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KEFI Gold and Copper, KEFI.L

The brakes are off

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Executive summary

KEFI Gold and Copper (KEFI) is exploring and developing mining assets in Ethiopia and Saudi Arabia, part of the vast and highly prospective Arabian-Nubian Shield. KEFI's most advanced project is Tulu Kapi in Ethiopia which has planned production of 190,000 oz gold pa, and in which the company is expected to own a 70% stake after financing. KEFI also owns 30% stakes in the Hawiah VMS project, and the Jibal Qutman gold project, both in Saudi Arabia, through its joint venture Gold and Minerals, which it operates. The company has a large database and has assembled large exploration areas in both Ethiopia and Saudi Arabia over the past 14 years.

KEFI looks incredibly undervalued: Valuing Tulu Kapi as a development stage asset at US$1,000/oz of attributable planned production, and Hawiah and Jibal Qutman on attributable resources at US$60/oz gold or gold-equivalent (AuEq), both in line with peers, suggests **a current valuation for KEFI of 4.8p/share. This is 6x the current share price.**

As companies enter production, the risks associated with project development dissipate, cash flow becomes positive, and companies tend to get re-rated. Portfolios of gold producers tend to trade around US$3,000/oz of production, about 3x the level of project developers. **By mid-2025, all three of KEFI's current projects are expected to be in production.** Tulu Kapi is expected to start-up in mid-2024, followed by Hawiah and Jibal Qutman in 2025. Allowing for some resource growth in the Saudi Arabian projects, valuing anticipated production in line with peers, and accounting for the expected share dilution from the various Tulu Kapi funding instruments **could underpin a valuation three years now of 8.8p/share.** This is 11x the current share price. It implies an average return of 123% pa over the next three years. These valuations may look high in the context of KEFI's current (unjustifiably cheap) share price, yet they are based on various feasibility studies and mine planning, and typical market valuations of African gold companies.

Further valuation upside could be driven by expanding the underground resource at Tulu Kapi, further expanding Hawiah and Al Godeyer (VMS deposits tend to occur in clusters), and additional projects such as developing satellite deposits in the vicinity of Hawiah or Tulu Kapi. Gold and Minerals has also applied for 19 exploration licence areas covering three new projects in Saudi Arabia.

KEFI has an estimated NPV of 12.9p/share, based on the attributable values of the three projects, and a gold price of US$1,830/oz. A portfolio of six other companies with gold development projects in Africa, and with similar gold price assumptions, currently trades at 43% of NPV. Valuing KEFI in line with peers would suggest a valuation of 5.5p/share. **The market is currently KEFI at just 6% of NPV. On this basis, KEFI is arguably one of the most undervalued gold developers, anywhere.**

Tulu Kapi on the verge of development: In February, KEFI reported that the state of emergency in Ethiopia had been lifted and that it would restart project development activities that had been suspended since 2021. The finance syndicate is 'on standby' awaiting completion by the Ethiopian government of administration tasks before document signing. Management hopes to formally launch the project by mid-2022. Tulu Kapi is expected to come on stream in 2024.

At US$1,830/oz gold, the open pit mine would generate expected annual EBITDA of US$131m pa, and a margin over all-in sustaining costs (AISC) of US$916/oz. The

underground mine is expected to come on stream in year 3 of the open pit operation, and to generate annual EBITDA of an additional US$58m at a margin over AISC of US$1,021/oz. These figures are likely to turn out to be conservative. Management believes there is potential to triple the size of the underground resource of 330,000 oz gold at 6.26 g/t (PEA, 2016). The resource is open down plunge to the north; the northern most drill hole included in resources, TKBH_293, returned 90m at 2.8 g/t gold. Expanding the underground resource would increase the blended grade being processed, leading to greater output, lower unit costs, greater profitability, and a longer mine life.

Expert funding consortium: It is unusual for a company the size of KEFI to assembly a funding consortium of such expertise. The consortium reflects a deliberate effort to bed down with groups with large scale and deep experience in Africa, and includes the Ethiopian division of a global industrial company, and a leading global commodities trader with mining investments in Africa. The Government of Ethiopia, which is supplying key infrastructure, will own ~20% of the project. Other local investors are expected to lift the Ethiopian holding to 30%. Two large African banks are the planned Senior Lenders; East African Trade and Development Bank and African Finance Corporation. Mining investment specialist RAB Capital owns 8% of the London-listed parent, KEFI. The management team owns 12%. The financing means that KEFI is now expected to own 70% of Tulu Kapi, up from 45% expected previously.

Ethiopian exploration area highly prospective: The areas being negotiated by KEFI host two NNE-trending structures, parallel to the Tulu Kapi trend. Management's target is to identify some 300,000 oz to 500,000 oz of oxide material grading 1.5 g/t gold or better from within the areas reserved that could either supplement ore feed to the plant at Tulu Kapi, or be developed as separate heap leach operations. **This could enable production of an initial 50,000 oz pa that would benefit from low strip ratios, low costs, and high gold recoveries.** Whilst indicative of the potential, this is not factored into the current or 3-year valuations.

Hawiah is already a significant VMS deposit: This initial discovery ranks as one of the three largest base metals projects in Saudi Arabia, is in the top 15% by tonnage of VMS deposits globally, and is already larger than Tulu Kapi in terms of contained metal value, despite only having been discovered recently. The project already boasts a post-tax NPV_8 of US$578m at US$1,830/oz gold. The award of the Al Godeyer licences is an important step in management's plans to develop the wider area; **Al Godeyer is the first satellite deposit around Hawiah to be explored** by Gold and Minerals. In 2022, the plan is to conduct infill drilling at Hawiah to upgrade and expand the existing copper-gold-zinc-silver resource and to identify near-surface mineralisation at Al Godeyer for inclusion in the early stages of a mine plan. There remains tremendous exploration potential. **An upgraded resource, and a preliminary feasibility study (PFS) are expected by 4Q22.** Project development could start in 2024, with initial gold production commencing as soon as 2025.

Jibal Qutman reawakens: After being on hold while Saudi Arabia introduced its new mining law, Gold and Minerals believes the path forward for the grant of the mining licence will be clarified in the near future, and is now preparing to trigger development. Assuming the mining licence is awarded in 2022, and that development studies can be completed in 2023, initial production should be achieved by 2025. The current project is based on targeting predominantly the oxide resources, which comprise less than one-third of the total resource, with a low capex, low operating cost, heap leach operation over 7 years. This is expected to generate life-of-project EBITDA of US$276m at US$1,830/oz gold, sufficient to fund a larger operation depending upon further exploration success.

Saudi Arabia funding: Saudi Arabia is keen to develop its rich mineral endowment, to boost local employment and to help steer the economy away from its reliance on oil. In 2019, the Saudi Industrial Development Fund (SIDF) said it would provide loans for up to 75% of mining project costs, including for resource delineation. Given KEFI's 30% stake in Gold and Minerals, KEFI's equity stake in project capex could be as little as 7.5%.

Strong partner in Saudi Arabia: KEFI has been operating in Saudi Arabia since 2008. It's JV partner is Abdul Rahman Saad Al Rashid and Sons Company Limited ("ARTAR"), a leading industrial group. ARTAR's principal activities are in construction, real-estate, agriculture and health care.

With tremendous geological potential: The Arabian-Nubian Shield hosts the largest known Neoproterozoic gold resource on Earth. The combination of the subduction-related origin of the Shield, widespread shearing, and metamorphism associated with late Neoproterozoic orogeny are highly favourable for the development of a variety of gold deposit types. Yet, despite this favourable geological setting, and its rich history, the region remains relatively unexplored in modern times. As a result, opportunities abound. Tulu Kapi will be the first modern gold mine in Ethiopia. In Saudi Arabia, Ma'aden has discovered some 8 moz gold in the Central Arabian Gold region in the past 20 years. The Wadi Bidah Mineral District, which hosts the Hawiah deposit, is probably the only VMS belt in the world that outcrops as much, remains as underexplored, and is as highly prospective. **KEFI has a phenomenal opportunity to explore and ultimately, to exploit, these resources.**

Strong management team: KEFI has assembled a first-class operational leadership team with vast experience in mining, mine planning, finance, strategy and development. Mr Eddy Solbrandt is Chief Operating Officer. He has built a successful global consultancy focused on systems and people in mining, including for companies such as Anglo Gold. He now oversees Ethiopia as the focus shifts to development and where the headcount is expected to grow from 50 to 1,000. Mr Brian Hosking, Managing Director Saudi Arabia, is a geologist by training and an organisation builder in the mining sector over the past decades. Brian is leading the transformation of the Gold and Minerals JV from an exploration team into a broad-based organisation preparing to develop its first two mines. Mr Norman Green will oversee project construction. He has managed large mining and refining construction projects from concept to completion for more than 30 years and has experience across Africa and was the founder and leader of Green Team International.

Share price catalysts: A number of factors are expected to drive KEFI's share price over the next year or so including financial close and start of construction at Tulu Kapi, results from diamond drilling at the Tulu Kapi underground, further upgrades to the resource at Hawiah, results from initial drilling at Al Godeyer, the release of the Hawiah PFS later this year, award of the mining licence for Jibal Qutman, and news regarding additional projects applied for by Gold and Minerals.

The simple fact is that KEFI shares got hammered through the past few years of setbacks and delays in both countries, and especially in 2021 with the situation in Ethiopia. With the Ethiopian state of emergency now lifted, the finance consortium successfully preserved, construction preparation activities underway, and with the projects in Saudi Arabia now progressing rapidly, KEFI shares look incredibly cheap. That's an opportunity for investors.

Simon Francis April 2022

Key financial data

Figure 1: Shareholding structure

LSE code		KEFI.L
Share price, 30 March 2022	pence/share	0.795
Shares on issue	Millions	2,939
Options and warrants	Millions	582
Fully diluted shares	Millions	3,521
Market capitalisation.	£ millions	23.4
Net cash, estimated	£ millions	1.0
Enterprise value	£ millions	22.4

Source: KEFI

Key Management:

Harry Anagnostaras-Adams, Executive Chairman, B. Comm, MBA: Mr Anagnostaras-Adams was founder or co-founder of Citicorp Capital Investors Australia, investment company Pilatus Capital, Australian Gold Council, EMED Mining, KEFI Gold and Copper and Cyprus-based Semarang Enterprises. He has overseen a number of start-ups principally through the roles of Chairman, Deputy Chairman or Managing Director. He is a qualified Chartered Accountant and a Fellow of Australian Institutes of Management & Company Directors.

John Leach, Finance Director, BA Ec, MBA, CA (Aust & Canada): Mr Leach has over 25 years' experience in senior executive positions in the mining industry internationally and is a former non-executive Chairman of Australian-listed Pancontinental Oil and Gas NL. He is a Chartered Accountant in Australia and Canada, and is a Fellow of the Australian Institute of Directors.

Eddy Solbrandt, Chief Operating Officer, Ethiopia, People & Systems: Mr Solbrandt began his career in the mining industry in 1986 and has since worked in open cut and underground metalliferous mines, as well as in coal, gold and mineral sands in Australia, New Zealand, USA, Canada, Mexico, UK, Ukraine, Russia, Kazakhstan, Indonesia, Thailand, South Africa, Mozambique and Namibia. He is founder of GPR Dehler, an international management consultancy which specialises in productivity improvement for mining companies worldwide, especially in the areas of human resources development and performance improvement. Mr Solbrandt is adept at providing swift assessment, analysis and development of solutions and strategies for achieving strategic, operational and financial objectives integrating process, people and technology. He is a seasoned facilitator experienced in designing and conducting strategy workshops.

Brian Hosking, Saudi Arabia, Planning & Exploration: Mr Hosking began his career in geology and technical planning in a variety of mining operations. In 1990, he set up his own human resource consulting firm, then led its growth and integration into Transearch, a large global search firm. In 1999, he was elected to serve on the Transearch Board as Executive Director and COO. In 2003 Brian set up Meyer Hosking and focused on the mining sector developing this niche in London providing strategic services including remuneration advice, management assessment and executive search to a wide range of clients. Brian has established a strong international reputation as a consultant with an in-depth knowledge of the industry. In this capacity, he was regularly retained as a strategic advisor to executive management teams and boards in mining industry.

Norman Green, Development: Norman is a graduate mechanical and professional 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 this field. Major projects such as the Hillside Aluminium smelter, the Skorpion Zinc project, and the Husab Uranium mine are included in his handiwork, as well as a number of pure deep level underground mines.

He founded and built Green Team International (GTI) into a successful project engineering firm providing or supporting construction implementation and other engineering support to mainly African mines. Projects studied or handled by GTI as the Project Implementation Team or "Owner's Team" included major gold, uranium, copper, nickel, iron ore and platinum projects in Namibia, South Africa, DRC, Peru and Madagascar. Norman now conducts projects of special interest with his long-standing associates.

Theron Brand, Managing Director, TKGM: A Namibian national with a career in African mining including 20 years as Financial and Personnel Manager at Navachab Gold Mine, Namibia and Chief Mine Administrator Northern Areas, Namdeb Diamond Corporation

Abera Mamo, Country Manager, TKGM: An Ethiopian national with a career in senior management in the Ethiopian private and public sectors including as CEO at manufacturing company Techno Style plc, General Manager at Sher, Africa's largest flower farm, and as Deputy CEO at Ethiopian Sugar Corp. He was also Deputy Head of the Oromia State President's Office.

Figure 2: KEFI Gold and Copper share price chart

Source: LSE

Three projects, all systems go

- Construction preparation activities have restarted in Ethiopia; management is targeting Tulu Kapi financial close in mid-2022
- Activity in Saudi Arabia is accelerating as the government looks to diversify the economy; Gold and Minerals has applied for a number of new projects
- KEFI now has interests in three development projects, all of which are expected to come on stream in 2024-2026.

Tulu Kapi, Ethiopia

In February, KEFI reported that the state of emergency in Ethiopia had been lifted and that it would restart project development activities that had been suspended since 2021. This includes the preparation of lands to host resettled people and construction personnel accommodation facilities. KEFI expects to build a workforce of about 1,000 over the next 18 months. An independent assessment of the security of the project site, the wider district, and proposed transportation routes has started to be carried.

Project launch now hinges on completing administrative tasks with the Ethiopian government including Government endorsement of the historical spend on the project; agreement between the Government and senior lenders as to security over the Tulu Kapi Mining Licence; Government confirmation as to which areas KEFI's 100% held subsidiary, KEFI Minerals (Ethiopia), can conduct exploration activities; and for the Government to confirm that both development banks can operate in Ethiopia as senior lenders with the same terms. According to management, the finance syndicate is 'on standby' for final approvals and document signing, awaiting security and Government clearances. Subject to final pricing and execution, the capital requirements have been catered for within the syndicate.

Management hopes to formally launch the project by mid-2022. Construction and commissioning are expected to take 24 months. The open-pit operation is expected to reach full production from mid-2024.

Figure 3: Tulu Kapi expected financing

Source of funds	US$ m	Comments
Mining contractors	56	Provided by Corica, a leading African mine services company
Debt and offtake finance	200	Includes US$140m of senior debt and US$60m of offtake linked financing
Local partners investments	38	Investments into KEFI's 70% held subsidiary Tulu Kapi Gold Mines
Convertible instruments	40	Convertible into KEFI shares, half at a premium to market price after financial close, and half at the market price three years from financial close
Warrants conversion	8	393.1m warrants issued Dec 2021, converting at 1.6p/share, £6.3m proceeds
Pre-production cash flow	9	Cash flow generated pre-commercial production
Other investors	5	
Total capex requirement	**356**	

Source: KEFI

The decline for the underground mine is expected to start 6 months after the open-pit operation commences, scheduled to be in early-2025. Initial contribution from the underground mine could start in late-2025. Some of the material removed during the construction of the decline is likely to be ore that can blended with material from the open-pit.

