised of project level equity and debt. The latter component is planned to come in the form of an SPV issued infrastructure bond (\$160m) covering EPCM related costs which we expect to be closed in Q4/19 and a two year development period to start in mid-19 with first gold in mid-21. The open pit part of the deposit hosts 15.4mt at 2.13g/t for 1,051koz (100%) in Probable reserves estimated based on 17.7mt at 2.49g/t for 1,417koz in Indicated resource with additional 1.3mt at 2.05g/t for 86koz contained in the Inferred resource category. In addition, the orebody continues down plunge and down dip with 1.1mt at 5.63g/t for 199koz in Indicated resources category and 0.1mt at 6.25g/t for 20koz in Inferred.

### Tulu Kapi location along with other gold and copper prospects in Ethiopia



Source: Company

The latest mine plan is for the standard CIL plant to run at 1.9-2.1mtpa producing c.135koz over eight year mine life with TCC averaging c.\$800/oz and an average EBITDA of \$75m pa (using our long term gold price of \$1,350/oz; c.\$70m at \$1,300/oz). The Tulu Kapi project IRR for equity investors gains to 453% from 24% (unleveraged) thanks to the use of debt. The project contributes \$67m to KEFI NPV or 7.4p to estimated NPV based on KEFI's 45% effective interest.

Tulu Kapi parameters		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Gold price	\$/oz	-	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350	1,350
Mined	kt	-	-	1,873	3,625	1,735	2,252	1,835	2,194	1,489	347
W:O ratio	x	-	-	6.0	5.1	11.7	8.8	10.9	7.3	4.9	5.0
Total material	kt	-	-	13,130	22,190	22,043	22,061	21,762	18,268	8,776	2,075
Throughput	kt	-	-	1,069	2,126	2,120	2,098	1,994	1,973	1,916	2,054
Grade	g/t	-	-	2.02	2.86	1.97	2.25	2.17	2.27	2.14	1.28
Recoveries	x	-	-	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Production	koz	-	-	65	181	125	141	130	134	123	79
TCC	\$/zo	-	-	959	710	977	875	926	804	579	560
EBITDA (ex corp GA)	\$m	-	-	25	116	47	67	55	73	95	62
KEFI NPV contribution (10% DR)	\$m	67									
NPV per share contribution	GBp	7.4									

Source: Company, SP Angel

### Location

The 7km<sup>2</sup> Tulu Kapi mining license area is located in western Ethiopia of the Oromia National Regional State. Around 350km west of the capital, Addis Ababa, the project is accessible by road over a 520km distance with the final 15km by means of an all-weather unpaved road.

### Landscape and climate

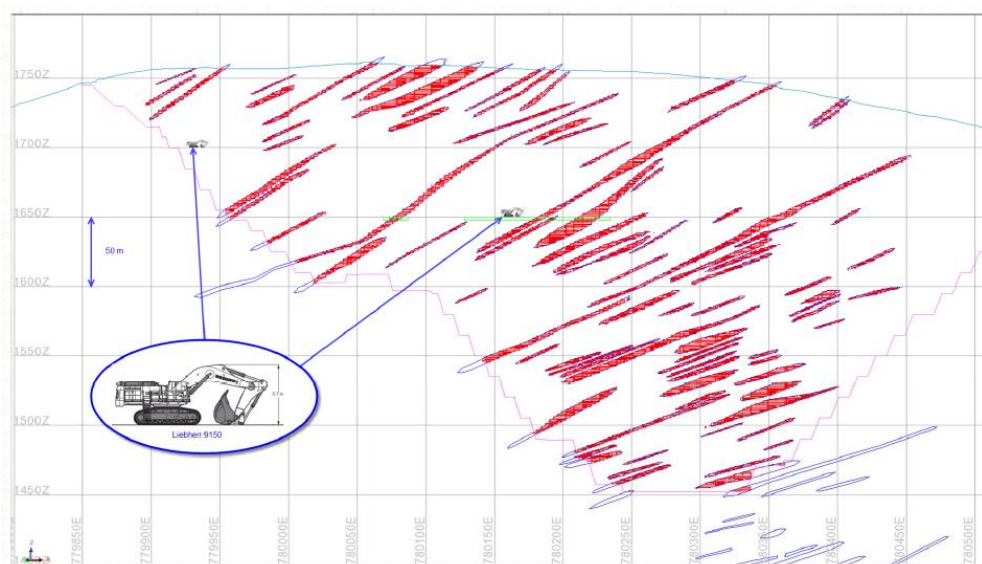
Landscape is characterized by rounded hills and deeply incised valley. The climate is tropical with the December-February period being the hottest (temperatures reaching 33°C) and driest months. A pronounced wet season runs between July/August to September/October and precipitation rates reaching quite high 290mm, but the Company managed to continue exploration works through the wet season in the past with the affect on production expected to be minimized with the use of stockpiles. Tailings water balance to be managed with diversion of rainfall runoff from catchment areas located upstream of the TSF.

### Geology

The Tulu Kapi is found in the well-known Arabian-Nubian Shield (ANS) stretching from Ethiopia in the south across the Red Sea to Israel in the north and hosting a suite of major precious and base metals deposits including Sukari (Centamin, Egypt), Bisha (Zijin, Eritrea), Mahd Adh Dahb (Ma'aden, Saudi Arabia), Jabal Sayid (Barrick/Ma'aden, Saudi Arabia) and Asmara (Sichuan Road & Bridge Mining Investment Development, Eritrea).

The Tulu Kapi appears within a regional scale NE-SW trending fault systems with the hosting geology comprised of a coarse grained, mafic syenite batholith. The mineralization extends for some 980m along strike, 520m in width and 560m in depth. The primary gold mineralization is associated with albitised zones within the syenite which host narrow NW shallowly dipping (c.30°) stacked quartz veins which pinch and swell both along strike and down dip. Generally, the geological setting of the Tulu Kapi deposit is characterized by consultants as “complex”.

### Tulu Kapi block model cross section with pit shell outline



Source: Company

Dilution is one of the major risks to the project given around 50% of the contained gold at Tulu Kapi is hosted within up to 3m thick gold lodes. Snowden mining consultants who were responsible for the geological block model and mine plan in the latest Tulu Kapi DFS argued the effect of dilution “could be potentially high unless a selective mining approach is adopted... (although) the ore (white albite alteration) and waste (green) contact is very

visual at Tulu Kapi and this will assist in reducing edge dilution". KEFI have planned the use of selective mining where it judged appropriate and the block model assumed +/-0.5m dilution zone in the proposed selective mining method taking mining dilution to 12% and ore losses to 6%. Additionally, mine schedule assumed 5% ore loss from unplanned dilution.

### History

The site has no history of significant artisanal mining activity with only a short period of small-scale mining recorded in 1930s that is reported to have seen only modest amounts of gold produced. Exploration works have been carried intermittently since 1970s starting with the UN Development Programme-guided reconnaissance work that included surface geochemical and geophysical surveys, detailed geological mapping and diamond drilling. Exploration works accelerated in 2009 when Nyota Minerals (then Dwyka Resources) acquired Tulu Kapi licenses (through an acquisition of Minerva Resources) followed by a release of the maiden JORC-compliant Mineral Resource in Sep/09 of 13.5mt at 1.58g/t for 690koz (all Inferred, COG 0.5g/t) based on historical 34 diamond drill holes.

A comprehensive exploration and evaluation programme followed with the latest resource released in Feb/15 being published by KEFI bringing in an increase in both grades and tonnages based on 298 diamond drill holes (60% of drilled c.120,000m).

Following a correction in the gold price, the project was sold to KEFI Minerals for c.£6m worth of cash and stock (~\$10/oz and \$5/oz of then total reserves and resources, respectively) in Dec'13/Jun'14. The Company reviewed and interpreted previous data, carried out trenching and confirmation drilling to improve geological understanding and verify the geological model. KEFI converted more ounces into the Indicated category and refined the 2012 DFS (2mtpa CIL, c.\$220m, owner operated mining fleet) in 2015 for a smaller scale selective mining open pit operation (1.2mtpa CIL, c.\$175m, owner operated mining fleet). In 2017, the team updated economics of the project by bringing more production forward, utilizing mining contractors, raising throughput rates and slightly tweaking processing flowsheet as part of new DFS (1.5mtpa, c.\$160m, contract mining). The latest design ('2018 Plan') builds on 2017 DFS assuming higher processing rates (1.9-2.1mtpa, c.\$175m, contract mining). Additionally, KEFI completed a PEA (2016) on underground potential with an estimated incremental NPV8% c.\$45m (\$1,250/oz gold price). Comparison of Tulu Kapi economic studies to date are provided below.