Figure 4: KEFI projects in Ethiopia and Saudi Arabia

Country, project	NPV, £m	Comments
Ethiopia		
Tulu Kapi	219	Attributable to KEFI (70%) and based on US$1,830/oz
		Reserves of 1.06 moz at 3.25 g/t gold are based on US$1,098/oz suggesting scope to bring additional material into reserves
		Resources of 1.72 moz at 2.65 g/t gold; the underground portion only includes mineralisation directly below the open-pit
		Updated DFS completed in 2017 and Mine Plans in 2018 and 2020
		Financing consortium assembled; financial close expected mid-2022
		Construction scheduled to commence mid-2022 & first production in mid-2024
Tulu Kapi proximal areas		Exploration licence applications covering some 1,120 km^2 the priorities within which are being reviewed
		Reconnaissance exploration has demonstrated the potential to develop a number of open pits that would be amenable to heap leaching; management is targeting resources of 300,000 to 500,000 oz gold
Saudi Arabia		All projects are operated through Gold and Minerals, in which KEFI owns 30% KEFI's 70% JV partner is Abdul Rahman Saad Al Rashid & Sons
Hawiah	132	Attributable to KEFI (30%), and based on mining 2Mt pa for 10.5 years
		Expected to generate EBITDA of US$1.6bn over the project life
		Regarded as an important discovery and hosted within a VMS belt that offers significant potential upside
		Resources of 24.9Mt at 0.88% Cu, 0.91% Zn, 0.56 g/t Au and 9.68 g/t Ag, representing 416,000 t CuEq or 2.2 moz AuEq at current metals prices
		PFS incorporating the 2022 exploration results expected in 4Q22, to be followed by a mining licence application
Al Godeyer		Exploration Licences, immediately west of Hawiah, awarded in Dec 2021
		Trench work and geophysical surveys demonstrate Al Godeyer is analogous to the system at Hawiah
		The immediate focus is to identify mineralisation that can be incorporated into the early years of a combined Hawiah-Al Godeyer mine plan
		Initial mineral resource planned for 4Q22
Jibal Qutman	30	Attributable to KEFI (30%), and based on mining just the oxide resources which amount to less than one-third of the total resource
		Resource of 733,000 oz gold at 0.8 g/t, remains open at depth
		KEFI is hopeful a Mining Licence will be awarded in 2022; a re-evaluation of the 2015 PEA is underway for detailed mine planning
Jibal Qutman areas		Gold and Minerals has exploration licence applications covering 400 km^2 that offer significant potential for resource expansion
Other projects		Gold and Minerals has applied for Exploration Licences covering a further 3 projects that are at the reconnaissance exploration stage
Total	**380**	

Note: NPVs are post-tax NPV$_8$ attributable to KEFI. Tulu Kapi open-pit is based on the DFS and subsequent project contracts. Tulu Kapi underground is based on the PEA. The NPVs for Hawiah and Jibal Qutman are based on preliminary mine modelling as described herein. An exchange rate of £:US$1.31 is used.

Source: KEFI, Orior Capital

Hawiah, Saudi Arabia

With 2022 being spent on further resource drilling, KEFI aims to complete a DFS for the combined Hawiah-Al Godeyer operation in 2023, and to start development of the open-pit in late-2024. On that basis, production could commence in 2025-2026.

Current work programs are focused on upgrading and expanding the oxide resource at Hawiah, and exploring the Central Zone which has seen relatively little drilling to date. KEFI is also exploring the oxides at Al Godeyer to identify material that can be brought into the early years of the open-pit mine plan. Management plans to release a maiden resource at Al Godeyer by 4Q22, and to complete the Hawiah PFS by year-end. The plan is to apply for a mining licence as soon as feasible.

Jibal Qutman, Saudi Arabia

KEFI's joint venture, Gold and Minerals, has been working with the Ministry of Industry and Mineral Resources on issues holding up the granting of a mining licence at Jibal Qutman, and is now preparing to trigger development as fast as possible. Assuming the mining licence is awarded in 2022, and that all development studies can be completed in 2023, then construction of the heap leach operation and mining could be carried out in 2024 for production in 2025. A re-evaluation of all studies is now underway to move the project into construction as soon as feasible.

Saudi Arabia financing

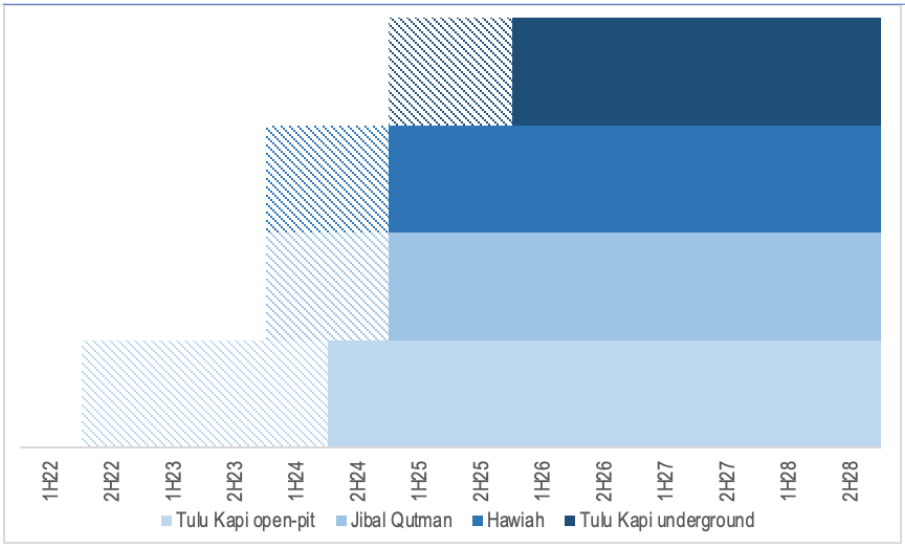
The Saudi Industrial Development Fund (SIDF) is a sovereign wealth fund of the Saudi Arabian government. It was founded in 1974 to provide mid- and long-term financing to private industrial companies. In 2019, SIDF announced it would commence lending to the mining sector in order to better align itself with Saudi Arabia's economic development goals set out in Vision 2030. The fund has said it will provide loans for up to 75% of project costs, including for resource delineation activities, and for mining service companies. Given KEFI's 30% stake in Gold and Minerals, KEFI's equity stake in project capex is likely to be as little as 7.5%. The combined capex for Hawiah and Jibal Qutman is estimated at US$250-300m, for which KEFI would be expected to fund £13-17m, mostly for Hawiah after Tulu Kapi commences production.

Regional Exploration

In addition to these projects, management aims to secure additional exploration licences in order to build a pipeline of projects that can be developed over the following few years. Most notably, Gold and Minerals has applied for exploration licences covering a further three projects in Saudi Arabia that are at the reconnaissance exploration stage.

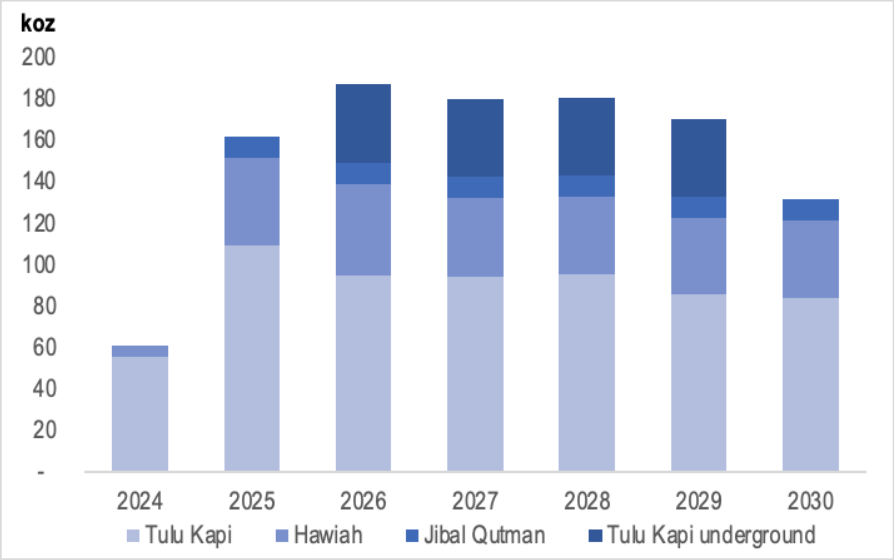
All in all, KEFI has 3 projects expected to come on stream in the next three and a half to four years, starting with Tulu Kapi in mid-2024.

Figure 5: Indicative timetable of construction and production starts



Source: KEFI, Orior Capital

Figure 6: KEFI anticipated attributable gold and gold-equivalent production



Source: KEFI, Orior Capital

KEFI looks incredibly undervalued

- Valuing Tulu Kapi as a development asset and the Saudi Arabian projects on resources, suggests a valuation of 4.8p/share, 6x the current share price
- Bringing all three projects into production over the next 3 years could underpin a valuation of 8.8p/share, 11x the current share price
- Further valuation upside could be driven by developments at the underground mine and satellite deposits at Tulu Kapi, and by new projects in Saudi Arabia

There are a number of gold companies operating in Africa, from early stage explorers to established producers. Portfolios of African gold developers typically trade at EVs of around US$1,000/oz of planned production. As companies enter production, development risks dissipate, cash flow becomes positive, and companies tend to get re-rated. Portfolios of gold producers tend to trade around US$3,000/oz of production. Actual valuations depend on various factors including which companies are included in the sample, the stage of development or the time to expected cashflow, planned production, expected all-in sustaining costs, jurisdiction, earnings guidance (and adherence to it), the perceived outlook for gold, and other factors. Earlier stage assets with resources, but no feasibility study currently trade at a weighted average of US$60/oz of total resource.

Current valuation 4.8p/share

Applying these valuation metrics to KEFI suggests a current valuation of 4.8p/share. This is based on valuing Tulu Kapi as a development stage asset (US$1,000/oz of attributable planned production), and Hawiah and Jibal Qutman on attributable resources (US$60/oz gold or gold-equivalent). **The market is valuing KEFI at an 83% discount to this valuation.** Alternatively, the market is valuing the Tulu Kapi project at US$221/oz of planned production, a 78% discount to peers, and ascribing no value at all to the projects in Saudi Arabia. After years of setbacks in KEFI's frontier markets**, the market is not yet recognising the apparent turnaround in both Ethiopia and Saudi Arabia. On this basis, KEFI looks unjustifiably cheap.**

Figure 7: Valuation framework and potential outcomes

Timeframe	Valuation pence/shar	Comments
Current	4.8p	Tulu Kapi valued at US$1,000/oz planned output, typical for African gold developers
		Tulu Kapi financial close targeted for mid-2022, project start-up expected 1Q24
		Hawiah, Jibal Qutman valued at US$60/oz Au or AuEq resource, in line with peers
Mid-2025 3 years	8.8p	Projects valued at US$3,000/oz production, a typical valuation for African gold producers
		Tulu Kapi based on 190,000 oz pa, with no further upside from underground or potential satellite deposits factored in
		Hawiah, Jibal Qutman based on doubling the scale of the current projects to 265koz pa AuEq at Hawiah and 70koz pa Au Jibal Qutman, both of which KEFI owns 30% of
		All convertible instruments for Tulu Kapi funding converted; shares outstanding increased to 4,887m
		Upside potential exists from other projects not yet factored in

Source: Orior Capital

3-year valuation 8.8p/share

Over the next 3 years, all three of KEFI's current projects are expected to enter production. Tulu Kapi is expected to start-up in mid-2024, followed by Hawiah and Jibal Qutman in 2025. The 3-year valuation factors in production of 190,000 oz pa at Tulu Kapi (70% KEFI), valued at US$3,000/oz production in line with peers. Given the earlier stage nature of the Hawiah and Jibal Qutman projects, and the strong prospects for outlining further mineralisation, **the assumption is that resources and planned production levels at both projects in Saudi Arabia double from current levels.**

The Hawiah project is open at depth, and Gold and Minerals was recently awarded the adjacent Al Godeyer exploration licences. Al Godeyer has similar outcropping mineralisation as at Hawiah, and appears to be of a similar scale.

At Jibal Qutman, the current mine plan is based on targeting the oxide material, which comprises less than one-third of the existing resource. The current plans do not take into account the potential to mine the sulphide material once the oxides are depleted. Further, Gold and Minerals has applied for additional exploration licences which host a number of historical workings and other prosects, and where rock sampling has identified areas prospective for high-grade gold mineralisation. Again, there seems to an excellent opportunity to expand production from current plans.

Figure 8: KEFI valuations

Exchange rate, £:US$1.31		
Current valuation		**£ m**
Tulu Kapi	190,000 oz Au pa at US$1,000/oz, 70% stake	101.5
Hawiah	24.9Mt at 2.71 g/t AuEq, 2,169 koz AuEq at US$60/oz, 30% stake	29.8
Jibal Qutman	733,000 oz Au, at US$60/oz resource, 30% stake	10.1
Asset value		**141.4**
Shares outstanding		2,939
Valuation, pence per share		**4.8**
3 years valuation		
Tulu Kapi	190,000 oz Au pa at US$3,000/oz, 70% stake	304.6
Hawiah	265,000 oz AuEq pa at US$3,000/oz, 30% stake	182.1
Jibal Qutman	70,000 oz Au pa at US$3,000/oz, 30% stake	48.1
Asset value		**534.7**
Debt	Tulu Kapi funding, US$200m, 70% stake	106.9
Net asset value		**427.9**
Shares outstanding	Full conversion of funding instruments, and new equity	4,887
Valuation, pence per share		**8.8**

Source: Orior Capital

Share conversions

The 3-year valuation factors in the full conversion of the convertible instruments issued to fund Tulu Kapi into production as well as additional equity. This includes a convertible note to be issued after financial close in 2H22, which is expected to convert at a premium to the market share price, a subordinated convertible note that converts three years after financial close at the share price at that time (2025), interest costs on these instruments paid in equity, and a further share issue by KEFI to fund ongoing operations in Ethiopia and Saudi Arabia. Over the next three years, the number of shares in issue is assumed to increase by approximately 66% to 4.9bn shares outstanding, though KEFI's valuation is expected to grow more quickly.

Simply mis-priced

A sample of seven African gold explorers and developers with gold resources (Measured, Indicated, and Inferred) is currently trading at an estimated weighted average EV of US$60 per oz of resource (gold and gold-equivalent). KEFI is trading at an EV of just US$14/oz, a 76% discount to the sample.

Of the seven companies in the sample, five of them have Measured and Indicated Resources, indicating a higher level of geological confidence. In terms of Measured and Indicated Resources, these five companies are trading at an estimated weighted average EV of US$94/oz. KEFI is trading at an EV of just US$19/oz, an 80% discount to the sample.

Six of the explorers and developers have published economic studies and hence a guide as to NPV valuations. Gold companies typically use a discount of 5% to asses NPV, though KEFI's management uses a more conservative 8%. These six companies currently trade at an EV weighted average of 43% of NPV. **KEFI is trading at just 6% of NPV.**

What's not factored in?

Additional mineralisation at Tulu Kapi underground: Management estimates there is potential to triple the underground resource to about 1.0 moz. This would be expected to be at a similar grade to the existing underground resource which is 5.69 g/t gold. The current underground mine modelling is based on mining 230,000 oz of gold that lies directly beneath the open-pit mine over a period of four years. The current mine plan ignores other zones of mineralisation that would be accessible from the underground mine and which were included in an earlier 2014 mineral resource estimate.

Notably, the underground resource is based on a cut-off grade of 3.5 g/t gold. Given the increase in gold prices since the PEA was prepared in 2016, **there may be scope to lower the cut-off grade and bring additional material into the mine plan.**

Tulu Kapi proximal areas: The area around Tulu Kapi hosts two NNE-trending structures that are similar to, and run parallel to, the Tulu Kapi trend. KEFI has already identified a number of targets and has the stated aim of identifying 300,000 oz to 500,000 oz of gold grading ~1.5 g/t in oxide material that could boost production by an initial 50,000 oz gold pa.

Hawiah and Al Godeyer resource expansion: According to USGS, many VMS systems occur in clusters of a dozen or so deposits. As Gold and Minerals explores the wider Hawiah-Al Godeyer region, other deposits may be discovered, and ultimately, mined.