Parameters		2012 DFS	2015 DFS	2017 DFS	2018 Plan
Mining		Owner	Owner	Contractor	Contractor
Throughput	mtpa	2.0	1.2	1.5-1.7	1.9-2.1
LoM	years	8.6	13	10	8
Grade	g/t	1.82	2.12	2.12	2.12
Production	kozpa	105	95	115	136
TCC	\$/oz	698	664	772	797
Capex	\$m	221	176	161	177
Gold price assumption	\$/oz	1,500	1,250	1,250	1,300
NPV	\$m	253 (pre-tax, 5%)	125 (post-tax, 8%)	97 (post-tax, 8%)	97 (post-tax, 8%)
IRR	%	24 (pre-tax)	27 (post-tax)	22 (post-tax)	22 (post-tax)

2018 Plan TCC, NPV and IRR are SPA estimates for unleveraged project economics using KEFI mine plan, operating and capital cost assumptions

Source: Company

### License

The Tulu Kapi Mining License was granted to KEFI Minerals (Ethiopia) Ltd (KME) in Apr/15 and transferred in the name of Tulu Kapi Gold Mine Share Company (TKGM) in Feb/18. The license is valid for 20 years. The license can be renewed, with each renewal subject to a maximum period of 10 years.

Exploration licenses are issued for an initial period of three years with an option to renew twice for additional terms of one year each. Authorities may further allow extension or renewal to be made on each anniversary when the licensee proves that results warrant further exploration provided such extension does not exceed five years in total.

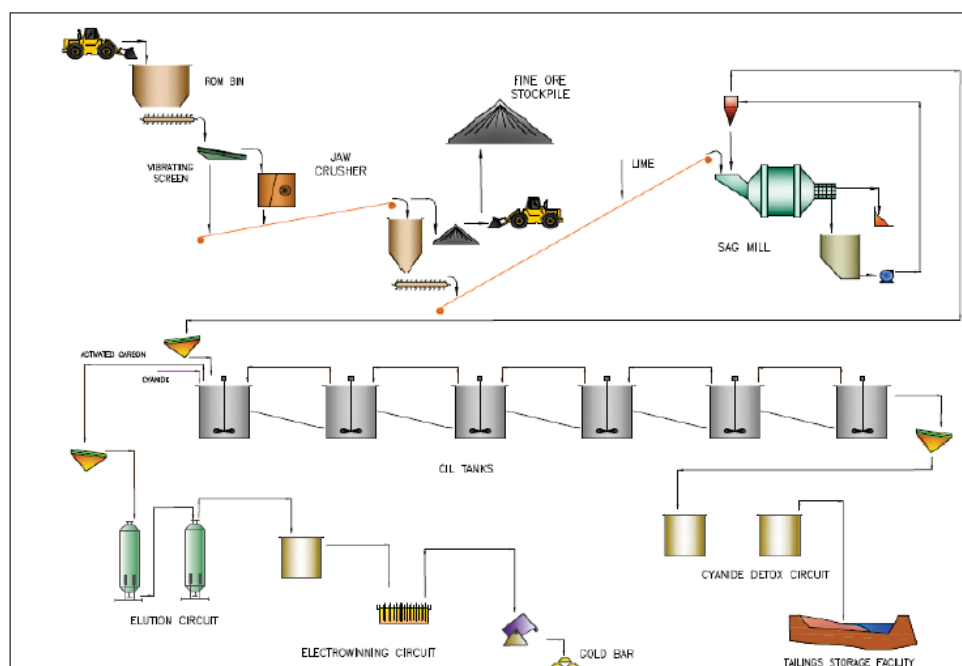
### Mining

The open pit operation is expected to run a typical drill, blast, load and haul cycle with a combination of bulk and selective (especially hanging wall and footwall contact between ore/waste) mining methods. The Company engaged an experienced mining contractor African Mining Services (AMS), a wholly-owned subsidiary of Ausdrill Ltd, to develop the Tulu Kapi deposit minimizing start up capex, reducing financing risk and potential dilution from additional funding requirements while improving operational flexibility. The latter will help with the variation in the mining rate as the latest mine plan involves moving 22mt of ore and waste per annum in the first few years accumulating ore stockpiles (peak at 2.3mt in Y2) and processing higher grade material through the plant before the mining rate tails off. Waste stripping ratio averages 8.5x over the first full five years (v 7.5x over LoM) and peaks in Y2 at 11.7x. Additionally, experienced contractor will minimize risks and costs related to training local workforce with fairly limited mining experience as well as help with selective mining accuracy minimizing dilution.

### Processing

Metallurgical works have been completed as part of 2011 PFS and 2012 DFS and subsequently reviewed by Lycopodium as part of the 2017 DFS to identify optimal processing flowsheet. The recovery work showed all ore types including oxide, transitional and fresh are amenable to conventional cyanidation with the process flowsheet involving standard one stage crushing, SAG mill grinding, CIL leaching, electrowinning and smelting for production of gold dore. Silver is present only in small amounts (typically 2:1 gold to silver ratio) and is not found to cause any adverse impact on the ability of the activated carbon to maximise gold recovery. The testwork has also showed that relative concentrations of iron, zinc, lead, copper and arsenic are at low levels to cause any impact on gold recoveries.

### Process flowsheet



Source: Company

The latest plant design parameters are for 1.9mtpa throughput rate while running at 2.1mtpa in first years treating softer oxide material (oxide ore is nearly 2x softer than fresh rock and requires less maintenance). Metallurgical recoveries assumed at 93%<sup>1</sup> with single SAG mill reducing feed to 125µm (P<sub>80</sub>) for oxide and 150µm fresh rock. No bulk sample testwork was justified or completed.

Lycopodium Limited, one of the leading gold plant specialist engineering groups, will build the plant and ancillary infrastructure under the EPC/EPCM contract.

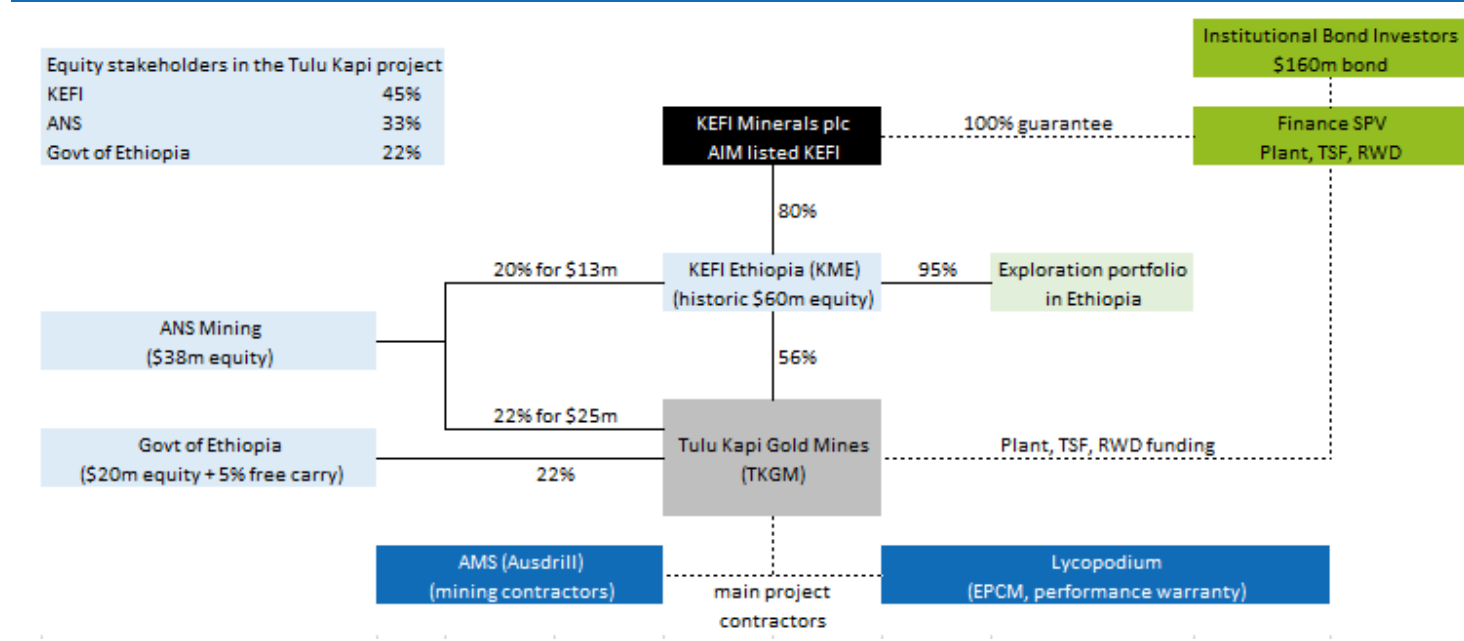
### Development capex and Tulu Kapi ownership structure

Tulu Kapi development capital is estimated at c.\$175m and sustaining spend over the eight years' LoM of c.\$35m including c.\$10m in closure/rehabilitation costs (see breakdown of costs below).

Given the development capital requirement and KEFI Minerals market capitalization of £10m, the team has developed a financing structure to minimize dilution at the top level involving a combination of project level equity and debt. The Tulu Kapi ownership structure with planned funding contributions are provided in the schematic below and includes:

- 45% beneficial interest held by KEFI Minerals through a local subsidiary ('KEFI Minerals (Ethiopia), KME') reflecting \$60m invested in Company and pre-KEFI related parties to date with the team remaining operators of the project;
- 5% (free interest) + 17% (\$20m equity) held by the Ethiopian government in return for road access and power connection infrastructure provided by the Roads Authority and Ethiopian Electricity Power Cor, respectively;
- 33% (\$38m equity) held by ANS Mining Share, a syndicate of local institutional investors, both on a project level as well as through a 20% interest in KME.

### Tulu Kapi project funding structure



Source: Company

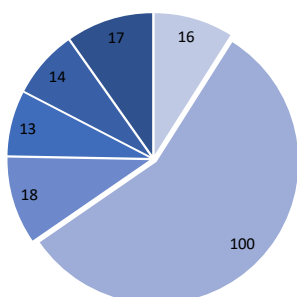
The balance of the development capex (c.\$110m) is expected to be provided by institutional bond investors with proceeds from the respective debt securities to be secured by the Tulu

<sup>1</sup> 94.0% for oxide (6% of processed ore), 92.9% for fresh soft (66%) and 94.1% for fresh hard (28%).

Kapi production facilities and guaranteed by the KEFI interest in TKGM, a holder of the Tulu Kapi mining license.

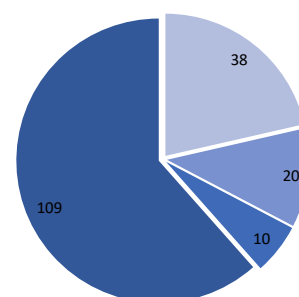
#### Tulu Kapi open pit development capex (c.\$175m)

■ Mining (contract)  
■ Processing plant (EPCM)  
■ Infrastructure (mostly power, road)  
■ TSF, Water dam  
■ Relocation  
■ Other



#### Development capex funding sources

■ ANS commitment  
■ Ethiopian government  
■ Working Capital facility  
■ SPV covered



Source: Company

#### Infrastructure and development schedule

The site lacks significant existing infrastructure except for exploration camp with the latest development budget accounting for major items as follows:

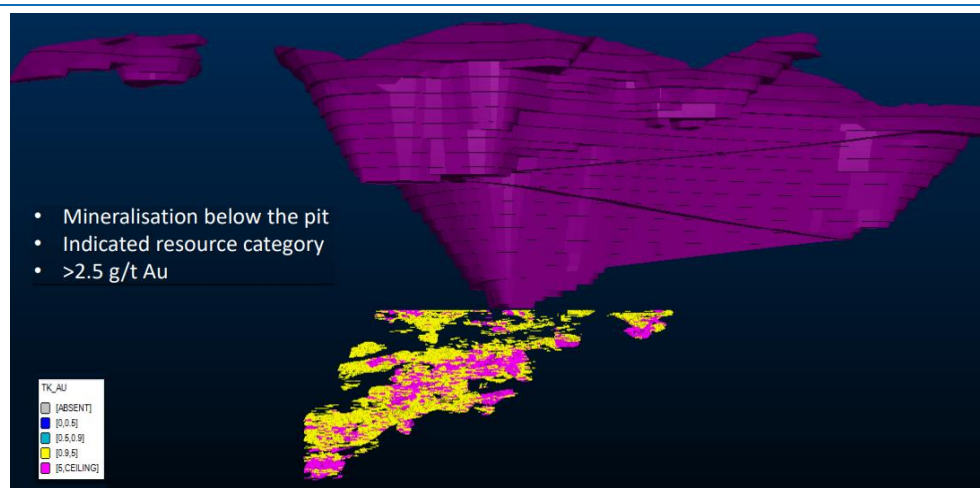
- **Power (c.\$10m capex ex contingency and community, 18 months from design to commissioning):** a new 47km, 132kV, 15 MVA power line from Gimbi to the site is planned to be funded (in return for equity) by the national Ethiopian grid (Ethiopian Electric Power Corporation, EEP Co) including design and construction as well as future maintenance works. EEP Co confirmed it is able to supply up to 25MW with half attributed for the Tulu Kapi power needs (12MW peak). A 5MW emergency diesel power plant is planned to provide backup power to critical process equipment in the event of a grid power failure.
- **Road access (c.\$5m budget, 8 months to completion):** 15km long access road connecting the Tulu Kapi site with the main A4 highway running to Addis Ababa will be constructed to avoid impacting local community as heavy vehicles are diverted from the existing Keley-Tulu Kapi road. That and several kilometres of diversions are expected to be covered by the Ethiopian Roads Authority (in return for equity).
- **Labour and resettlement programme (prior start of mining operations):** manpower is expected to be sourced from nearby settlements including Tulu Kapi, Gimbi (32km away), Ayra (20km) and Nekemte (110km). The Relocation Action Plan (RAP) capex accounts for \$13.5m in development capex covering crop and property compensations, relocation costs. The additional as well as infrastructure and livelihood re-establishment expenses are also budgeted. Affected local communities are farmers with the land used for coffee plantations as well as seasonal crops like maize, teff, corn and other staples. The programme involves construction of more than 300 residential buildings in the resettlement area. Federal authorities granted their approval while regional government approval is due shortly. This first phase is c.25% of the total and occurs in the equity-funded initial part of the 24-month development schedule. The second phase is during the construction of the plant but before mining commences toward the end of the 24 month schedule.
- **Water:** Fluctuations in water supply during dry and wet seasons are to be smoothed out using two water dams upstream of the tailings storage facility (TSF). Water from the TSF to be pumped back to the plant with the balance coming from raw water

diversion dams. In pit and mine waste dumps related rainwater and groundwater will be discharged to settling ponds and released to the environment.

Development timeline used in the 2018 Plan agreed with contractors is 24 months (this compares with the 2017 DFS included 6m period of early works and 24m of construction). In our model we assumed bond placement closure before YE19, development works commencement mid-2019 followed by 24m of construction and first gold pour in mid-2021.

## Tulu Kapi underground potential in the ‘Feeder Zone’

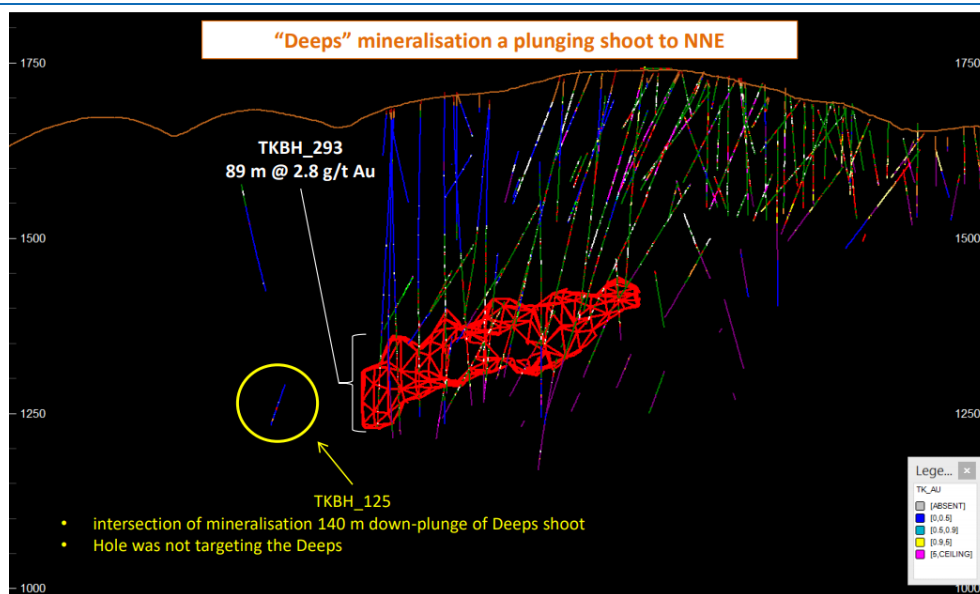
Indicated category resource at Tulu Kapi located under the limit of the current open pit



Source: Company

The Tulu Kapi underground potential lies in the so-called Feeder Zone, a plug-like sub-vertical mineralised body located beneath the existing shallow dipping mineralised lode structure, that remains open at depth and potentially may become source of low-tonnage high-grade material to the plant. Mining schedule wise, high grade UG feed may become valuable blend material for low grade stockpiles in the later years of the mine life. The latest JORC-compliant mineral resource statement (Feb/15) estimated the ‘below 1,400 RL’ potential (i.e. >350m from surface) at 1.2mt at 5.70g/t for 220koz, most of which is contained in the higher confidence Indicated category (1.1mt at 5.76g/t 200koz).

### Drilling density at Tulu Kapi underground potential with a potential extension of the mineralisation down plunge NNE



Source: Company

The most recent study completed on the Tulu Kapi underground potential was the Preliminary Economic Assessment (PEA) done by KEFI in March 2016 that was based on the larger Aug/14 Mineral Resource of 1.6mt at 5.81g/t for 304koz (2/3s in Indicated category). PEA assumptions (mining rates, grades, costs and capex) are summarised in the table below with SPA NPV and IRR estimates. **Importantly, the orebody remains open at depth and along strike while grade and thickness increase with depth and the management believes**

**there is potential to triple the aforementioned mineral resource.** The most northerly hole drilled into the deepest part of the deposit intersected 89m at 2.8g/t (see chart above).