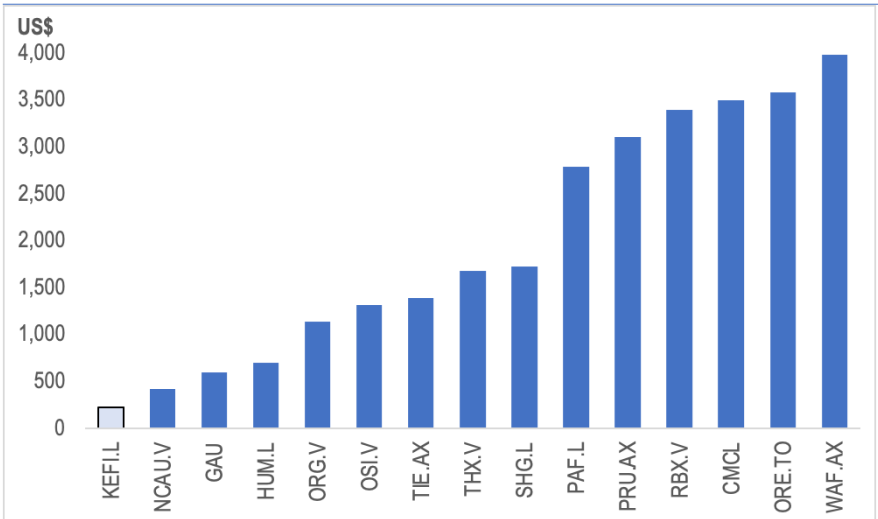
Additional projects: Gold and Minerals has applied for exploration areas covering three new projects in Saudi Arabia, some of which have hosted historical production.

Factoring in further project development would be expected to underpin higher valuations.

Big appetite for assets

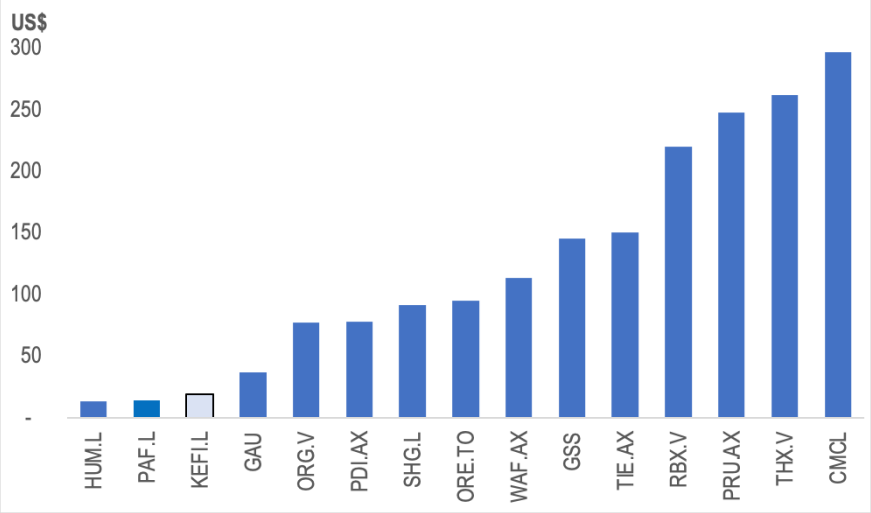
Another factor expected to drive valuations is continued appetite for gold assets, both by financial interests and by larger gold companies. There have been a number of transactions involving African assets over the past couple of years. Endeavour acquired both Semafo (Burkina Faso) and Terranga Gold (Senegal, Burkina Faso and Ivory Coast) in 2020. Azumah Resources (Ghana) was acquired by private equity fund Ibaera Capital in 2020. Cardinal (Ghana) was acquired by Shandong Gold in 2021. Golden Star (Ghana) was acquired by Chifeng Jilong in a deal that was completed in January 2022. Last month, Perseus acquired the shares in Orca Gold (Sudan) that it did not already own.

Figure 9: African gold companies EV per oz of production, planned or 2022 guidance



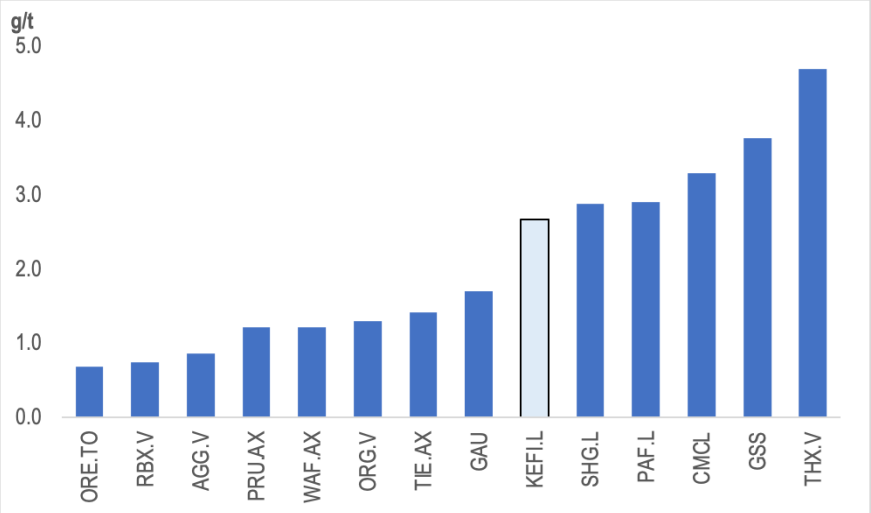
Source: Company data, Orior Capital

Figure 10: African gold companies EV per oz of measured and indicated resource



Source: Company data, Orior Capital

Figure 11: African gold companies, M&I resource grade, g/t gold



Source: Company data, Orior Capital

NPV valuations

As a general rule of thumb, African focused gold developers have tended to trade at between 0.4x and 0.8x NPV over the past several years. Some larger, multi-asset companies have traded at 1.0x NPV. The multiple of NPV at which a company trades depends on numerous factors including, but not limited to, the stage of development of the project and published study (PEA, PFS, DFS), the assumed gold price, the discount rate applied, the jurisdiction, the expected production level, and the time to first production.

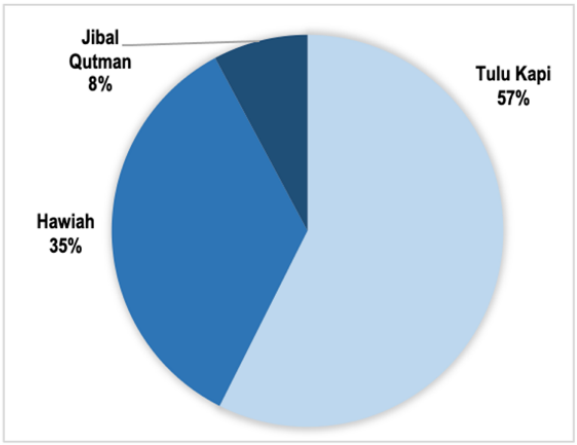
KEFI's three projects currently have a total NPV attributable to KEFI of £380m, or 12.9p per share. **Valuing KEFI in line with typical valuations of African gold developers of 0.5-0.8x NPV would suggest a valuation of 5.2 pence/share to 10.1 pence per share. KEFI is trading at just 6% of NPV.**

Figure 12: KEFI NPV valuations, £:US$ 1.31

Ethiopia	US$ m	£ m
Tulu Kapi open-pit (levered)	299	
Tulu Kapi underground	111	
Tulu Kapi total	409	
KEFI 70% stake	287	219
Saudi Arabia		
Hawiah	578	
KEFI 30% stake	173	132
Jibal Qutman	130	
KEFI 30% stake	39	30
KEFI total NPV	**499**	**380**
Shares in issue, millions		2,939
NPV, pence/share		**12.9**

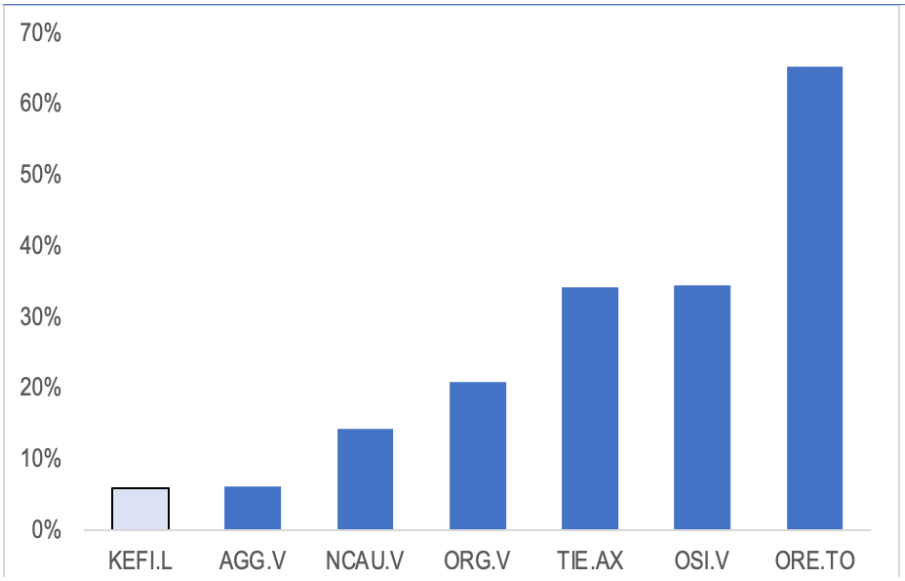
Source: KEFI, Orior Capital

Figure 13: Breakdown of attributable NPV by asset



Source: KEFI, Orior Capital

Figure 14: EV/NPV, selected African gold companies



Source: Company data, Orior Capital

Tulu Kapi on the verge of development

- Tulu Kapi development activities have restarted and financial completion is targeted for mid-2022; first open-pit production is expected in 2024
- The underground mine is expected to start up in late-2025/early-2026; there is potential to triple the underground resource, further boosting project economics
- Further, management is targeting resources of 300,000 oz to 500,000 oz gold in satellite pits that could underpin an initial 50,000 oz pa heap leach operation

Tulu Kapi is located in Western Ethiopia in the Oromia Region, some 360km due west of the capital, Addis Ababa. KEFI acquired a 75% stake in the project in 2013, and the remaining 25% in 2014. A DFS was completed in June 2015, and an updated version in June 2017. In 2018, KEFI released a Mine Plan for the open-pit mine that increased plant capacity and accelerated cash flows. That plan now forms the basis of the current 2020 Mine Plan. Ultimately, once all detailed and regulatory approved documentation are closed, KEFI is expected to own a 70% stake in Tulu Kapi.

The 2020 Mine Plan envisages production from the open-pit mine of 980,000 oz gold over an 8-year mine life. Production is expected to reach 151,000 oz in the first year of production (2024) and to average 141,000 oz pa in the first five years of the project. The underground mine is expected to commence operations in year 3 of the open-pit mine, lifting output by 54,000 oz pa to around 190,000 oz pa. The project has simple metallurgy, will employ standard equipment, and is expected to ramp up quickly as there is negligible overburden. Tulu Kapi is expected to be the first modern mine to be built in Ethiopia for more than 30 years.

Development of the underground mine is expected to cost US$37m, expected to be funded from cash flow from the open pit.

Highly cash generative

At US$1,830/oz gold, the open pit mine is expected to generate average annual EBITDA of US$131m. Average life-of-project all-in sustaining costs are estimated at US$914/oz, suggesting a margin over AISC of US$916/oz. The underground mine is expected to be fully up and running in year 3 of the open pit operation, which is 2026. At US$1,830/oz gold, the underground mine is projected to generate average annual EBITDA of a further US$58m. Underground all-in sustaining costs are estimated at US$809/oz, suggesting a margin over AISC of US$1,021/oz.

In full production (open pit and underground mines combined), Tulu Kapi is expected to generate EBITDA of ~US$189m pa at US$1,830/oz gold.

Current gold prices are higher than this assumed US$1,830/oz. At a gold price of US$1,930/oz, KEFI, annual EBITDA from the open-pit mine would be US$145m, and annual EBITDA from the underground mine would be US$63m. In full production, Tulu Kapi would be expected to generate EBITDA of ~US$208m pa at US$1,930/oz gold.

Figure 15: Tulu Kapi key production parameters

		Open pit	Underground
Life-of-mine, years	Years	8	4
First year of planned production		2024	2026
Mine operator		Contractor	Contractor
Waste to ore ratio		7.4:1.0	0.3:1.0
Processing rate	tpa millions	1.9-2.1	
Total ore processed	Tonnes, millions	15.4	1.7
Average head grade	g/t	2.1	5.2
Gold recovery		93.0%	93.4%
LOM gold production	oz	980,000	215,000
Gold production, average	oz pa	135,000	54,000

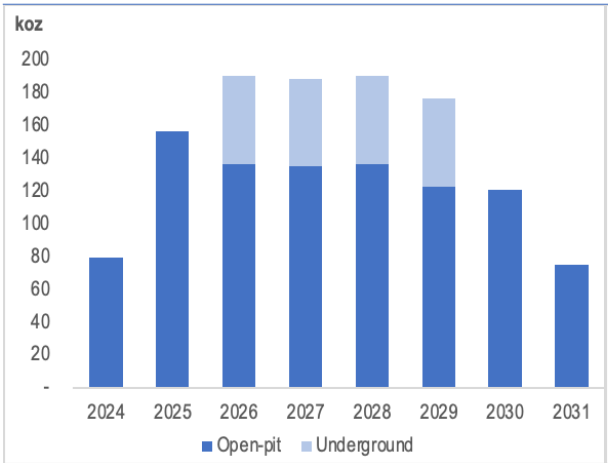
Source: KEFI, Orior Capital

Figure 16: Tulu Kapi key financial parameters

Gold price	**US$/oz**	**1,830**
Open pit		
Revenues, LOM	US$ m	1,790
EBITDA, LOM	US$ m	916
NPV_8, post-tax, 100% basis	US$ m	299
Averages, 2024-2030		
Revenues	US$ m	256
EBITDA	**US$ m**	**131**
AISC	US$/oz	914
Margin over AISC	US$/oz	916
Underground (based on 4 years only)		
Revenues, LOM	US$ m	396
EBITDA, LOM	US$ m	231
NPV_8, post-tax, 100% basis	US$ m	111
Averages, 2025-2028		
Revenues	US$ m	99
EBITDA	**US$ m**	**58**
AISC	US$/oz	809
Margin over AISC	US$/oz	1,021
Open and underground combined		
Revenues, LOM	US$ m	2,186
EBITDA, LOM	US$ m	1,147
NPV_8, post-tax, 100% basis	US$ m	409

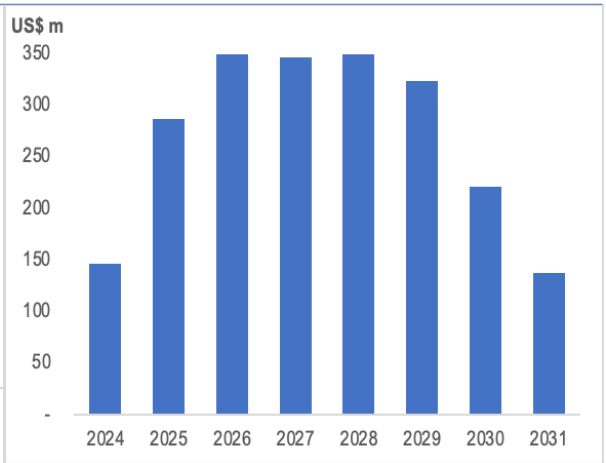
Source: KEFI, Orior Capital

Figure 17: Gold production



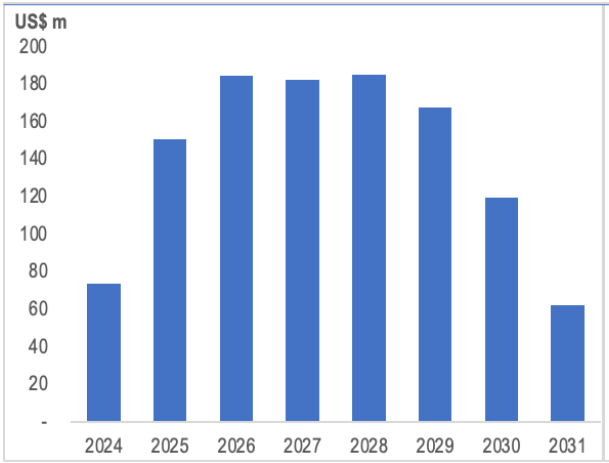
Source: KEFI, Orior Capital

Figure 18: Revenues at US$1,830/oz gold



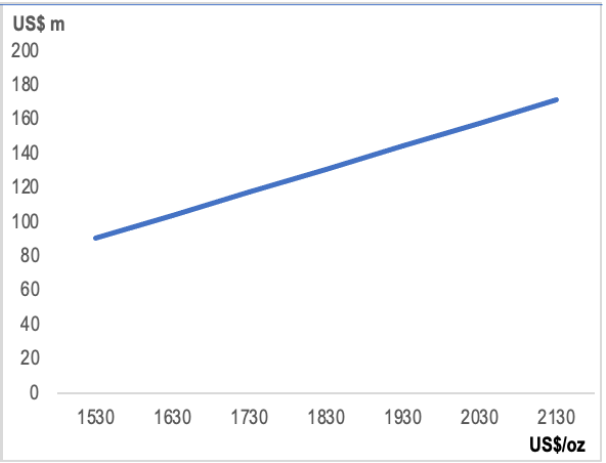
Source: KEFI, Orior Capital

Figure 19: EBITDA at US$1,830/oz gold



Source: KEFI, Orior Capital

Figure 20: Annual EBITDA and gold prices (open pit)



Source: KEFI, Orior Capital

The upside, underground

In the 2016 PEA, modelling of mineable stopes resulted in a 76% conversion rate and a reserve of 1.3 Mt at 5.17 g/t. management hopes to further enhance the underground resource with additional drilling and to complete a PFS during the construction of the open pit project. The underground decline would be started around the time the open pit starts up, with further resource drilling conducted from underground. **Ultimately, the plan would be to supplement the open pit operation with some higher-grade underground material to achieve say, a 12-year mine life, at higher-grade and better economics than the current planned open pit.**

Assuming the open pit starts up in 1H24, first production from the underground mine would be targeted for late-2025 or early-2026. Assuming US$1830/oz gold, **the post-tax NPV_8 of the underground project is estimated at US$111m.** This only includes the first 4 years of production.