Underground development is expected to be funded from internal CFs and would represent a logical course of action to extend the Tulu Kapi life of mine and source high grade feed for the plant. While more work remains to be done including infill drilling to better understand the orientation and continuity of the orebody as well as grade distribution preliminary estimates point to attractive investment returns (44% IRR and NPV10% (post-tax) \$28m).

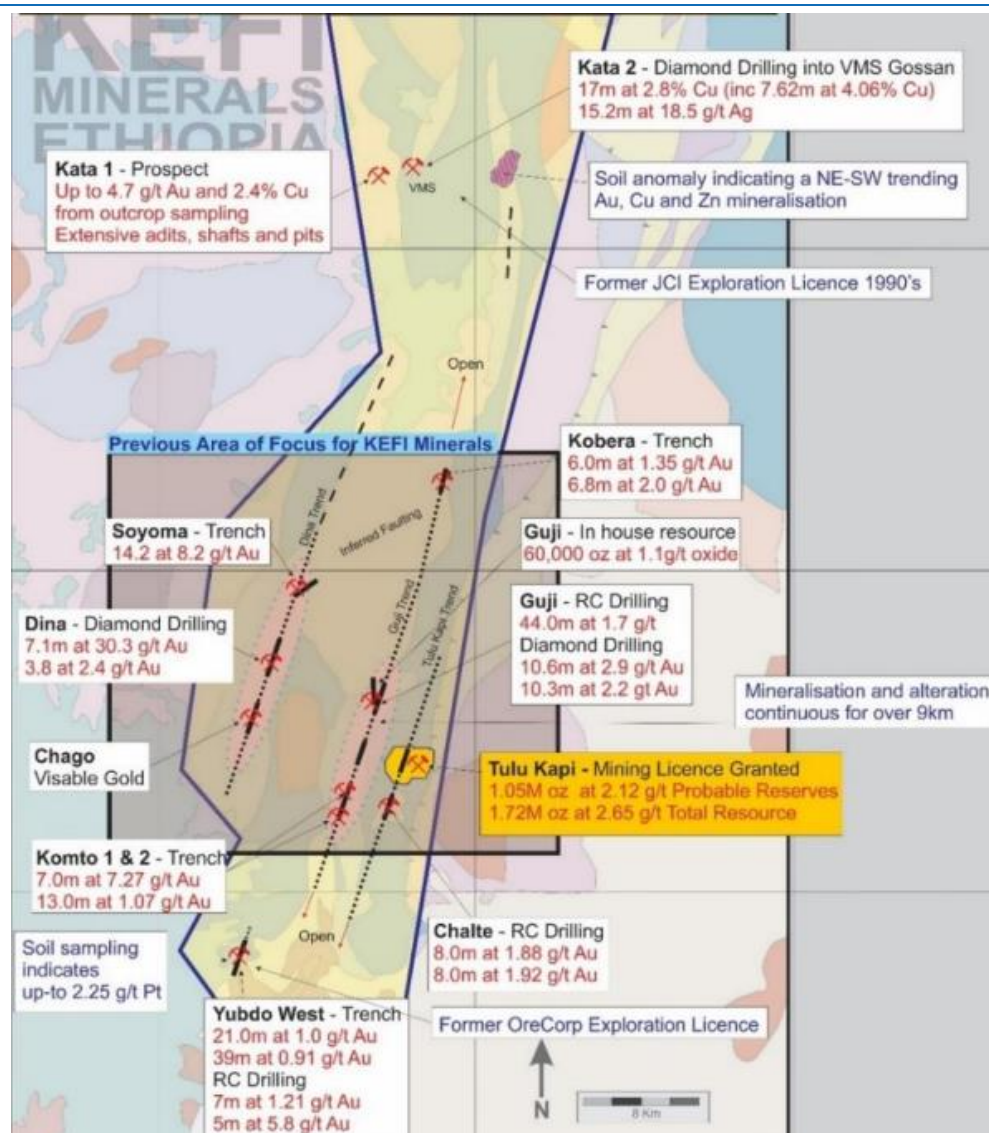
#### **Tulu Kapi underground potential (100% based)**

Throughput	kt	325
LoM	years	4
Grade	g/t	5.17
Production	kozpa	50
C1	\$/oz	664
AISC	\$/oz	845
Capex	\$m	37
Gold price assumption	\$/oz	1,350
NPV8% (post tax)	\$m	28
IRR (post tax)	%	44%
KEFI NPV contribution (50% risked, 45% interest)	\$m	6
	GBp	0.7

Source: PEA Mar/16, SP Angel

## Ethiopia exploration potential – 1,900km<sup>2</sup> of prospective ground

### Exploration package in Ethiopia



Source: Company

KEFI exploration potential outside Tulu Kapi in Ethiopia is represented by up to c.1,900km<sup>2</sup> of prospective ground with a number of shallow drilling targets. In November last year the Company was advised by the Ethiopian Ministry of Mines, Petroleum and Natural Gas that local exploration tenements will be expanded seven times to c.1,900km<sup>2</sup> with actual licenses expected to be renewed once the Tulu Kapi project construction starts. Most of the selected area is within a trucking 50km radius of the planned treatment plant offering optionality to processing of future new discoveries.

It should be noted that exploration tenements outside the Tulu Kapi Mining Lease area are not part of the Tulu Kapi Gold Mines Share Company ('TKGM') and are 100% owned by KME.

Priority targets include:

#### Kata Cu/Au VMS type prospect

The Kata area is located 50km north of Tulu Kapi where earlier soil geochemistry studies and drilling results returned high copper grades (gold was not assayed). Six holes drilled in 1970s as part of the United Nations Development Program (UNDP) testing a 600m long anomaly with the best results returning 14m at 3.2% Cu and 53m at 0.7% Cu. Previous

surface sampling and mapping identified at least six VMS prospects at Kata with a number of mine adits, shafts and pits found in the area where the reported grades (based on historical records) reached 80g/t gold in the weathered horizon and 5-8g/t gold in sulphide zone.

**Guji-Komto trend**

Located only 3km west of and running parallel to the Tulu Kapi shear zone, the Guji-Komto trend has been discovered following a series of geochemical and geophysical surveys. Drilling and trenching along the +9km long shear zone indicated potential for a 300-500koz deposit at 1.5g/t hosted within 40m susceptible for surface mining and either low capital-intensity heap leach processing or CIL tank leaching at the Tulu Kapi plant for additional 50kozpa, based on KEFI preliminary estimates. Preliminary bottle roll testwork returned 94% gold recoveries on samples from Komto trenches (150µ particles) suggesting relatively straightforward metallurgy. Selected historical intersections included: 19.3m at 4.4g/t (trench), 7m at 7.27g/t (trench), 10m at 2.85g/t (drilling), 44m at 1.7g/t, 10.3m at 2.23g/t (including 2.3m at 6.24g/t; all drilling).

**Dina Chago prospect**

Another NE/SW shear structure running parallel to the Tulu Kapi hosting trend with historical surface exploration works having identified a >3km long geochemical anomaly. Previous drilling returned promising results including 7.1m at 30.26g/t from 69.6m.

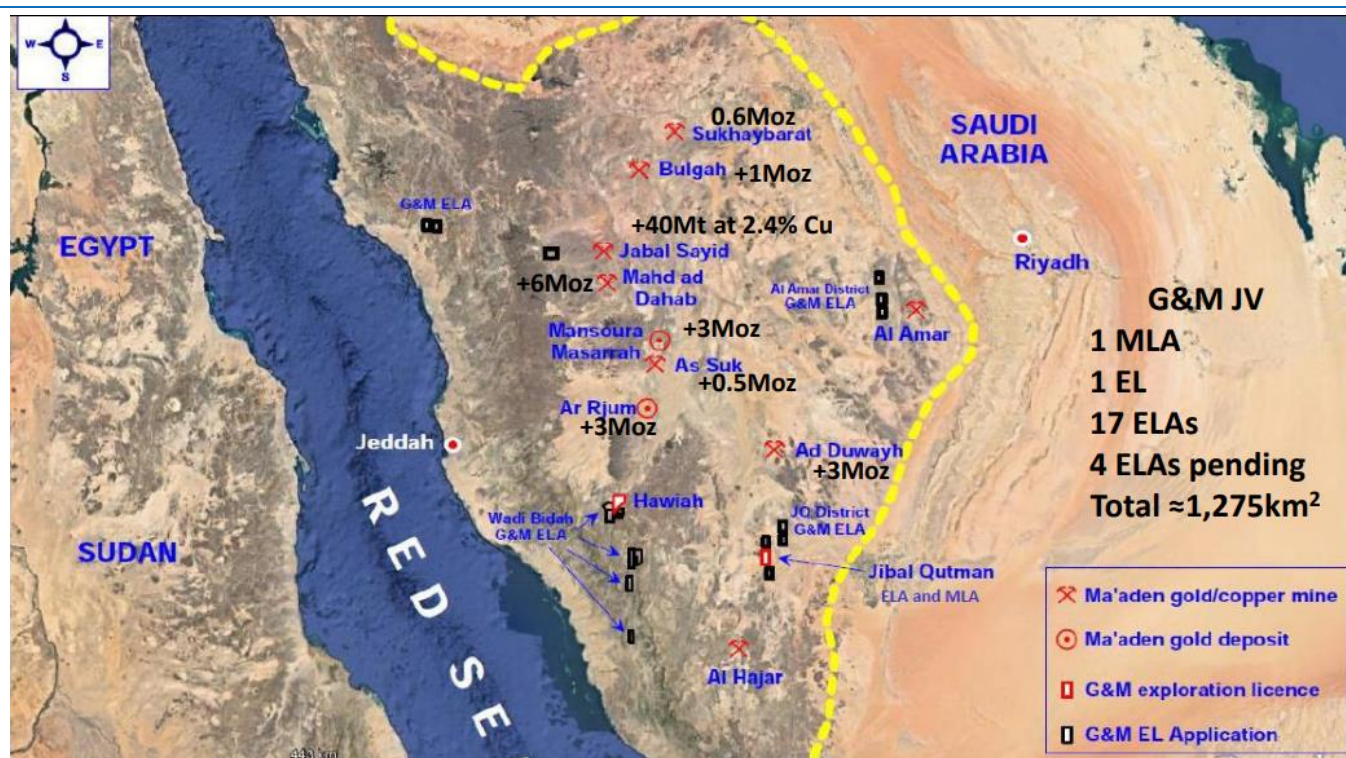
**Soyoma prospect**

Only 15km away from Tulu Kapi, Soyoma target returned good trenching results in the past a number of mineralized zones exposed over approximately 300m of strike. Trenching south east of a historic open pit that was mined during the 1930s saw peak intersections of 14.2m at 8.18g/t (including 2m at 42.6g/t).

## Saudi Arabia JV – gold/base metals exploration within the prolific ANS belt

As discussed previously, KEFI operates in Saudi Arabia since 2009 exploring for gold and base metals through a locally established 40/60 JV with ARTAR. Saudi projects diversify KEFI Ethiopian exposure while a JV allows the team to draw both on financial and operational support from a well-known and established local partner. The G&M holds currently active/pending permits over more than 800km<sup>2</sup> with a primary target to discover and develop +1moz GEO project in the underexplored Precambrian Shield. Most advanced projects include a 100km<sup>2</sup> PEA-stage Jibal Qutman Au EL (secured in Jul/12) and a 95km<sup>2</sup> Hawiah Au-Cu-Zn EL (approved in Dec/14) covering parts of the Bidah Mineral District, a 120km long north trending belt, in the southwest of the prolific ANS region.

### Exploration packages in Saudi Arabia relative to other major deposits



Source: Company

## Hawiah EL (40%)

### Plan view of the gossan outcrop with historical trenches



### Malachite rich sample from Hawiah trench



Source: Company

The 95km<sup>2</sup> Hawiah EL was secured by ARTAR on behalf of the G&M JV in Dec/14. The license is located within the prospective Wadi Bidah Mineral District (WBMD) in the southwest of the Arabian Shield. Early exploration work identified gold mineralisation hosted in surface gossans overlying a large VMS Cu-Zn-Au target at depth, associated with a 6km long NS striking highly silicified and variably gossanous horizon. Additionally, the Company is aware of at least 36 targets prospective in gold and base metals mineralisation within the 120km long WBMD belt.

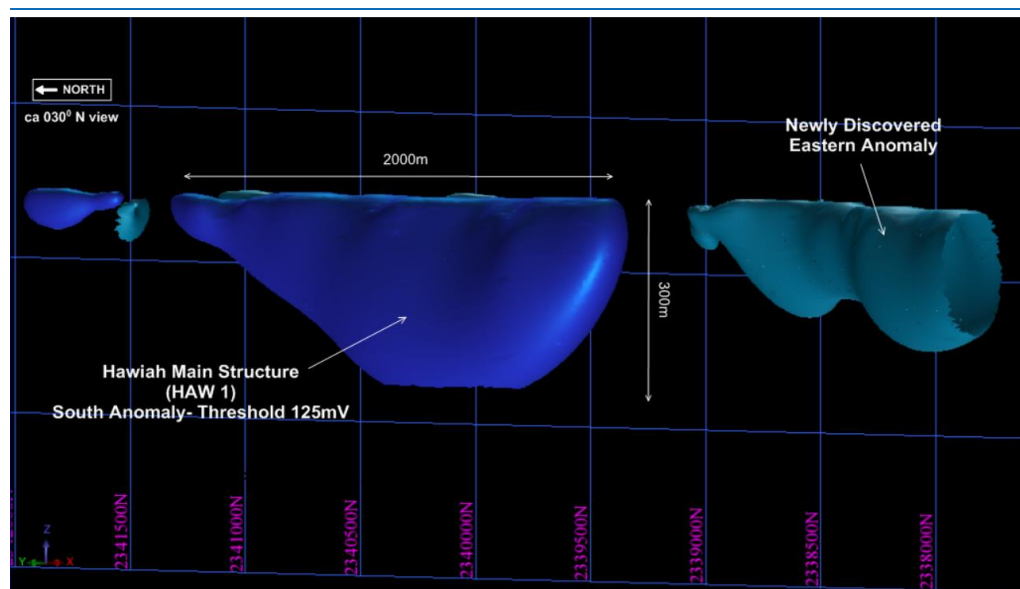
### Status

Exploration works completed to date included trenching and mapping programmes carried by French Bureau de Recherches Géologiques et Minières (BRGM) in the 1980s. In Feb/15 KEFI run a first-pass, wide-spaced trenching programme completing some 1,620m over the 6km-long gossanous anomaly twin-testing BRGM trenches as well as extending the strike both north and south. The programme returned mineralised intersections in nearly all trenches including 6m at 2.22 g/t gold, 2m at 8.69 g/t gold, 6m at 1.94 g/t gold, 3m at 5.76 g/t gold, 2m at 7.54 g/t gold and 8m at 3.04 g/t gold. In Apr/15, the self-potential (SP) geophysical survey of the southern half of the 6km long outcropping mineralised system indicated a potential for continuous massive sulphide or concentrated disseminated sulphides zone dipping westward with a signature over 300m below surface and 2,000m over strike length. Additionally, the SP study showed a similar but less continuous intensity anomaly 600m to the east striking c.1,000m northward and dipping eastward (see graph).

### Plans

The team is planning a follow up exploration programme over the identified targets using infill trenching/drilling of gold mineralisation at surface as well as using a more detailed induced polarisation geophysical study testing sulphide mineralisation at depth that would be then drilled. Drilling will start once G&M is confirmed with local communities it has secured a long-term access to Hawiah. Historical data from gossan targets south of Hawiah located within the same belt returned intersections of up to 10m at 2% Cu.

### 3D interpretation of Hawiah SP geophysical anomaly



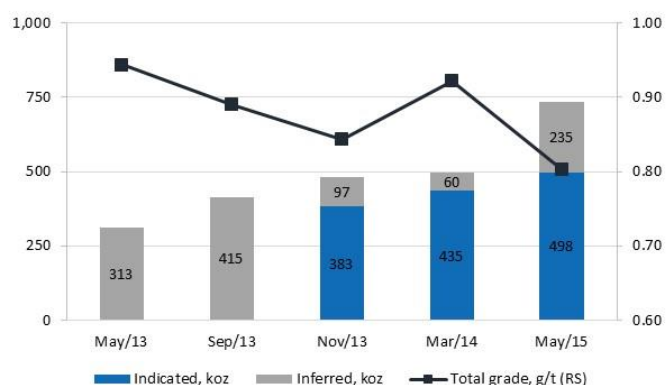
Source: Company

### Jibal Qutman EL (40%)

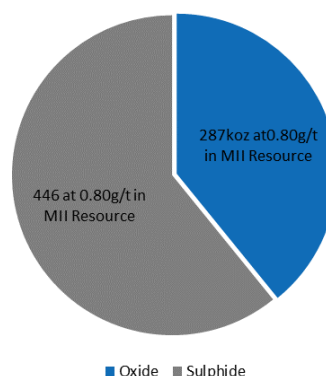
The Jibal Qutman EL is located in the south eastern part of the ANS and covers c.100km<sup>2</sup> of a major regional fault zone hosting over 40 gold occurrences and historic mine sites. The license has been secured in July 2012 that has been replaced with an application for a

mining licence. The team released maiden JORC-compliant resource in May/13 (313koz at 0.94g/t, all Inferred) and following a number of exploration programmes managed to more than double number of ounces as well as increase the confidence level in the mineral resource by May/15 (733koz at 0.80g/t, 68% in Indicated and 32% in Inferred categories, respectively; see graph below). The license area is free from local settlements allowing the Company to avoid any potential relocation. Drilling completed to date identified gold resources in seven areas including (starting from largest in ounces terms) West, SC, 3K, main, 4K, Red Hill and Pyrite Hill.