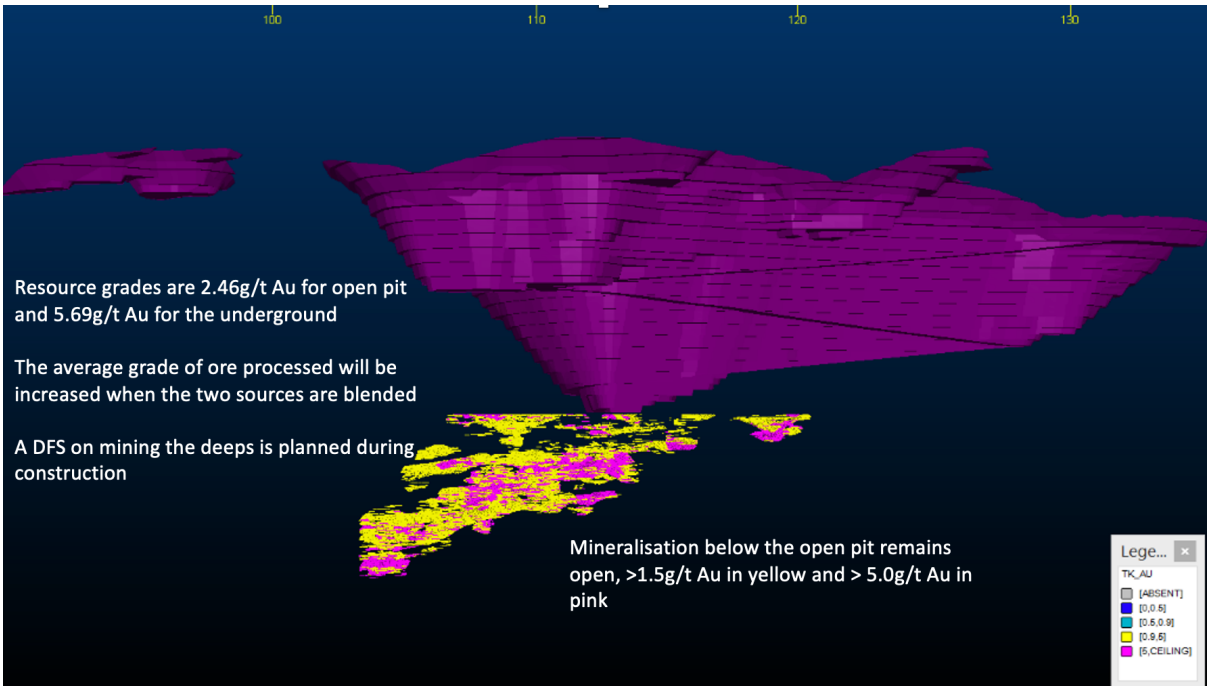
Management believes there is potential to triple the underground resource to ~1.0 moz at a similar grade to the existing resource. Mineralisation increases in grade and thickness with depth, and it remains open both at depth, and an estimated 600-800m along strike to the north. Drill hole **TKBH_293**, the northern most hole drilled into the underground resource intercepted 90m at 2.8 g/t

gold. Drill hole **TKBH_125** intersected mineralisation 140m down plunge, and is interpreted to be east of the main underground shoot.

Another factor is that the current resource, prepared in 2016 when gold prices were lower, is based on a cut-off grade of 3.5 g/t. (The PEA was based on a gold price of US$1,250/oz gold). Given the high current gold price there is probably scope to lower this cut-off grade allowing additional material to be brought into the mine plan. The appropriate cut-off grade will be considered during underground mine planning once the open pit operation is underway.

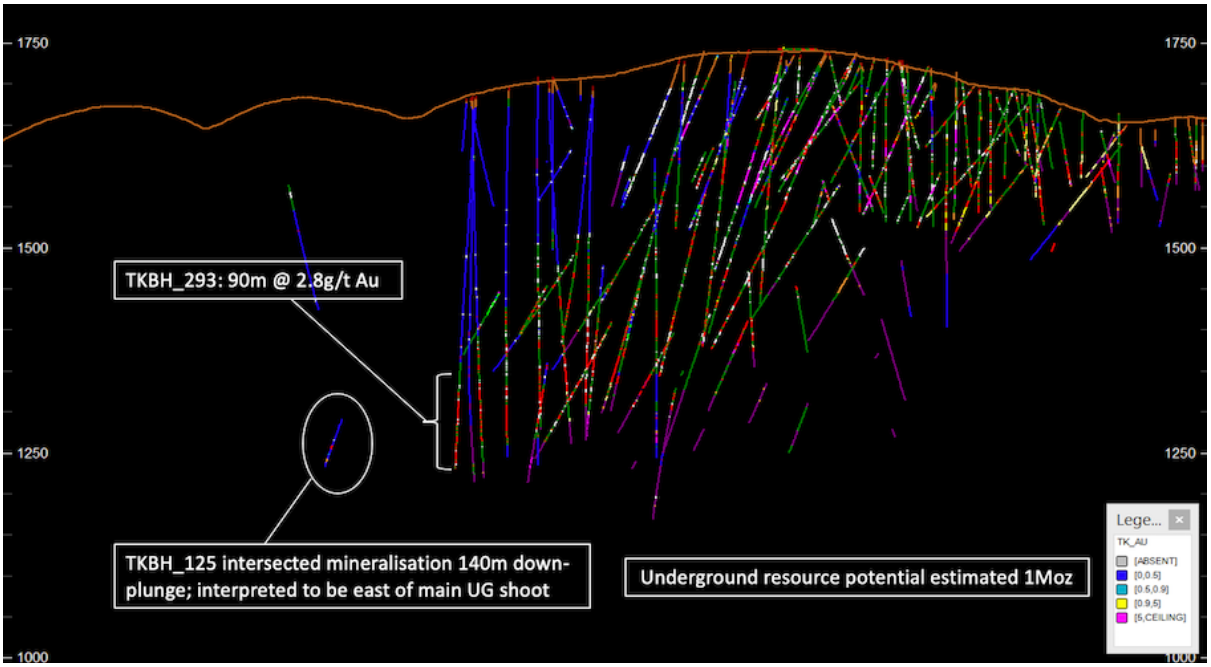
Drilling and assays are likely to cost ~US$1m based on six drill holes, each 700m deep, and at a cost of US$200/m including assays. **Just considering the grade, one would think the underground project would be highly profitable,** especially given current gold prices, though KEFI will probably aim to expand the underground resource to about 500,000 oz or more to justify development.

Figure 21: Tulu Kapi existing underground resource below the open pit at 1,400mL



Source: KEFI, Orior Capital

Figure 22: Tulu Kapi drill intersections showing TKBH_293 and TKBH_125



Source: KEFI, Orior Capital

Resources and reserves

The Tulu Kapi project hosts a current resource estimate of 1.72 moz at an average grade of 2.65 g/t gold. The mineral resource has been split above and below the 1,400m RL to reflect the portions of the resource that may be mined in the open pit operation and using underground mining. Of the total resource, some 1.50 moz lies above 1,400m RL and is included in the mine plan for the open pit operation. This was based on a cut-off grade of 0.45 g/t gold. Resources below the 1,400m RL amount to 220,000 oz gold at an average grade of 5.69 g/t. Resources below the 1,400m RL are based on a cut-off grade of 2.5 g/t gold.

Notably, the 2016 PEA for the underground mine was based on the June 2014 JORC-compliant reported indicated and inferred mineral resource of 330,000 oz gold at an average grade of 6.26 g/t, and a cut-off grade of 3.5 g/t. The subsequent 2015 resource update only focused on zones of mineralisation directly below the open pit; other drilled zones of mineralisation accessible from underground which were included in the 2014 reported resource were ignored.

The project has current mineral reserves of 1.06 moz gold at an average grade of 3.25 g/t. This reserve estimate was based on a gold price of US$1,098/oz, suggesting there maybe scope to bring additional material into the mine plan.

Figure 23: Tulu Kapi resources

Category	Tonnes Million	Gold Grade g/t	Contained Gold Moz
Above 1,400m RL	**19.0**	**2.56**	**1.50**
Indicated	17.7	2.49	1.42
Inferred	1.3	2.05	0.08
Below 1,400m RL	**1.2**	**5.69**	**0.22**
Indicated	1.1	5.63	0.20
Inferred	0.1	6.25	0.02
Overall	**20.2**	**2.65**	**1.72**
Indicated	18.8	2.67	1.62
Inferred	1.4	2.40	0.10

Source: KEFI

Figure 24: Tulu Kapi reserves

Category	Tonnes Million	Gold Grade g/t	Contained Gold Moz
Probable, cut-off 0.9 g/t	12.0	2.52	0.98
Probable, cut-off 0.5-0.9 g/t	3.3	0.73	0.08
Total probable reserves	**15.3**	**3.25**	**1.06**

Source: KEFI

Exploration areas highly prospective

In addition to the tenements at Tulu Kapi, KEFI has applied for three exploration licences that cover some 1,120 km^2 and which lie immediately west and north of the Tulu Kapi mining licence.

Management's stated target is to identify 300,000 oz to 500,000 oz of gold grading ~1.5 g/t in oxide material in a series of shallow (40m) open pits along the Komto-Guji Belt, immediately west of the Tulu Kapi trend. This material could be processed in two ways. Being within trucking distance of the Tulu Kapi plant, it could provide additional ore feed to the plant. The Tulu Kapi plant has potential for higher throughput rates for softer oxide ores. It could also be developed as standalone heap leach operations. Preliminary metallurgical work using cyanide bottle roll tests returned 94% gold recovery on the trench samples at Komto II. **This could enable production of an initial 50,000 oz pa that would benefit from low stripping ratios, low costs, and high gold recoveries.** Combined with the Tulu Kapi operations, KEFI's production could then reach ~240,000 oz pa.

Figure 25: Summary financial and operating data, Tulu Kapi open pit mine, US$1,830/oz gold

Year to June		2025	2026	2027	2028	2029	2030	2031
Key operating metrics								
Ore Mined	Mt	3.5	2.6	1.5	2.3	2.0	1.9	1.1
Waste Mined	Mt	18.6	19.5	20.5	19.7	18.6	11.6	5.0
Total Material Mined	Mt	22.2	22.1	22.0	22.0	20.6	13.4	6.0
Ore Grade	g/t	1.9	2.1	2.0	2.2	2.1	2.2	3.2
Contained Gold	koz	213	174	101	167	134	132	108
Ore Processed	Mt	2.1	2.1	2.1	2.1	2.0	1.9	2.0
Head Grade	g/t	2.5	2.4	1.9	2.4	2.1	2.1	2.0
Contained Gold	koz	171	164	131	161	133	133	128
Recoveries	%	93%	93%	91%	94%	92%	92%	93%
Gold Recovered	**koz**	**159**	**153**	**119**	**151**	**123**	**122**	**119**
Offsite Costs	US$ m	1	1	1	1	1	1	1
Mining Costs	US$ m	75	71	71	72	71	58	41
Processing Costs	US$ m	23	23	23	24	25	25	26
General and admin	US$ m	9	9	9	9	9	9	9
Operating Costs	**US$ m**	**108**	**103**	**104**	**105**	**106**	**93**	**76**
Royalties	US$ m	14	23	15	20	15	16	16
Sustaining Capital	US$ m	13	3	4	4	2	2	2
All in Sustaining Costs	**US$ m**	**137**	**131**	**124**	**131**	**124**	**113**	**98**
All in Sustaining Costs	**US$/oz**	**858**	**854**	**1,041**	**869**	**1,010**	**924**	**821**
Profit and loss account								
Net Revenue	**US$ m**	**292**	**281**	**219**	**276**	**225**	**224**	**218**
Government Royalties	US$ m	(14)	(22)	(15)	(20)	(15)	(16)	(16)
Operating Costs	US$ m	(124)	(102)	(103)	(104)	(105)	(92)	(75)
50% of Sustaining Capital	US$ m	(7)	(2)	(2)	(2)	(1)	(1)	(2)
EBITDA	**US$ m**	**147**	**155**	**99**	**150**	**105**	**115**	**125**
Depreciation	US$ m	(40)	(39)	(39)	(39)	(39	(39)	(39)
EBIT	**US$ m**	**107**	**116**	**60**	**111**	**66**	**75**	**85**
Interest on debt	US$ m	(15)	(11)	(6)	(6)	(6)	(6)	(1)
Profit Before Tax	**US$ m**	**92**	**105**	**54**	**105**	**60**	**70**	**84**
Tax Payable	US$ m	0	(23)	(6)	(21)	(15)	(27)	(34)
Profit After Tax	**US$ m**	**92**	**82**	**49**	**84**	**45**	**43**	**50**
Balance sheet								
Total assets	**US$ m**	**390**	**414**	**453**	**538**	**582**	**624**	**628**
Current Liabilities	US$ m	69	21	11	11	11	53	7
Long-Term Debt	US$ m	67	57	57	58	58	14	14
Total Equity	**US$ m**	**254**	**336**	**385**	**469**	**514**	**557**	**607**
Cash flow statement								
Cash flow From Operations	US$ m	133	123	88	124	83	82	89
Cash flow From Investing	US$ m	6	(3)	(4)	(4)	(3)	(3)	(3)
Cash flow From Financing	US$ m	(78)	(37)	(15)	8	(8)	(6)	(37)
Net cash flow	US$ m	61	83	69	128	73	85	49
Cash at start of period	US$ m	2	63	146	214	342	415	500
Cash at end of period	US$ m	63	146	214	342	415	500	549

Source: KEFI, Orior Capital

Hawiah is already a substantial VMS deposit

- Hawiah is shaping up to be a substantial VMS system; it is already larger than Tulu Kapi in terms of contained metal value, and has further exploration potential
- Al Godeyer is the first Hawiah satellite deposit to be explored; the immediate target is to add oxide resources to boost near-term mine volumes
- Management aims to complete a resource upgrade and a PFS for the combined project by year-end; mine development could start as soon as 2024

The Hawiah and Al Godeyer licence areas are located in the Wadi Bidah Mineral District in the southwestern part of the Arabian shield in Saudi Arabia. The district comprises a 120km long belt that hosts more than 20 known VMS deposits and historical workings. The project is owned by KEFI's 30% held joint venture company, Gold and Minerals, which operates the exploration license for Hawiah covering 95 km^2 and two exploration licences at Al Godeyer covering a total of 35 km^2.