**Evolution of Jibal Qutman resources >+130% since maiden report released in May/13 (all JORC-compliant)**



**Breakdown between oxide (suitable for heap leaching) and sulphide (CIL-processed) ounces in the latest mineral resource**



Source: Company

### Status

G&M completed a PFS in March 14 looking at a standard CIL process with little information disclosed publicly at the time apart from brief production and cost highlights including 1mtpa throughput, 1.1g/t grade, 9y LoM, \$700/oz C1 (no information on capex). In May/15, the Company released results from the internal PEA on oxide part of the deposit aimed at starting off production at Jibal Qutman with low capex heap leaching operation generating cash to fund a CIL plant for deeper primary ores (more metallurgical work will need to be completed on sulphides as the material is believed to be refractory) as well as provide capital for further exploration works in the region. Based on PEA operational parameters the project is estimated to generate NPV10%(post-tax) of \$34m and 45% IRR using long term \$1,350/oz price.

### Jibal Qutman HL potential (100% based)

MI Resource (oxide only)		8.3mt at 0.86g/t for 229koz
Pit optimisation inventory		6.6mt at 0.95g/t for 202koz
W:O ratio	x	2.18
Throughput	ktpa	1,500
LoM	years	4.5
Grade	g/t	0.95
Recoveries	%	69
Production	kozpa	31
C1	\$/oz	597
AISC	\$/oz	650
Capex (development)	\$m	30
Gold price assumption	\$/oz	1,350
EBITDApa (full capacity)	\$m	21
NPV10% (post tax)	\$m	34
IRR (post tax)	%	45%
KEFI NPV contribution (50% risked, 40% interest)	\$m	7
	GBp	0.8

Source: PEA May/15, SP Angel

KEFI equity investment IRR may be further improved as \$30m capex may potentially be reduced to \$3m KEFI capital contribution after accounting for 40% interest in the JV combined with the potential for development loans for up to 75% of development capex.

**Plans**

Complete higher confidence studies (PFS/FS) accumulating more data on metallurgy, geotechnics and hydrology as part of the project development evaluation. The team is also looking to continue with exploration works extending the life of mine through new discoveries of at-surface oxides.

**Infrastructure**

The project is located 40km away from the dual asphalt highway and 90km away from the nearest town of Bisha (c.200k population). Absence of grid power supply is compensated by one of the world's lowest diesel prices (13USc as of Feb/19) allowing to cheaply run on-site power generators once development and construction works start. Among challenges of operating in the region are scarcity of fresh and process water as well as skilled labour.

**Fiscal regime**

The oil rich nation is keen to diversify the economy away from production of hydrocarbons aiming to attract foreign investment and expertise in developing local mining industry. The state levies 0% royalties on mineral extraction and a flat rate 20% corporation tax, under the Mining Code and the Mining Regulations of 2004. Among other benefits operating in the region are no restrictions on repatriation of capital, accelerated depreciation and exemption from duties on mining related imports.

## Mineral reserves and resources

### Tulu Kapi

The latest JORC-compliant mineral resource stands at 20.2mt at 2.65g/t for 1.7moz with 94% of contained gold recorded in the Indicated category reflecting a significant amount of drilling completed at Tulu Kapi (722 drill holes and trenches for c.120km of which around 60% are diamond drill holes). The resource is split into two domains – ‘above 1,400 RL’ representing open pit share of the resource (surface average elevation is 1,750 RL) with a 0.45g/t cutoff grade (COG) accounting for 19mt at 2.46g/t for 1.5moz in total resource, and ‘below 1,400 RL’ at 2.35g/t COG representing underground mining potential for 1.2mt at 5.69g/t for 0.2moz. Mineral reserves amount to 15.4mt at 2.13g/t for 1.1moz (0.5g/t COG, \$1,250/oz) with all ounces contained in the Probable category reflecting complexity of the deposit. Both reports were prepared by Snowden and are accurate as of Feb/15 and Apr/15, respectively.

Asset	Status	Ownership	Ore, mt	Au, g/t	Au, koz	Att Au, koz
Tulu Kapi	Development	45%				
Reserves (all OP)						
Proven			-	-	-	-
Probable			15.4	2.1	1,051	473
Resources						
<u>Above 1,400 RL (OP)</u>						
Measured			-	-	-	-
Indicated			17.7	2.49	1,417	638
Inferred			1.3	2.05	86	39
<u>Below 1,400 RL (UG)</u>						
Measured			-	-	-	-
Indicated			1.1	5.63	199	90
Inferred			0.1	6.25	20	9
Total						
Measured			-	-	-	-
Indicated			18.8	2.67	1,615	727
Inferred			1.4	2.33	105	48
Total Resource			20.2	2.65	1720	775

Source: Snowden (2015)

### Jibal Qutman

The latest JORC-compliant mineral resource amounts to 28.4mt at 0.80g/t for 0.7moz (COG 0.2g/t) with 60% of contained gold in the Indicated category. The resource is split into oxide (11.1mt at 0.80g/t for 287koz) and sulphide domains (17.3mt at 0.80g/t for 446koz) that are likely to involve different processing routes with the oxide share considered for a potential heap leach operation. The estimate has been prepared by KEFI in April 2015.

Asset	Status	Ownership	Ore, mt	Au, g/t	Au, koz	Att Au, koz
Jibal Qutman	Exploration	40%				
Reserves (all OP)						
Proven			-	-	-	-
Probable			-	-	-	-
Resources						
<u>Oxide</u>						
Measured			-	-	-	-
Indicated			8.3	0.86	229	92
Inferred			2.8	0.64	58	23
<u>Sulphide</u>						
Measured			-	-	-	-
Indicated			9.7	0.86	269	108
Inferred			7.6	0.72	176	70
Total						
Measured			-	-	-	-
Indicated			18	0.86	498	199
Inferred			10.4	0.70	234	94
Total Resource			28.4	0.80	732	293

Source: KEFI (2015)

## Board and senior management

### Board of Directors

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 qualified as a Chartered Accountant while working with PricewaterhouseCoopers and has a Master of Business Administration from the Australian Graduate School of Management.
John Leach	Executive Director/CFO	John Leach has over 25 years' experience in senior executive positions in the mining industry. 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. He has been actively involved with development of the mining industry in Ethiopia for the last several years
Mark Tyler	Non-Executive Director	Mark Tyler was previously a mining investment banker in London and South Africa, including as co-head of Mining and Resources Finance at Nedbank, a South African bank. He is currently a senior resources advisor to Exotix Capital and the London representative for Auramet International, a precious metal merchant financier.

### Senior Management

Wayne Nicoletto	MD Ethiopia	Wayne has approximately 30 years' experience in the mining industry as a Metallurgist and a General Manager, specialising in start-up and operation of gold mines in Africa, Central Asia and Australia. Held roles included General Manager and Country Head of the Edikan Mine in Ghana and SMD in Guinea as well as Vice President of Operations of Boroo Gold Mine in Mongolia. He has a BSc in extractive metallurgy, a graduate diploma in mining from the West Australian School of Mines in Kalgoorlie.
David Munro	Head of Operations	David began his career as a mining engineer in underground mining and progressed to manage all parts of the minerals value chain. As Managing Director of Billiton BV, this business grew into one of the world's largest and lowest cost integrated producers of primary aluminium. After the merger of Billiton and BHP he was appointed President of Strategy/Development. As CEO of RMC Group plc David was responsible for a turnaround of the Company and its subsequent sale. He previously acted as Director for Kazakhmys.
Dr Kebede Belete	Country Manager	Dr. Kebede Belete is a geologist with more than 25 years of experience. He has worked on exploration projects for the Ethiopian Ministry of Mines, Golden Prospect Mining Company, Minerva Resources and Nyota Minerals as Exploration Manager and Country Manager. Kebede has been involved with the Tulu Kapi project for more than 10 years.
Norman Green	Development	Norman is a graduate mechanical engineer with the key experience of having managed large mining and refining construction projects from concept to completion with more than 30 years' experience in the field. Major projects include Hillside Aluminium smelter, the Skorpion Zinc project and the Husab Uranium mine, as well as a number of pure deep level underground mines. He founded Green Team International (GTI), a successful project engineering firm, that provided/supported construction of major gold, uranium, copper, nickel, iron ore and platinum projects in Namibia, South Africa, DRC, Peru and Madagascar.

### Members of and advisors to the TKGM Board

Ato Hailemeleket Teklegeorgis – former Federal Minister of Finance/Economic Cooperation, current chairman of a major local bank.

Ato Wondwossen Zeleke – a long-standing natural resources senior executive both in Ethiopia and internationally.

Ato Zafu Eyessuswork Zafu – former chairman of Ethiopian Chamber of Commerce, current chairman of a major local bank and insurance group.

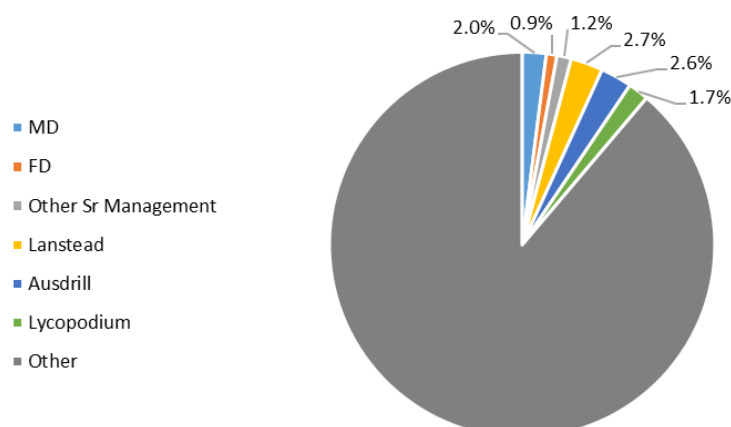
Major General Alemshet Degife – former head of the Ethiopian Air Force.

Source: Company

## Shareholders

The Company had 644m shares on issue following the completed placing in February and drawing on the Sanderson facility in April this year. Additionally, KEFI had some 34m warrants and options outstanding (28m of options have exercise price of 9p), according to AR18. Most of shareholdings would be categorized as free float with senior management owning just under 5% (MD 2.0%, FD 0.9% and Others 1.2%). Project partners like Ausdrill and Lycopodium hold further c.4% combined. Sanderson Capital Partners may become a substantial shareholder should KEFI opt to further drawdown on the existing convertible loan note (see below).

### Major shareholders (Feb/19)



Source: Company

## Balance sheet

The Company had £0.1m in cash and no debt as of FY18 according to the last reported set of accounts. In November, KEFI secured a convertible loan facility from Sanderson Capital Partners for a total of £4m proceeds structured to be drawn down in three tranches (£2m, £1m and £1m, see details below). The Company drew on £0.9m in April following an equity raise of c.£1.0m (57m shares at 1.7p) in February this year. These funds together with potential future drawdowns allow the team to continue with preparatory works for the start of the relocation programme and eventual onset of construction works (KEFI annual cash burn rate is estimated at \$2m plus exploration, once TKGM is self-sufficient).

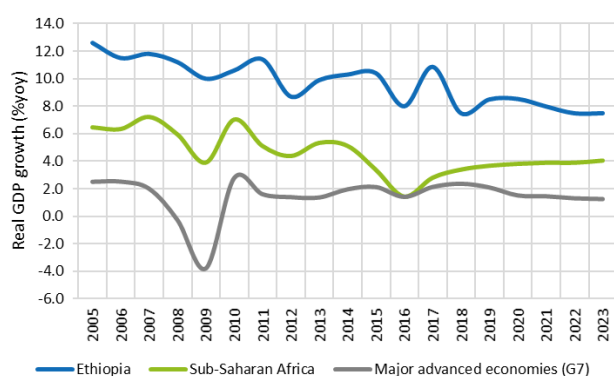
### Sanderson secured convertible note

Amount	£4m in three tranches: £2m, £1m and £1m
Drawdown	Funds drawn down over 12 months period with an option to extend by 6 months (subject to agreement with Sanderson) First Facility: 4x£450k, 1x£200k; drawdowns are at least 30days apart; subject to no material changes in economic/political conditions Second Facility: 3x£450k, 1x£100k; at least 15days since last drawdown under First Facility; 30 days drawdowns under Second Facility Third Facility: 1x£1m (subject to agreement with Sanderson); at least 30 days since last drawdown under the Second Facility
Term	Single repayment 12 months from the draw down date with an option to extend by 6 months (subject to agreement with Sanderson)
Early repayment penalty	None
Conversions rights	Lender at any time has an option to convert any outstanding amount into new ordinary shares at 2p; if KEFI makes a repayment then Sanderson will have an option to convert half of any repayment at 2p
Interest Rate	None
Fees	First Facility: £150k commitment fee (7.5% on £2m), £80k voluntary prepayment fee (2% on £4m), £100k option fee (5% on £2m), 5% on each drawdown or £100k for First Facility (max 21.5m new shares in total) Second Facility: £150k commitment fee (7.5% on £2m), £100k arrangement fee (5% on £2m), 5% on each drawdown or £50k for Second Facility (max 15.0m new shares in total) Third Facility: 5% drawdown fee or £50k (max 2.5m new share in total) Other: £50k in legal fees and due diligence costs (2.5m news shares)
Security	KEFI interest in Kefi Minerals (Ethiopia), a holder of 45% interest in TKGM (once ANS exercises its investment in KME and TKGM)
Use of Funds	Working capital and Tulu Kapi funding and development related expenses

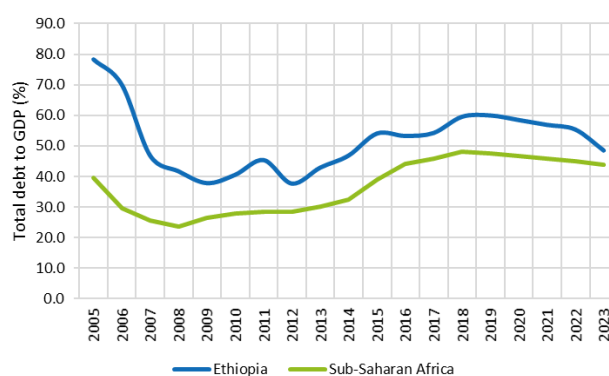
## Ethiopia – New administration raise hopes for a change

**Ethiopia**, located in the north eastern part of Africa, commonly known as the Horn of Africa, and landlocked between Eritrea, Djibouti, Somalia, Sudan, South Sudan and Kenya, is **the second most populous<sup>2</sup> nation and the fastest growing since the turn of the century economy in the Sub-Saharan region (SSA)**. GDP per capita nearly tripled during the 2000-2016 period amounting to 6.6% CAGR and compared to 2.4% recorded for the SSA group of countries (IMF data) while total GDP expanded from \$8bn to \$80bn surpassing Kenya as the largest in east Africa. Most of the economic growth is reported to have come from previous administration investment in infrastructure such as roads, industrial parks, power projects as well as agriculture, health and education which in turn was largely funded with borrowings from abroad including the nation's principal backer, China. Foreign direct investments (FDIs) increased 5x to \$4.2bn during the 2008 and 2017 period while foreign currency denominated debt currently accounts for more than half of c.55% of GDP as of 2017. However, strong reliance on foreign loans combined with weakening exports led to foreign currency shortages and raised questions over the sustainability of the growth model. New administration recognises challenges and is looking at ways to reduce reliance on government led investments and improve private sector competitiveness developing export-oriented industries.

Real GDP changes including IMF (forecasts from 2018 onwards)



Debt levels (IMF forecasts from 2017 onwards)



Source: IMF

**Political system** in Ethiopia is described as a federal parliamentary republic with the Prime Minister nominated by the Parliament who forms the government. While opposition parties are allowed, Ethiopia remains largely a one-party dominant state with the Ethiopian People's Revolutionary Democratic Front (EPRDF), a coalition between four regional political parties, remaining in power after toppling the Derg (1991), supporters of the Marxist-Leninist ideology that established an authoritarian regime with mass repressions and collectivism which ultimately led to nationwide starvation in mid 1980s. The 547 members lower chamber of the Ethiopian Federal Parliamentary Assembly is elected for a five-year term with the latest general vote in May 2015 having sparked a series of protests and clashes with authorities amid allegations of rigged elections as the EPRDF secured 95% of the vote and every seat in parliament (v 327 and 499 seats won in 2005 and 2010).

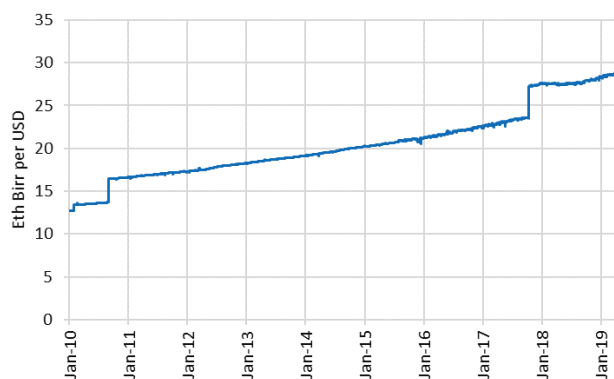
**State of emergency** has been enacted twice during the 2016-18 period (last one lifted in Jun/18) followed by massive protests by the Oromo and Amhara ethnic groups against the government who argued they have been underrepresented among lawmakers and the government which has long been controlled by Tigrayans making up only 6% of the population (v 34% for Oromo and 27% for Amhara). In early 2018, PM Hailemariam Desalegn unexpectedly resigned after five years in power and in an effort to arrest street