The Hawiah deposit forms a prominent north-south trending ridgeline that is exposed over 4,500m with a thickness varying from 1m to 15m. The ridge is interpreted to be the modern-day expression of the original VMS palaeo-horizon. The deposit hosts gossanous ex-massive sulphides, chert breccias, banded ironstones and intermediate volcanic breccias. Supergene alteration has resulted from groundwater interactions. The deposit comprises three main alteration zones; an oxide zone that typically shows supergene gold enrichment; a transition zone with copper enrichment; and a fresh mineralised zone that appears to be a predominantly pyritic stratiform massive sulphide body.

In December 2021, Gold and Minerals was awarded two exploration licences at Al Godeyer, located immediately west of the Hawiah discovery. The Al Godeyer area exhibits outcropping gossans over a strike length of 2km. These are located about 12km southwest of, and are considered analogous to, those at Hawiah.

The Al Godeyer licences are granted for an initial five years, after which they are renewable. Given management plans to commence production at Hawiah as soon as 2025, it seems likely Gold and Minerals will apply for Mining Licences well before the exploration licences expire. The granting of the licences is an important step in management's plans to develop the wider area; **the Al Godeyer gossans are the first satellite deposits around Hawiah to be explored** by Gold and Minerals.

In 2022, management plans to conduct infill drilling at Hawiah to upgrade and expand the existing resource and to identify near-surface mineralisation at Al Godeyer for inclusion in the early stages of a mine plan. **An upgraded resource, and a preliminary feasibility study (PFS) are expected by 4Q22.** A definitive feasibility study (DFS) incorporating underground mine plans should be completed in 2023, with development starting in 2024. Initial gold production could commence as soon as 2025.

The Wadi Bidah Mineral District is probably the only VMS belt in the world that outcrops as much, remains as underexplored, and is as highly prospective. KEFI has a phenomenal opportunity to develop a substantial operation.

Hawiah resource upgrade

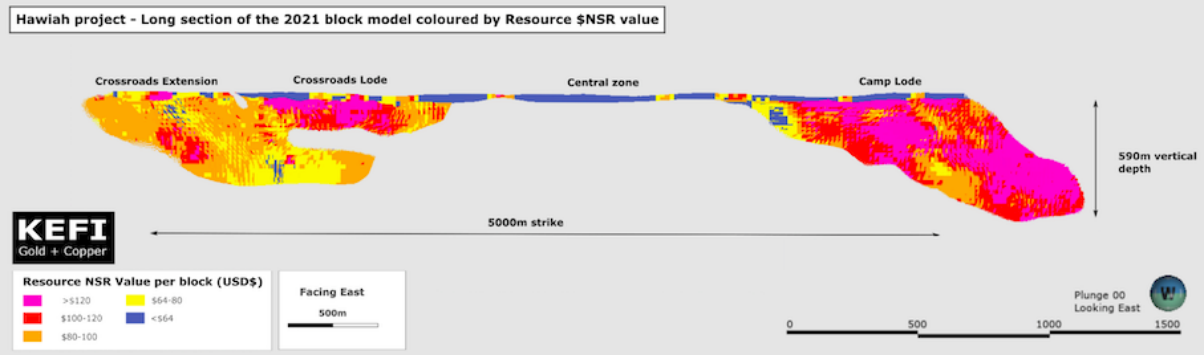
In January 2022, KEFI announced an increased Mineral Resource at Hawiah of 24.9Mt grading 0.90% copper, 0.85% zinc, 0.62 g/t gold and 9.81 g/t silver. The updated resource represents a 29% increase in resource tonnage compared with the maiden resource, August 2020, as well as higher grades in copper, zinc and gold. In terms of contained metal, the resource now stands at 223,000 tonnes of copper (up 33% from the initial resource), 210,000 tonnes of zinc (up 34%), 497,000 oz gold (up 42%), and 7.8 moz silver (up 22%). Hawiah is rapidly developing into a significant project.

Figure 26: Hawiah Resource statement

	Resource	Grade				Metal content			
	Mt	Cu	Zn	Au	Ag	Cu	Zn	Au	Ag
		%	%	g/t	g/t	kt	kt	koz	koz
Indicated	**10.9**	**0.96**	**0.86**	**0.64**	**9.98**	**104**	**94**	**225**	**3,501**
Open-pit	7.0	1.03	0.78	0.66	10.03	72	55	149	2,271
Underground	3.9	0.83	1.00	0.61	9.89	32	39	76	1,230
Inferred	**14.0**	**0.85**	**0.83**	**0.61**	**9.67**	**118**	**116**	**273**	**4,338**
Open-pit	1.4	0.43	0.41	1.17	10.14	6	6	52	446
Underground	12.6	0.89	0.88	0.55	9.61	113	111	221	3,892
Total	**24.9**	**0.90**	**0.85**	**0.62**	**9.81**	**223**	**210**	**497**	**7,839**
Open-pit	8.4	0.93	0.72	0.74	10.05	78	61	200	2,717
Underground	16.5	0.88	0.91	0.56	9.68	145	149	297	5,122

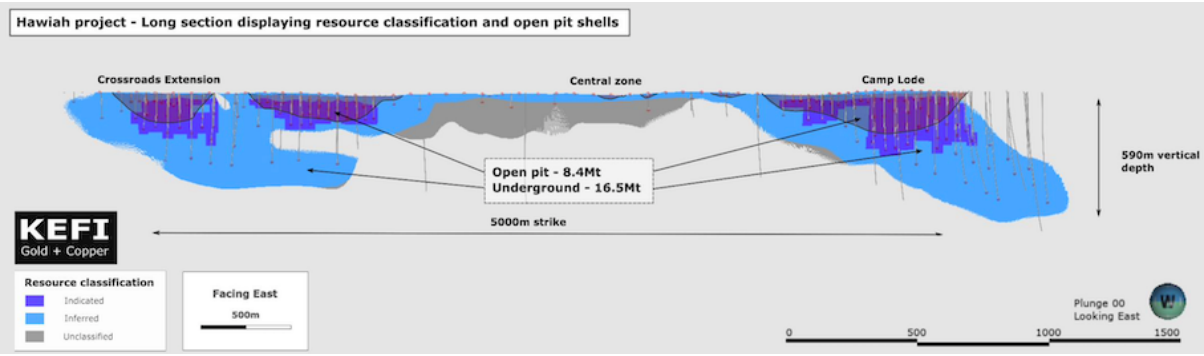
Source: KEFI

Figure 27: Long section of the Hawiah deposit displaying Resource NSR values within the Block Model



Source: KEFI

Figure 28: Hawiah deposit in Long section displaying resource classification and the open pit locations

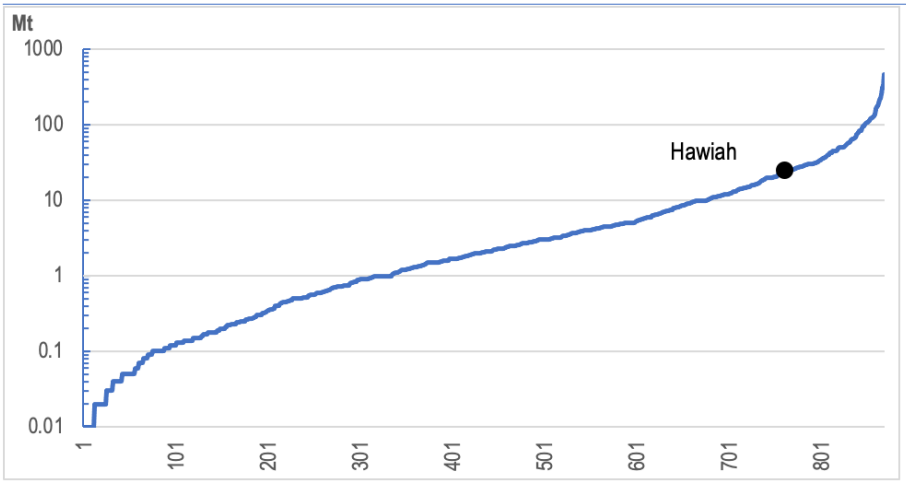


Source: KEFI

World-class deposit in the making

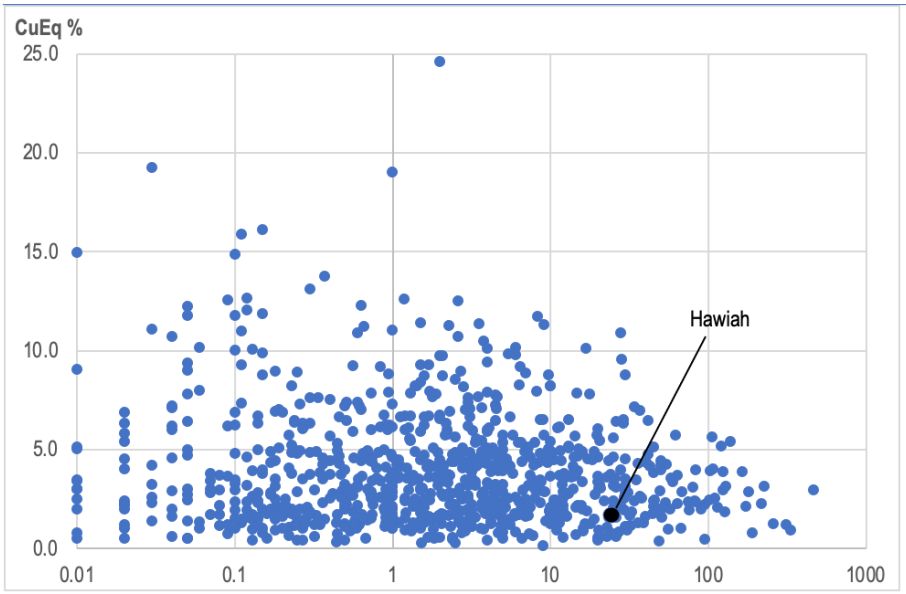
The US Geological Society (USGS) 2009 paper, Volcanogenic Massive Sulfide Deposits of the World – Database and Grade and Tonnage Models, contains data on 868 VMS deposits around the world. Many of these deposits are relatively small. The average size is 12.0Mt, but the median is just 2.1Mt. Of the 868 deposits in the database, 668 (77%) are smaller than 10Mt, and 742 (85%) are smaller than 20Mt. There are only 22 deposits larger than 100Mt. Hawiah currently ranks in the 13th percentile as the 107th largest deposit. The median CuEq grade is 3.0% based on current metals prices. With further drilling, and the inclusion of Al Godeyer later this year, the resource at Hawiah is expected to grow. **Doubling the size of the resource, would make Hawiah a top 50 deposit globally.**

Figure 29: VMS deposit size



Source: Volcanogenic massive sulfide deposits of the world, USGS, 2009, Orior Capital

Figure 30: VMS deposit size versus CuEq grade at current metals prices



Source: Volcanogenic massive sulfide deposits of the world, USGS, 2009, Orior Capital

Mosier, D.L., Berger, V.I., and Singer, D.A., 2009, Volcanogenic massive sulfide deposits of the world; database and grade and tonnage models: U.S. Geological Survey Open-File Report 2009-1034 [https://pubs.usgs.gov/of/2009/1034/].

The Hawiah resource is based on 193 diamond drillholes for a total of 41,841m and 53 trenches over 1,622m. Drillhole spacing was typically 40-60m for material reporting to the Indicated category, and 120-140m for material classified as Inferred. Importantly, some 10.9Mt (44%) of the resource is now in the Indicated category and will be reflected in the PFS targeted for 4Q22. The resource remains largely open at depth, especially below the Camp Lode, and the Crossroads Extension.

At current metals prices, the resource represents 416,000 tonnes of copper equivalent (CuEq) resources at a grade of 1.7% CuEq, or a gold equivalent (AuEq) resource of 2.2 moz at a grade of 2.71 g/t AuEq. Management estimates the discovery cost at Hawiah at just US$6/oz AuEq resource.

Some 8.4Mt (34%) of the resource reports to the Gold and Minerals Open-Pit Scenario. This material grades 0.93% copper, 0.72% zinc, 0.74 g/t gold and 10.05 g/t silver. **It represents an obvious opportunity for lower cost development in the early years of the project.** Management plans to evaluate this in the upcoming PFS.

Next steps

In 2022, the early phases of work will focus on resource definition within the central portion of the project that has only been subjected to limited drilling so far, and drilling to upgrade the resource classification in the oxide zone to aid with the open-pit mine planning. Current work includes:

- A 3,700m RC drill program that commenced in January 2022 and is aimed at upgrading and expanding the oxide portion of the resource to the Indicated category
- Further metallurgical test work on the sulphide mineralisation to determine the preferred flowsheets for copper concentrates, zinc concentrates, and gold and silver
- A 1,800m geotechnical diamond drill program, ongoing
- A 1,350m hydrogeological drilling and pump testing program
- Trenching at the Camp and Crossroad Lodes to collect oxide material bulk samples for analysis

These programs are being undertaken concurrently with exploration at the newly granted Al Godeyer licences. All in all, **there is excellent opportunity for near-term resource expansion in the oxide zone and in the central zone at Hawiah, and also at Al Godeyer.**

Economically compelling and expected to grow

Based on an initial operation to mine 21.5Mt over 11 years (2Mt pa in years 1-10), net smelter returns and recoveries as described in the resource statement, and metals prices of US$9,250/t copper, US$3,000/t zinc, US$1,830/oz gold and US$25/oz silver, **the project has a post-tax, leveraged NPV_8 of US$578m.** The project is expected to generate EBITDA of US$1.6bn over the project life of 11 years. Initial modelling is based on capital expenditure of US$291m. Assuming this is 75% financed with borrowings from Saudi Arabia, KEFI's 30% portion of the equity would amount to around £17m. **The current estimate of NPV does not factor in further exploration upside at Hawiah nor any potential resources from Al Godeyer.** There is plenty of opportunity to improve the economics of the project with further exploration success.

The open-pit resource at Hawiah includes oxide, transition and fresh material, and is reported within

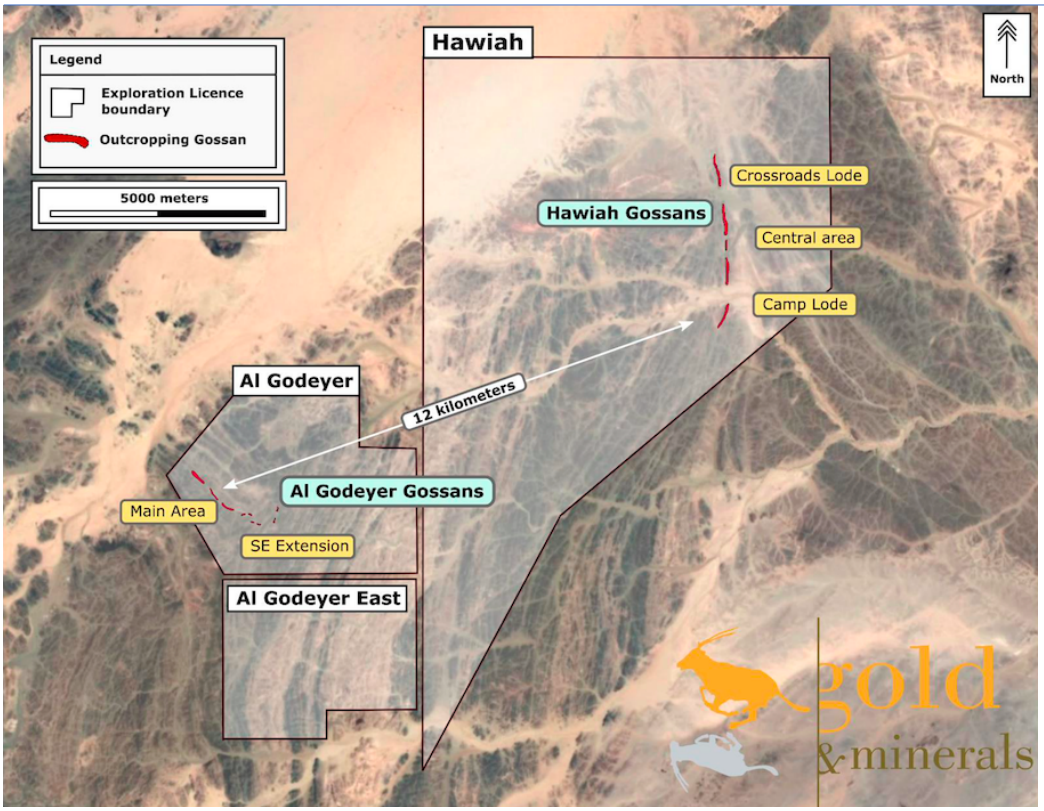
an optimised open-pit shell based on a net smelter return (NSR) of US$12/t for oxides and US$20/t for transition and fresh material. Underground resources are constrained to the transition and fresh material, reported based on underground stope optimisation, and a NSR cut-off, which includes mining, processing, administration costs and 15% total dilution, of US$54/t. Metallurgical recoveries are assumed to be 75% for gold, and 15% for silver in the oxide material, and 2% for copper, 71% for zinc, 74% for gold, and 84% for silver for transition and fresh (sulphide) material.

Al Godeyer

The Al Godeyer area contains both historically recognised and newly identified outcropping gossans over a strike length of 2km, that are hosted in a felsic-intermediate volcanic package, consistent with a back-arc paleo-environmental setting. **These gossans are believed to be the surface expression of a VMS deposit, and a geological analogue of the deposit at Hawiah.** Mineralisation at Al Godeyer appears consistent with that at Hawiah, with similar gold values in the core of the gossan and copper mineralisation as malachite ($Cu_2CO_3(OH)_2$) on the flanks that is believed to be related to ground water interactions with, and remobilisation of, the underlying ore body. Early work undertaken by Gold and Minerals has been very encouraging.

Mapping and trenching by the French Government Geological Department, Bureau de Recherches Géologiques et Miniéres (BRGM), in the 1980's identified NW-SE striking gossans over some 800m, with widths of up to 6m. Trench mapping and grab sampling by Gold and Minerals, operating under a Reconnaissance Licence, returned gold grades of up to 7.2 g/t and copper grades of up to 1.8% within the gossan, and extended the gossanous strike length to more than 2km.

Figure 31: Location map of Hawiah, Al Godeyer and Al Godeyer East ELs, and mapped gossan horizon



Source: KEFI

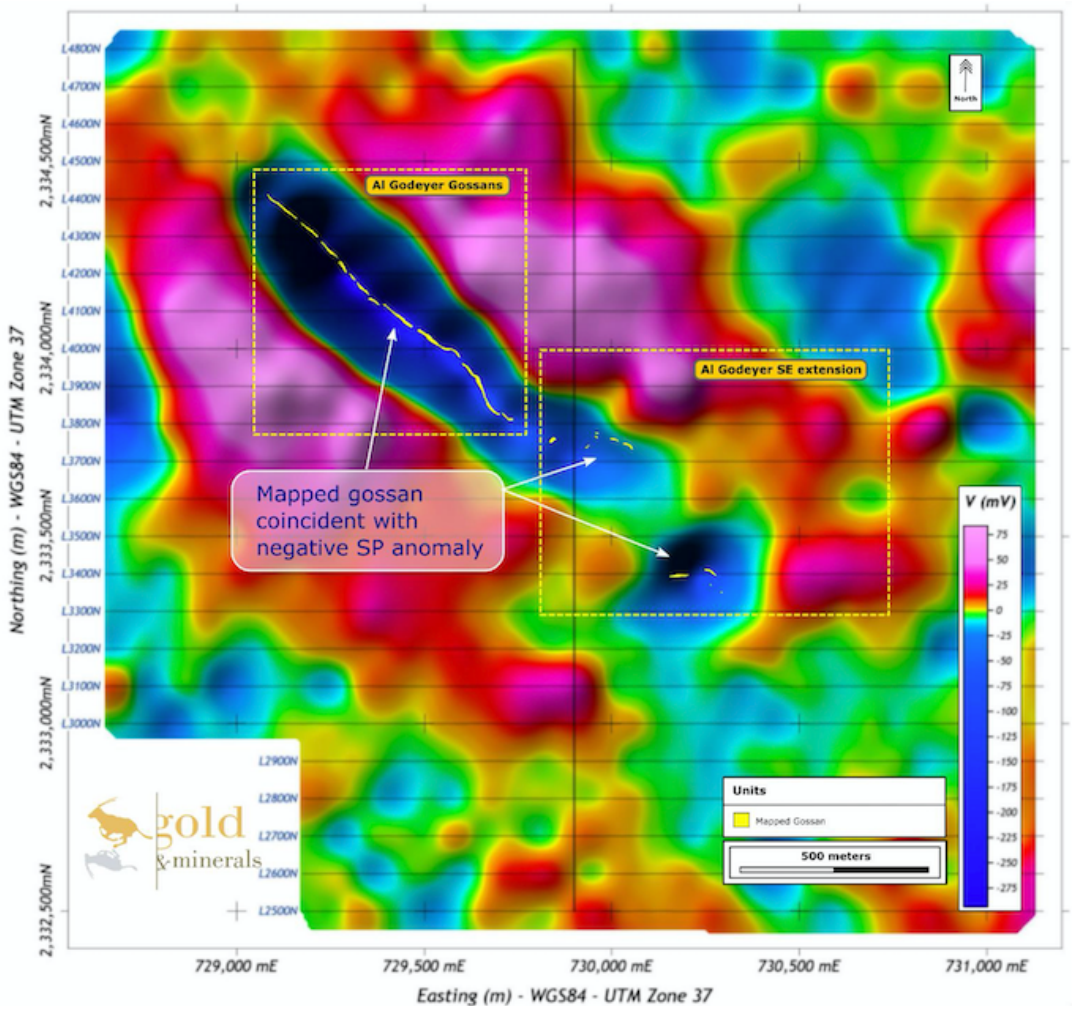
Figure 32: Early, rock chip sampling results from Al Godeyer

Sample ID	Rock type	Au g/t	Ag g/t	Cu %	Zn %
GSR1021	Foliated gossan	7.2	0.8	0.1	0.1
GSR1001	Massive gossan	3.6	0.7	0.7	0.2
GSR1070	Massive gossan	3.2	2.7	0.5	0.0
GSR1015	Brecciated gossan	2.5	0.4	0.4	0.0
GSR999	Massive gossan	2.2	0.5	1.8	0.4
GSR259	Massive gossan	2.1	0.1	0.1	0.0
GSR1055	Massive gossan	2.0	0.3	0.1	0.0
GSR1054	Massive gossan	2.0	0.3	0.1	0.1
GSR1000	Massive gossan	2.0	0.0	0.7	0.3
GSR1056	Massive and foliated gossan	1.9	3.3	0.6	0.1
GSR1019	Massive gossan	1.9	1.1	0.3	0.0
GSR257	Massive gossan	1.8	0.9	0.1	0.0
GSR1052	Massive gossan	1.8	1.8	0.2	0.0
GSR1072	Massive gossan	1.8	0.8	0.2	0.0
GSR1074	Massive gossan	1.7	1.5	0.1	0.0

Source: KEFI

A self-potential (SP) geophysical survey undertaken at Al Godeyer in 1Q22 defined a continuous anomaly striking over 1.3km, and another shorter anomaly, located along strike to the southeast. Both anomalies correlate well with the mapped NW-SE striking gossans. According to management, the SP responses display similar intensities as those recorded at Hawiah.

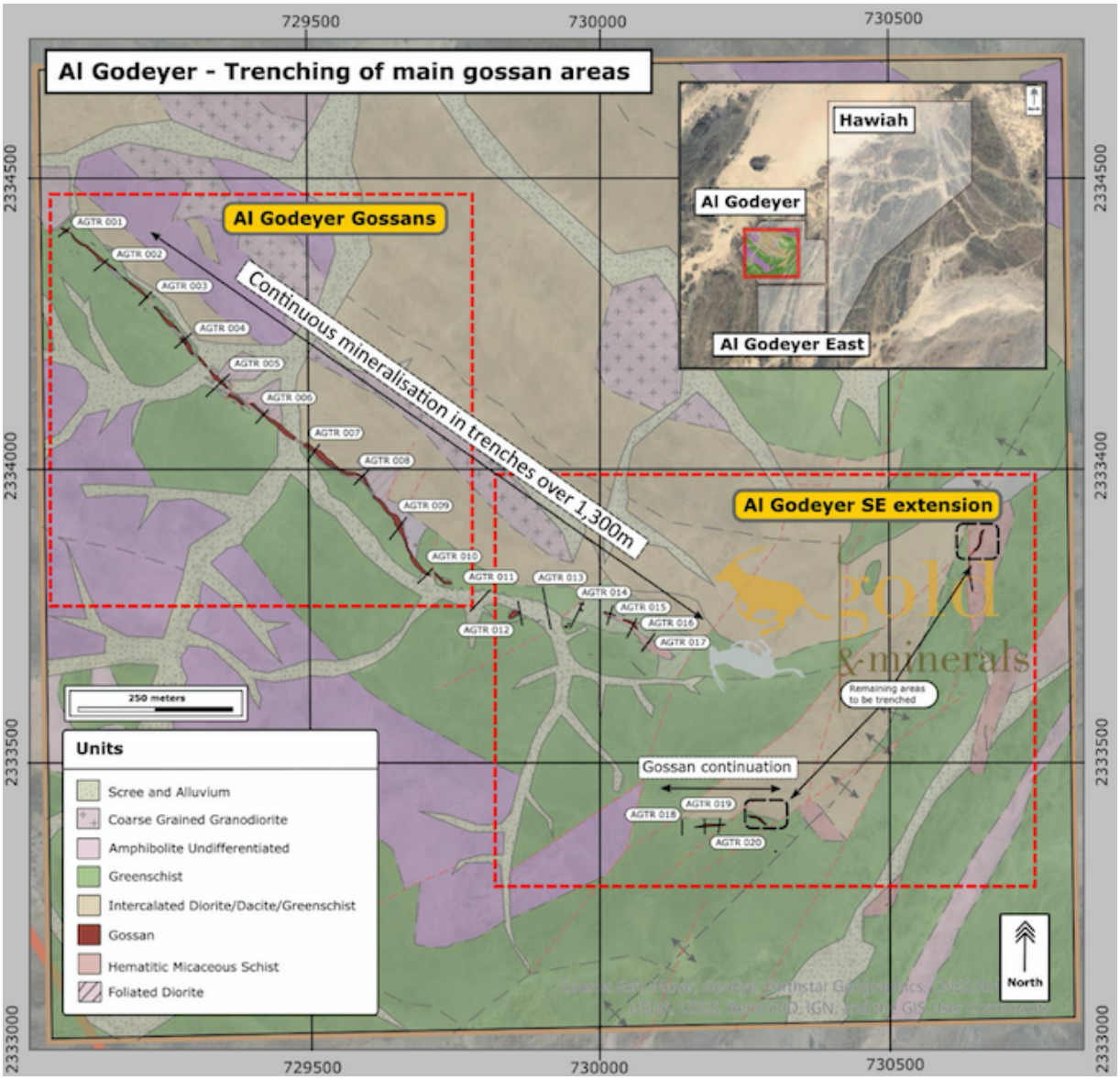
Figure 33: Self-Potential geophysical survey results with mapped gossanous horizon overlain.



Source: KEFI

Given the strength of these results, drilling has commenced ahead of schedule. Management notes it has already intersected oxide and transition sulphides down to a vertical depth of 35m in the first six holes. Drilling confirms the horizon is dipping at about 65° to the northeast, with widths of up to 10m. **The initial 2,000m scout drilling program has just commenced; the first results are expected in late-2Q22 or early-3Q22.**

Figure 34: Trench location map over the Al Godeyer mineralised horizon.



Source: KEFI

Jibal Qutman reawakens

- Jibal Qutman represents an excellent opportunity to develop a low capex, low cost, high margin, heap leach gold operation in the near-term
- At current gold prices, the starter 35,000 oz pa operation, targeting less than one-third of the total resource, could generate US$42m pa in EBITDA
- Gold and Minerals has applied for further exploration licences covering 400 km^2 offering the potential for substantial resource growth

Jibal Qutman is located in the southern portion of the north-south trending Nabitah-Tathlith Fault Zone, a shield wide, 300km long structure, that hosts more than 40 ancient gold mines and known occurrences, including the major Ad Duwayhi and Mansourah-Massarah gold mines. The project is situated in a remote and uninhabited area some 110km east-northeast of Bisha City. Apart from ancient mine and occasional artisanal workings, the area has not been previously exploited.

The United States Geological Survey (USGS) undertook the first field-reconnaissance of the area on behalf of the then Directorate General of Mineral Resources (DGMR) in 1979. Subsequent mapping by Gold and Minerals defined additional unmapped workings and parallel gold-bearing veins, and extended the previously known strike of quartz vein sets from 400m to 2.9km. In May 2015, Gold and Minerals published a mineral resource of 28.4Mt at a grade of 0.8 g/t gold, for a gold resource of 733,045 oz gold that was based on 430 RC holes and 77 diamond holes.

Gold and Minerals submitted a mining licence application for 26km^2 in 2016, though this was stalled pending the introduction of the new mining law. The understanding is that the Gold and Minerals team is now working closely with the Deputy Minister of Mineral Resources to clear the way for clarification of the licence. **Gold and Minerals has also applied for exploration licences covering some 400 km^2 that could offer significant potential for resource expansion.** These areas host a number of ancient workings and other prosects; rock sampling has identified areas prospective for high-grade gold mineralisation.

Just scratching the surface

In May 2015, Gold and Minerals released a PEA for the Jibal Qutman project that was based on an initial open-pit, heap leach operation that predominantly targeted the oxide material in the resource; **it did not take into account the potential to mine the sulphide materials once the oxide-hosted resources are depleted.** KEFI's estimate of attributable NPV is based on an update of this work. Post-tax NPV_8 attributable to KEFI of £30m is based on an initial 7 year operation, annual production of 35,000 oz gold and 41,000 oz silver in years 1-6, recoveries of 80% of the gold and 45% of the silver, prices of US$1,830/oz gold and US$21/oz silver, and a GBP:USD exchange rate of 1.31. **The operation only targets production of 209,000 oz gold, which is less than one-third of the maiden resource.**

KEFI aims to commence construction in 2023, with first production targeted for 2H24. Start-up costs are estimated to be low at just US$39m. Gold and Minerals has indicated that as much as

75% of this could be financed locally with debt, meaning that KEFI's share of the equity component could be as low as ~£2m.