<sup>2</sup> 91m population as of 2016, second to Nigeria with 184m

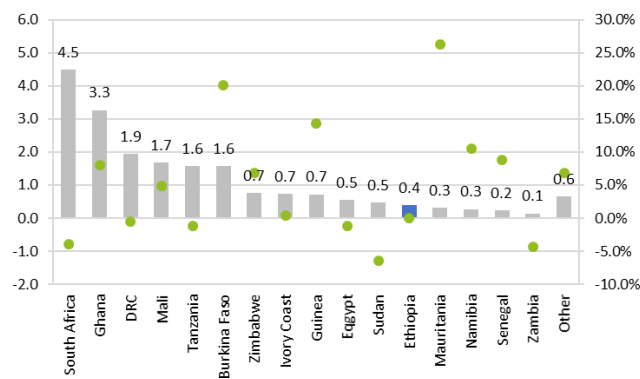
violence the EPRDF named Abiy Ahmed, a 42-old reformist, as its chairman and prime minister, the first from Oromia in the nation's history. The former army intelligence officer and software engineer, Mr Abiy is hoped to deliver on liberalising the economy and attracting foreign capital to sustain rapid economic growth rates. Mr Abiy signed a peace deal with Eritrea following a more than 20 year long. The administration has announced privatisation programme for the telecoms sector that may potentially involve other industries as well including energy, shipping, sugar refineries, airlines and banking. New PM understands challenges arguing that lack of opportunities in the economy where population is young and some 2.5m Ethiopians are born each year can quickly catalyse unrest. **Risk of ethnic based conflicts is running high** as well with more than 80 groups present in the country with separate reports showing larger groups are conducting pogroms to drive smaller ones out and some 1.4m people said to have been forced out of their homes in H1/18 (Economist).

In practice, the Ethiopian Birr is a **managed floating currency with a crawl peg to the US\$** (see graph) and occasional major interventions by the central bank. The last major one was recorded in October 2017 when the Birr dropped by 15% and the central bank adopted a restrictive monetary policy to ease the current account deficit that run at high 8.2% of GDP in 2017 and FX reserves stood at two months of imports in June 2017 (<3m is typically a cause for concern). The currency lost 5% since then and is currently trading around 28.6 to a US\$, a welcome depreciation for an FX earning gold producer like KEFI. On the less positive side, **capital controls** exercised by the central bank, National Bank of Ethiopia (NBE), currently delays foreign currency repatriation with alleged 6-7 months wait<sup>3</sup> for the NBE approval and US\$ changing hands in the black market at 35% premium to the official Birr rate.

Ethiopian birr per US\$



Gold production in absolute terms and yoy% change



Source: Bloomberg, GFMS

On the nation's **fiscal regime**, Ethiopia is currently (Mar/19) finalising reforms for the underdeveloped mining and oil sectors within the next two months aiming to attract more foreign investors. Previously, the government cut the corporate tax rate for miners to 25% from 35% (two years ago) and recently reduced the precious metals royalty rate to 7%, from 8%. The government takes 5% free carry in projects.

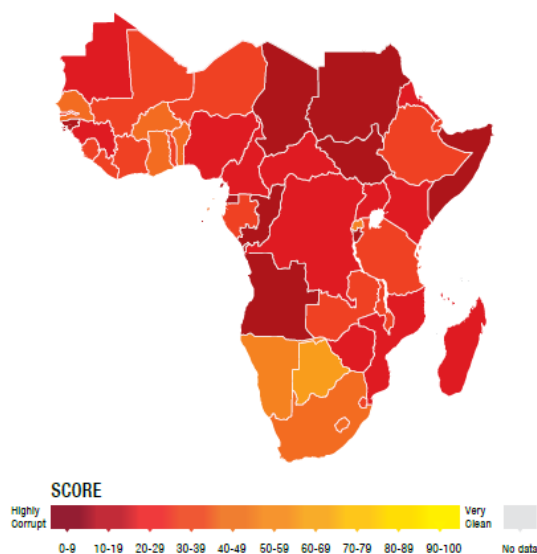
**Corruption** wise, Ethiopia is slightly better than a typical SSA nation ranking #19 of 49 countries in the regional sample ranging from Botswana at the top of the list to Somalia at the lower end. Globally, Ethiopia appears in the middle of the second bottom quartile at #115 of 180 total next to Ecuador and Niger in 2018, down from #107 in 2017, according to the Transparency International data. **Investment attractiveness** wise, Fraser Institute rates

<sup>3</sup> [http://www.sofalapartners.com/wp-content/uploads/2018/06/Ethiopia-Forex-Crisis\\_May-2018.pdf](http://www.sofalapartners.com/wp-content/uploads/2018/06/Ethiopia-Forex-Crisis_May-2018.pdf)

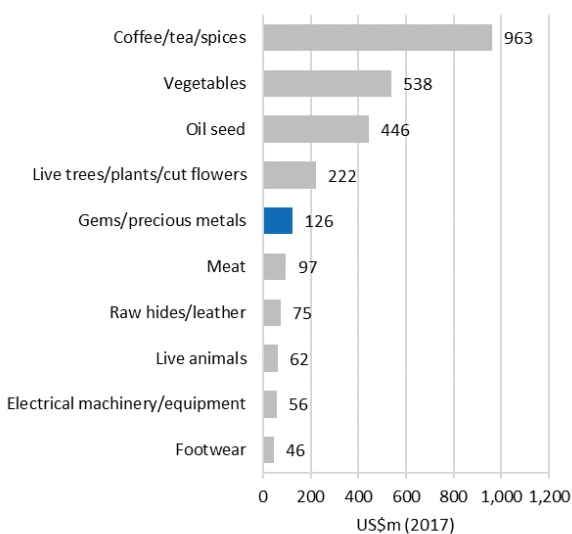
Ethiopia low – #77/83 and at the bottom of the African subgroup next to Ghana and the DRC as of 2018 which is likely to improve now that state of emergency is lifted, and the government is considering an extensive privatisation programme.

**Mining industry** contribution to the national GDP is tiny (0.5% in 2015); although, Ethiopia is reported to have supplied around 5% of global supply of pumice, according to the USGS. Gemstones and precious metals exports accounted for \$126m or less than 5% of the nation's exports coming in the fifth place after coffee/tea/spices (34%), vegetables (19%), oilseeds (16%) and live trees/plants/flowers (8%). Gold hard rock mining is almost non-existent in the country with c.80% of 0.4moz produced in 2017 coming from artisanal miners.

#### Transparency International corruption index for Africa in 2018



#### Gems and gold exports account for less than 5% of Ethiopia exports



Source: Transparency International, WTE

With regards to **infrastructure**, Ethiopia is quite unique in the sense that nearly 100% of generated **power** comes from renewable sources such as water (90%), wind (8%) and geothermal with some 4.5GW in installed generation capacity. The latter is set to increase significantly with the controversial GERD<sup>4</sup> dam (6.5GW capacity) being completed. Nevertheless, power penetration rates remain low with around 70% of the population living without electricity (only a quarter of primary schools and less than a third of health clinics have access to power). Given low local demand (2.5GW peak consumption), Ethiopia is a net exporter of power to neighbouring Sudan, Djibouti and Kenya with additional connections to Sudan, Egypt and Tanzania being considered. Cost wise, the nation's power tariffs are one of the lowest in Africa at just under 2USc per KWh fixed by the government since 2005. This compares to 17USc in neighbouring Kenya. This is expected to change as the government is focused on privatisation of generation capacities as well as bringing tariffs up to help with high debt levels at the national Ethiopia Electric Power utility.

Total **road network** is estimated at just north of 120,000km of all-weather roads, more than most of African countries but only around 32% of the required network in the country. The country invests heavily in road infrastructure with \$1.24bn put in road construction in 2017/18 with another \$1.5bn planned for 10,000km in 2018/19. As a landlocked country, Ethiopia primarily uses the port of Djibouti as a gateway for most of its international trade

<sup>4</sup> The Grand Ethiopian Renaissance Dam reservoir has been 60% complete as of August 2017 which once constructed will take from 5 to 15 years to fill with water. The contentious project has attracted attention of Egypt and Sudan arguing their water rights are being violated by Ethiopia's upstream dams.

(90-95%) with most of goods transported using trucks making logistics expensive. Although, Ethiopia has recently completed a \$3.4bn 656km railway link between the capital city of Addis Ababa to the port of Djibouti expected to reduce costs and delivery times. A peace agreement signed with Eritrea in Jul/18 brings an opportunity to gain access to two Eritrean ports, Massawa and Assab, as well.

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MiFID II - Based on our analysis we have concluded that this note may be received free of charge by any person subject to the new MiFID II rules on research unbundling pursuant to the exemptions within Article 12(3) of the MiFID II Delegated Directive and FCA COBS Rule 2.3A.19.

A full analysis is available on our website here <http://www.spangel.co.uk/legal-and-regulatory-notice.html>. If you have any queries, feel free to contact our Compliance Officer, Tim Jenkins ([tim.jenkins@spangel.co.uk](mailto:tim.jenkins@spangel.co.uk)).

SPA research ratings – Based on a time horizon of 12 months: Buy = Expected return of more than 15%, Hold = Expected return between -15% and +15%, Sell = Expected return of less than 15%

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