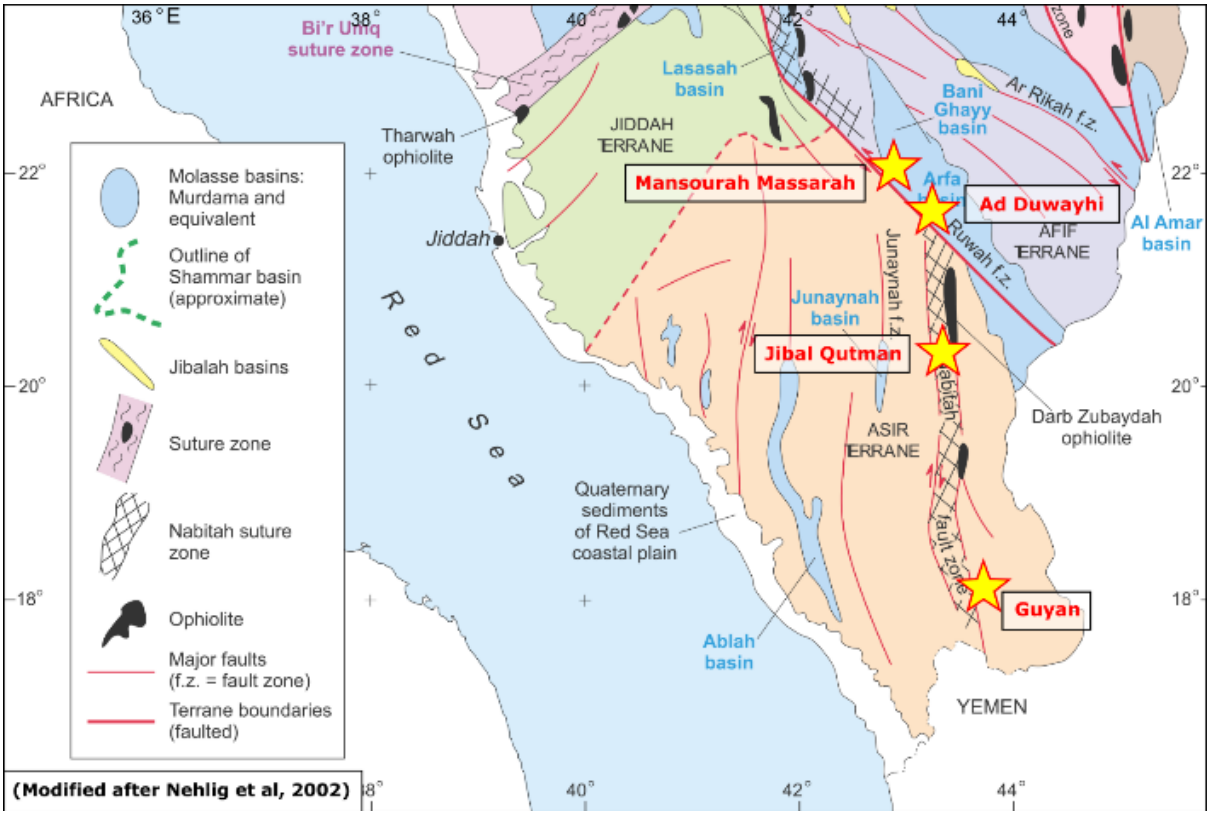
This start-up heap leach operation would be **low capex, low operating cost, and could generate EBITDA of US$276m in the first 7 years,** at US$1,830/oz gold. This would be sufficient to fund a larger operation depending upon further exploration success.

Figure 35: Jibal Qutman key parameters, average years 1-6

Capital expenditure	US$ m	39
Ore mined	tpa	1,500,000
Waste mined	tpa	5,250,000
Strip ratio		3.5
Gold grade	g/t	0.95
Silver grade	g/t	2.00
Gold production	oz pa	35,000
Silver production	oz pa	41,000
Gold price	US$/oz	1,830
Silver price	US$/oz	21
Cash operating costs	US$/oz gold	672
EBITDA	US$ m pa	42
NPV_8, post-tax	US$ m	130
NPV_8, post-tax, attrib. to KEFI (30%)	US$ m	39

Source: KEFI

Figure 36: Jibal Qutman summary of local geology



Source: KEFI

Geology and mineralisation

Jibal Qutman is a mesothermal or orogenic-style quartz-vein-hosted gold deposit comprising a weathered oxide cap and lower un-weathered ore body that is located in the central southern region of the Arabian-Nubian Shield. The project currently comprises separate areas of mineralisation and is open along strike, down dip and at locations peripheral to the known mineralization.

So far, KEFI has discovered seven mineralised gold zones within a 5km long (north-south) by 1 km wide (east to west) area. The main zone of the orebody is a 900m long vein system, with a single high-angle vein up to 4m thick that splits into multiple veins along strike. The ore consists of pyrite and minor tetrahedrite, galena and sphalerite with coarse gold.

The mineralised zones are interpreted as quartz vein and shear-zone related gold mineralization, hosted by folded Upper Proterozoic volcanic and sedimentary units. The shear zones occur along the Nabitah-Tathlith fault zone, and range in thickness from tens to hundreds of metres. According to KEFI, gold mineralisation is associated with the shears in three predominant styles:

- Quartz veins and surrounding stockwork within a carbonatized and albitized alteration envelope, with gold accompanied by disseminated pyrite and minor copper sulphides and oxides
- Sub-horizontal unsheared carbonatized and albitized volcanic bodies, with gold accompanied by large quantities of pyrite and very minor amounts of other sulphides
- A strongly sheared and folded carbonaceous meta-sedimentary unit, strongly sericitised and containing a significant quantity of pyrite. This mineralisation style accounts for only a small part of the resource

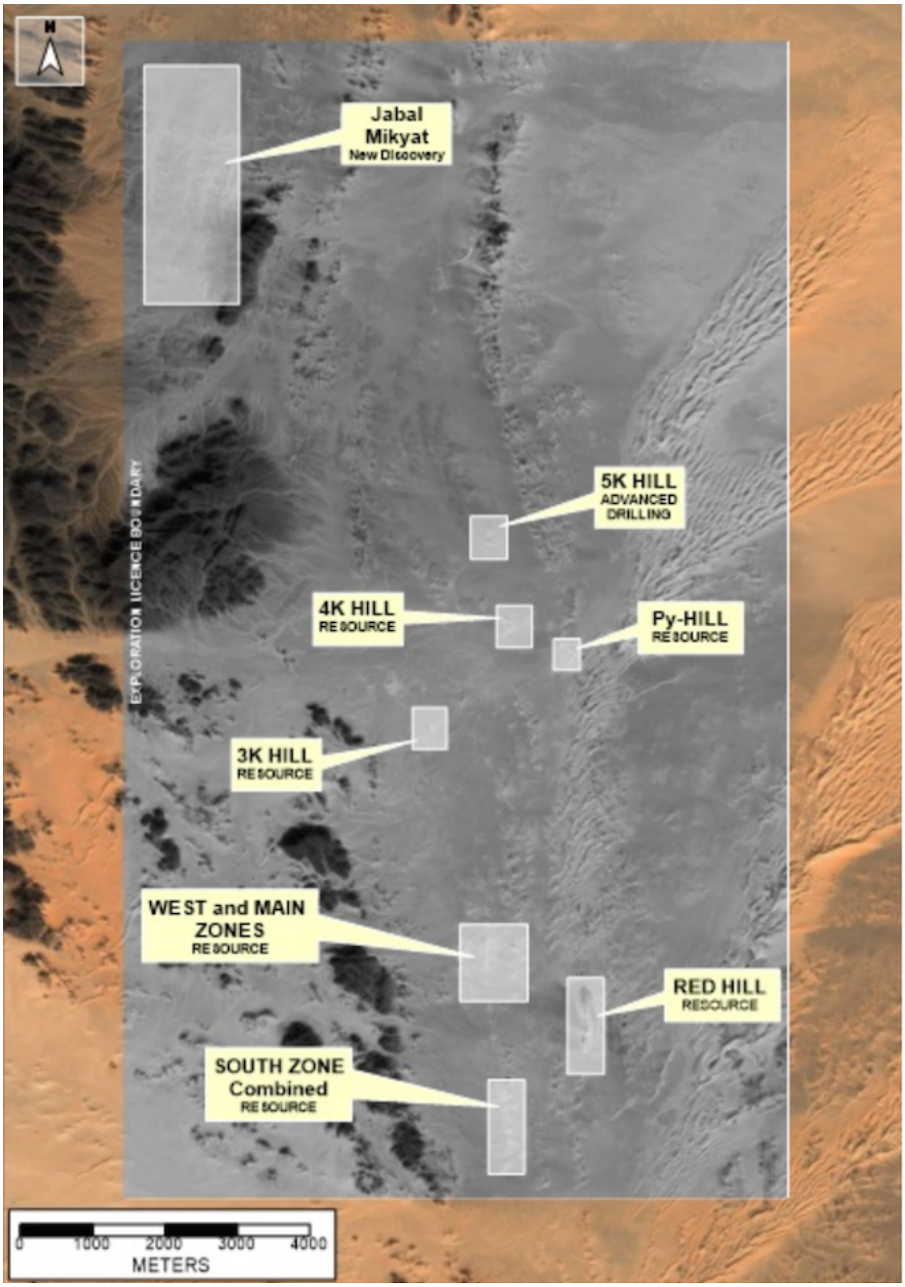
Mineralization extends some 7km along strike, in several discrete zones which outcrop at surface. The width of the near surface mineralization is 500m at the widest zone, and comprises a closely stacked series of discreet mineralized zones varying in width from 1m to 15m and extending to a depth of ~150m.

Figure 37: Jubal Qutman mineral resource

	Category	Tonnes millions	Gold g/t	Contained koz
Oxide	Indicated	8.3	0.86	229
	Inferred	2.8	0.64	58
	Sub-total	**11.1**	**0.80**	**287**
Sulphide	Indicated	9.7	0.86	269
	Inferred	7.6	0.72	176
	Sub-total	**17.3**	**0.80**	**446**
Oxide and sulphide	Indicated	18.0	0.86	498
	Inferred	10.4	0.70	235
	Sub-total	**28.4**	**0.80**	**733**

Source: KEFI

Figure 38: Jibal Qutman map

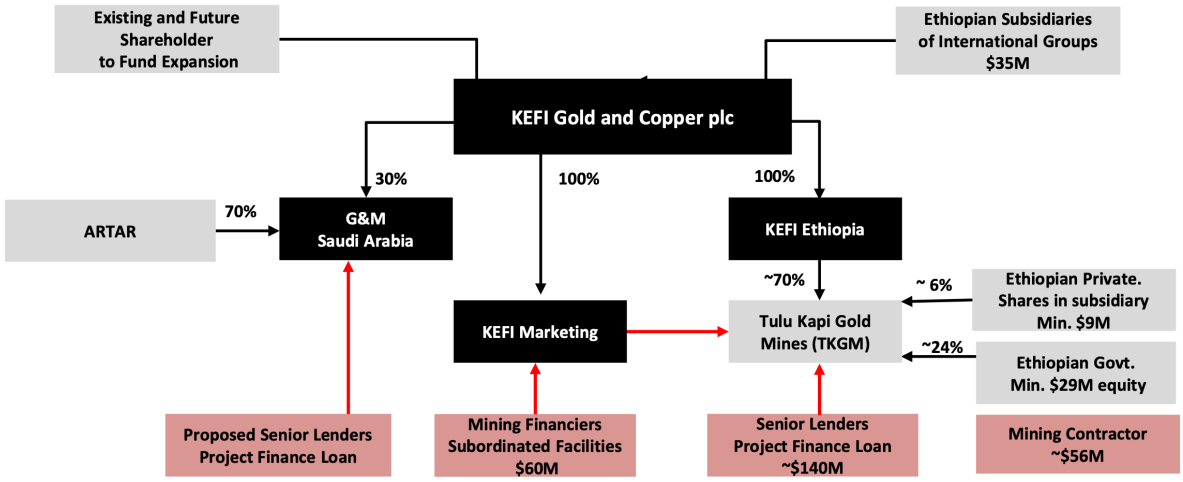


Source: KEFI

Appendix 1: Tulu Kapi, Ethiopia

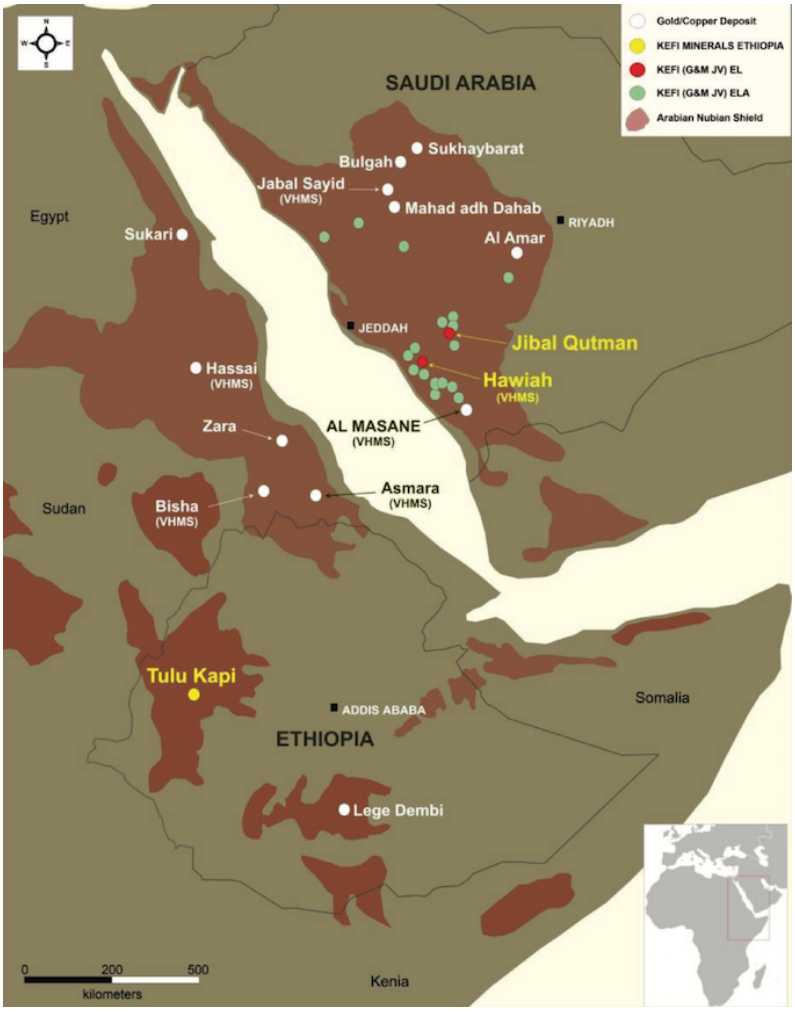
KEFI's expected stake in Tulu Kapi has risen from 45% a couple of years ago to 70% now.

Figure 39: Identified funding structure



Source: KEFI

Figure 40: KEFI project location map



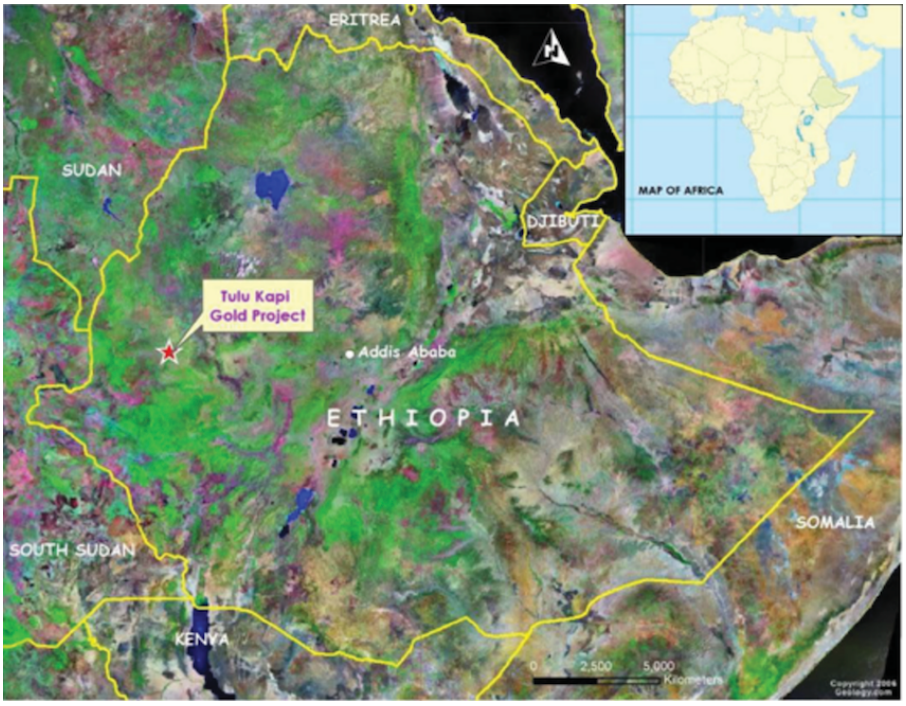
Source: KEFI

Location

The Tulu Kapi project is located in Western Ethiopia in the Oromia Region. It lies 360km due west from the capital, Addis Ababa. By road, the journey from the capital is 520km and takes about 10 hours. The project is also accessible by air. Ethiopian Airlines operates daily flights from Addis Ababa to Asosa, in western Ethiopia. Asosa is about a four-hour drive from Tulu Kapi. There is also an airstrip at Ayra Guliso, located 30km from the project site. Aircraft can be chartered from Addis Ababa. The road journey from Ayra Guliso by a mixture of gravel and dirt roads take about 2 hours.

The project area lies some 9km south of the village of Kelley. The small town of Ayra lies 20km to the west, and Gimbi, an important market town lies 32km to the east northeast. The larger regional centre of Nekemte is about 100km east of the project.

Figure 41: Tulu Kapi project location



Source: KEFI Minerals

Licensing and tenements

The project area is characterised by rounded hills, and deep incised valleys. Elevations vary from 1,550m to 1,770m. The project is situated on a ridge with water drainage to the north and south. Groundwater in the project area is situated in two aquifers. The mining license area is 7km^2.

Land use in the area is mainly for agriculture. Ridges are usually left to grass for cattle. Hill sides are terraced for seasonal crops including corn, maize, teff (an ancient grain from the Horn of Africa, most notably Ethiopia and Eritrea), and other staples. The valleys are typically forested, and provide good cover for coffee plantations.

Rainfall is seasonal. There is a pronounced monsoon season from July to September. Daily temperatures range from 13°C to 32°C immediately ahead of the rainy season, and from 14°C to 24°C in July and August, which are typically the coldest months. Exploration activities can be

maintained year-round, with activities somewhat reduced during the rainy season. Commercial scale mining activities will be maintained year-round.

Project history

Small-scale surface mining took place in the 1930s, though there is no evidence of sustained artisanal efforts. This probably reflects the fine nature of the gold mineralisation. The earliest modern exploration did not take place until the 1970s, when reconnaissance level work was undertaken under the guidance of the United Nations Development Program. The project was only drilled in earnest in 2005 to 2009 when Minerva drilled 34 holes. KEFI acquired the project in two stages in 2013 and 2014.

In April 2015, under KEFI's ownership, the former exploration licence was converted to a Mining Licence. This licence gives KEFI the right to build and operate a mine at Tulu Kapi. The company also has a Mining Agreement with the government of Ethiopia that sets out things like taxation and royalties. The licence and agreement are valid for 20 years. The mining licence can be renewed for periods of a further ten years. Since acquiring the project, KEFI has made a number of changes to the proposed mine plan.

Project history

Figure 42: Snapshot of the project history

Period	Entity	Activity
1930s	Artisanal miners	Small-scale surface mining focused on easily accessible gold-bearing saprolite There is no evidence of consistent artisanal activity in the area
1939	S.A.P.I.E., Italy	Reported reserves of ~37 koz gold in alluvial deposits, saprolite and quartz veins Exploration ceased in 1941
1968	Ethiopia	Formation of the Geological Survey of Ethiopia
1969-1972	UNDP	First 'modern' exploration comprising reconnaissance and detailed mapping Identified the Nejo-Yubdo mineralised belt including Tulu Kapi and satellite deposits Work included 3 diamond holes, 362m, immediately north of the planned open-pit; Best intercepts were 0.7m at 27 g/t gold and 26.2m at 2.8 g/t gold
1996-1998	Tan-Range Resources (Canada)	Acquired the Tulu Kapi-Ankori exploration licence (20 km^2) in 1996 Exploration included 5 diamond holes, with best intercept of 6m at 2.48 g/t gold
2005-2009	Minerva Resources	Conducted three phases of diamond drilling totalling 6,908m over 34 holes including the 'discovery hole' which returned 37m at 4.61 g/t gold. Minerva also undertook mapping, trenching and ground geophysics.
2009-2013	Nyota Minerals	Minerva was acquired by Nyota in 2009. Nyota announced a maiden inferred resource of 690 koz gold in 2009. Subsequent exploration including 189 diamond holes and 302 RC holes totalling 86,873m supported an updated resource of 1,872 koz in 2012 and a DFS. The decline in the gold price in 2013 meant Nyoto was unable to fund the project.
2013	KEFI	KEFI acquired 75% of the project in December 2013
2014	KEFI	KEFI acquired the remaining 25% for £750,000 plus 50m shares in June 2014
2015	KEFI	DFS released for Tulu Kapi
2017	KEFI	Updated DFS released for Tulu Kapi
2018	KEFI	KEFI announced plans to increase plant capacity to ~2m tpa
2020	KEFI	Announced conditional completion of consortium to fund the Tulu Kapi project

Source: KEFI, Orior Capital

In the June 2015 DFS, management recognised the benefits of focusing on a smaller scale selective open-pit mine, delivering 1.2m tpa ore to a conventional CIL plant and, adopting a simple crushing

and grinding circuit. At the time, extensive metallurgical work demonstrated that an overall recovery of 91.5% was achievable. Planned gold production was 960,000 oz over 13 years, averaging ~75,000 oz pa. All-in sustaining costs were estimated to be US$780/oz.

Subsequent to the 2015 DFS, a number of further refinements were identified and incorporated into a revised DFS in June 2017. This included increasing the capacity of the process plant from 1.2m tpa to 1.5m tpa, replacing the SAG and ball mill with a larger SAG-only mill, increasing the target grind to 150 µm, relocating the tailings storage facility downstream to reduce capex, and a plan for mine operations to be undertaken by an experienced African mine contractor.

The original plan was for the mine to be owner operated. This would have entailed training a local workforce with little experience in mining to a level where it could achieve the high productivity rates associated with modern mining. While this is still achievable, management decided to use an experienced contract miner. This has the effect of reducing start-up and operating risks and also results in lower initial capex.

The increase in processing capacity in the 2017 DFS essentially involved the earlier processing of material that would otherwise have been stockpiled for later years of the mine life.

In May 2018, after discussions with the project funding consortium, KEFI published its 2018 Plan. Under the 2018 Plan, planned processing plant capacity was further increased to 1.9m tpa to 2.1m tpa, in a bid to accelerate project cash flows. This forms the basis of the 2020 Plan.

Figure 43: Progression of KEFI feasibility studies and mine plans, Tulu Kapi open-pit

	2015 DFS	2017 DFS	2020 Plan
Life-of-mine, years	13	10	8
Mine operator	Owner	Contractor	Contractor
Waste to ore ratio	7.4:1.0	7.4:1.0	7.4:1.0
Processing rate, m tpa	1.2	1.5-1.7	1.9-2.1
Total ore processed	15.4	15.4	15.4
Average head grade, g/t	2.1	2.1	2.1
Gold recovery	91.5%	93.3%	93.3%
LOM gold production, oz	961,000	980,000	980,000
Average annual gold production, oz	95,000	115,000	140,000
All-in sustaining costs, US$/oz	724	801	856
All-in costs, inc initial capex, US$/oz		937	1,066
Average annual net operating cash flow, US$ m	50	60	78
Payback period, years	3.5	3	3

Source: KEFI

Geology and mineralisation

The primary mineralisation at Tulu Kapi is hosted in mafic syenite. Unaltered syenite is predominantly a medium to coarse-grained rock comprising 60-70% pink to white alkali feldspar, 20-25% plagioclase, and 10-15% ferromagnesian minerals, and minor interstitial quartz. Mineralisation is associated with shallow (30°) northwest dipping zones of dense quartz-veining, enveloped by an auriferous highly albitised, metasomatic alteration centred on the Bedele shear zone. The albitised zones are lensoid in nature and comprise discrete stacked bodies that pinch and swell both along strike and down dip. Large-scale fault structures trending northeast-southwest have been identified within the Tulu Kapi deposit, but the displacement of the mineralisation is minor.

Appendix 2: Saudi Arabia

The Saudi Arabian part of the Arabian-Nubian Shield is a vast area stretching some 1,500 km north to south, and 800 km east to west. The area has a long and rich history of gold mining dating back to around 3,000 BC. The Mahd adh Dhahab mine (مَـهـد الـذّهـب, literally 'Cradle of the Gold'), located mid-way between Mecca and Medina, is believed to be the fabled King Solomon's Gold Mine, and has been linked to the story of the Garden of Eden in the Book of Genesis. It has been estimated to have produced more than 6 moz gold since antiquity. From the 1970s to the mid-1980s, USGS and its French counterpart, Bureau de Recherches Géologiques et Miniéres (BRGM) were commissioned to document and evaluate mineral occurrences in Saudi Arabia. More than 5,000 historic mines and occurrences were discovered.

Despite this rich history, Saudi Arabia remains relatively under-explored in modern times. Today, there are only a handful of operating mines including Mahd adh Dhahab (gold), Jabal Sayid (VMS), Al Masane (VMS), Al Amar (VMS), and Mansourah-Massarah (Gold). Opportunities abound; **since 2000, Ma'aden has discovered some 8 moz gold in the Central Arabian Gold region.**

The Jabal Sayid copper operation is a 50:50 joint venture between Barrick and Ma'aden located some 350km northeast of Jeddah. The mine hosts copper resources of ~1.84bn lbs copper at a grade of ~2.5% Cu. Commercial operations commenced in July 2016. According to Barrick, the mine produced 152m lbs copper in 2021 at an all-in sustaining cost of US$1.33/lb.

Patience pays off

This vast and relatively under-explored minerals wealth, combined with KEFI's experience in country offers something of an advantage. KEFI has been evaluating prospects in Saudi Arabia since 2008. KEFI's local partner, Abdul Rahman Saad Al Rashid and Sons Company Limited ("ARTAR") is a leading local industrial group owned by Sheikh Al Rashid and his family. The group has investments in construction, real-estate, agriculture, and health care in Saudi Arabia, and overseas. ARTAR owns a 70% stake in the Gold and Minerals JV, with KEFI owning the remaining 30%. KEFI appoints the CEO and proposes all business plans for JV approval.

Gold and Minerals JV has built a substantial proprietary database; quiet persistence over the past decade, and a strong local partner, is now paying off in terms of projects being rapidly advanced.

New mining code aims to attract investment

Saudi Arabia's new mining code came into effect in 2021. Its ambitious aim is ultimately to make the mining sector a third leg to the Saudi economy after oil and petrochemicals.

The Saudi economy has been heavily dependent on oil since the 1970s. According to the CIA, the Kingdom possesses ~16% of the world's proven petroleum reserves, and is the largest exporter of petroleum. The petroleum sector accounts for ~87% of budget revenues, some 42% of GDP, and about 90% of export earnings. Since Saudi Arabia's accession to the WTO in 2005, the government has pursued reforms aimed at diversifying the economy, attracting foreign investment and weening the country off its oil dependence. In April 2016, the government announced a broad set of socio-economic reforms, known as Vision 2030. Low prices and high unemployment rates (in 2019, youth unemployment was ~28%) seem to have provided further impetus to these reforms. Saudi Arabia

has a relatively young population, with about 40% of the populace under the age of 25. Saudi officials are particularly focused on employing its large youth population.

Saudi Arabia did introduce new mining regulations in 2004. The code allowed for companies to be 100% foreign owned, included a flat corporate tax of 20%, no royalties on minerals, had no restrictions on foreign exchange or capital repatriation, and included exemptions from import duties on capital items. On paper this provided for an attractive environment, though implementation was lacking. Recognising a need to do justice to the potential of the mining sector, and a desire to diversify the economy, Saudi Arabia's Ministry of Industry and Mineral Resources unwrapped its new mining law In June 2020.

The new law includes 63 articles that address a wide range of issues including financial consideration, sustainability, powers to grant licenses, sector governance and others. The numerous objectives of the new law include encouraging investment in the minerals and related downstream industries, streamlining the procedures for licence applications, and tightening the rules around sustainability.

Since the new mining code was introduced, Saudi Arabia has reportedly received more than 1,500 licensing requests. Mining investment is expected to reach as much as US$150bn over the next decade.

In March 2022, Al Masane Al Kobra Mining Co (AMAK) listed on the Saudi Stock Exchange, raising US$333m at a price of SAR63/share, for a 30% stake. According to argaam.com the institutional offering was oversubscribed 73.6x.

Figure 44: Major amendments to the new mining law and expected impact

Broad area, and policy objectives	Expected impact
Financial consideration, and encouraging investment Determine financial consideration for exploitation Motivate investors to process raw materials within the Kingdom, by cutting consideration for such investments	Achieve equitable outcomes for all investors Boost the Kingdom's revenues Encourage downstream investment Provide local raw materials Clarifying regulatory requirements for potential investors Providing financial incentives to support sector
Sector governance Provide modern technical and financial resources Achieve financial commitment and optimise utilisation of resources Evaluate requirements for obtaining licences	Boost the Kingdom's revenues Increase mining operations Ensure licence holders comply with best technical and environmental practice Reduce violations, to raise investment attractiveness Increase monitoring efficiencies using modern technology Create jobs for local communities
Sustainability Obligate licence applicants to submit environmental studies and development plans Obligate exploitation licences holders finance rehabilitation and mine closure Reduce violations by assessing causes, increasing fines	Develop local communities and provide job opportunities Increase local contribution to local development Protect rights of local communities and contribute to economic development of under-developed regions Attract Saudi youth to work in the sector Ensure standards are in place to monitor environmental compliance, health, and safety Promote social licensing and make mining welcome in communities
Licenses regulations Allow issuance of licenses for small mines Relax requirements and loosen procedures for mining Licences for small investors	Increase number of local developers and small investors Find financing channels for mining licenses Provide safe, attractive investment environment Provide clarity, transparency for mining licences Increase geological and statistical information Increase exploration spending
Powers to grant licenses Facilitate process of issuing licenses, and reserve mining areas for investment Determine which lands are excluded from the law and which lands require approval for mining licences	Ensure stability of mining license over its validity Increase transparency in Ministry's powers to enhance client confidence Develop mineral deposit areas Reduce procedures period Eliminate duplication of local land regulations Have clear governance to determine land-use powers Reduce investors' risk, to encourage investment
Sustainable financing Establish a mining fund at the Ministry	Grant the Ministry a sustainable source of funding for long-term contracting and reducing program costs Assist with exploration and geological survey activities Support rehabilitation of abandoned mines Provide sustainable funds for Mining Services Co. Support development of mining sector personnel

Source: Argaam.com, Orior Capital

Appendix 3: The Arabian-Nubian Shield

The Arabian-Nubian Shield is an accretionary orogeny at the northern half of a great collision zone called the East Africa Orogeny. It evolved between about 870 Ma (million years ago) and 550 Ma, and represents one of the largest tracts of juvenile Neoproterozoic crust in the world. The Shield measures more than 3,500 km north to south, and at its widest, more than 1,500 km east to west. It underlies an area of ~2.7 million km^2. The Shield is exposed as part of the Sahara Desert and the Arabian Desert in the north, and in the Ethiopian Highlands, Asir Province in Saudi Arabia, and the Yemen Highlands to the south. It outcrops in nine countries; Jordan, Israel, Saudi Arabia, Egypt, Yemen, Sudan, Eritrea, Ethiopia and Kenya.

The region has a long history of geological activity, and was host to some of man's earliest mining efforts; ancient Egyptians mined gold from Egypt and northeast Sudan. The earliest preserved geological map, known as the Turin papyrus and showing gold deposits in eastern Egypt, dates back to 1,150 BC. Gold at Tulu Kapi is hosted in syenite. 'Syene' is the Greek name for Aswan, where the ancient Egyptian's mined granite. In Saudi Arabia, gold, silver, copper, zinc, tin and lead have been mined for at least 5,000 years.

Tectonic setting

The East Africa Orogeny collision zone formed towards the end of the Neoproterozoic period when East and West Gondwana collided, forming the 'supercontinent' Gondwana. This process commenced with the break-up of former supercontinent Rodinia, the formation of oceanic basins, such as the Mozambique Ocean, and the growth of the shield, around 870 Ma. Shield growth lasted for 300 million years. Subduction zones were shaped within these basins, forming oceanic volcanic arcs. According to Abu Alam et al, two types of suture zone formed in the Arabian-Nubian Shield during the collision of these volcanic arcs. Arc-arc sutures trend mostly NE-SW and represent the zones of closure of the Mozambican basins between volcanic arcs at ~800 Ma to 700 Ma. Following these arc-arc collisions, the Arabian-Nubian Shield collided with pre-Neoproterozoic continental blocks (the Sahara Metacraton) around 680 Ma to 630 Ma. These arc-continent sutures trend north-south. Final assembly of the Arabian-Nubian Shield occurred around 550 Ma.

Shear-zone hosted gold mineralisation of the Arabian-Nubian Shield: devolatilization processes across the greenschist-amphibolite-facies transition; Tamer Abu-Alam, Mohammad Abd El Monsef and Eugene Grosch

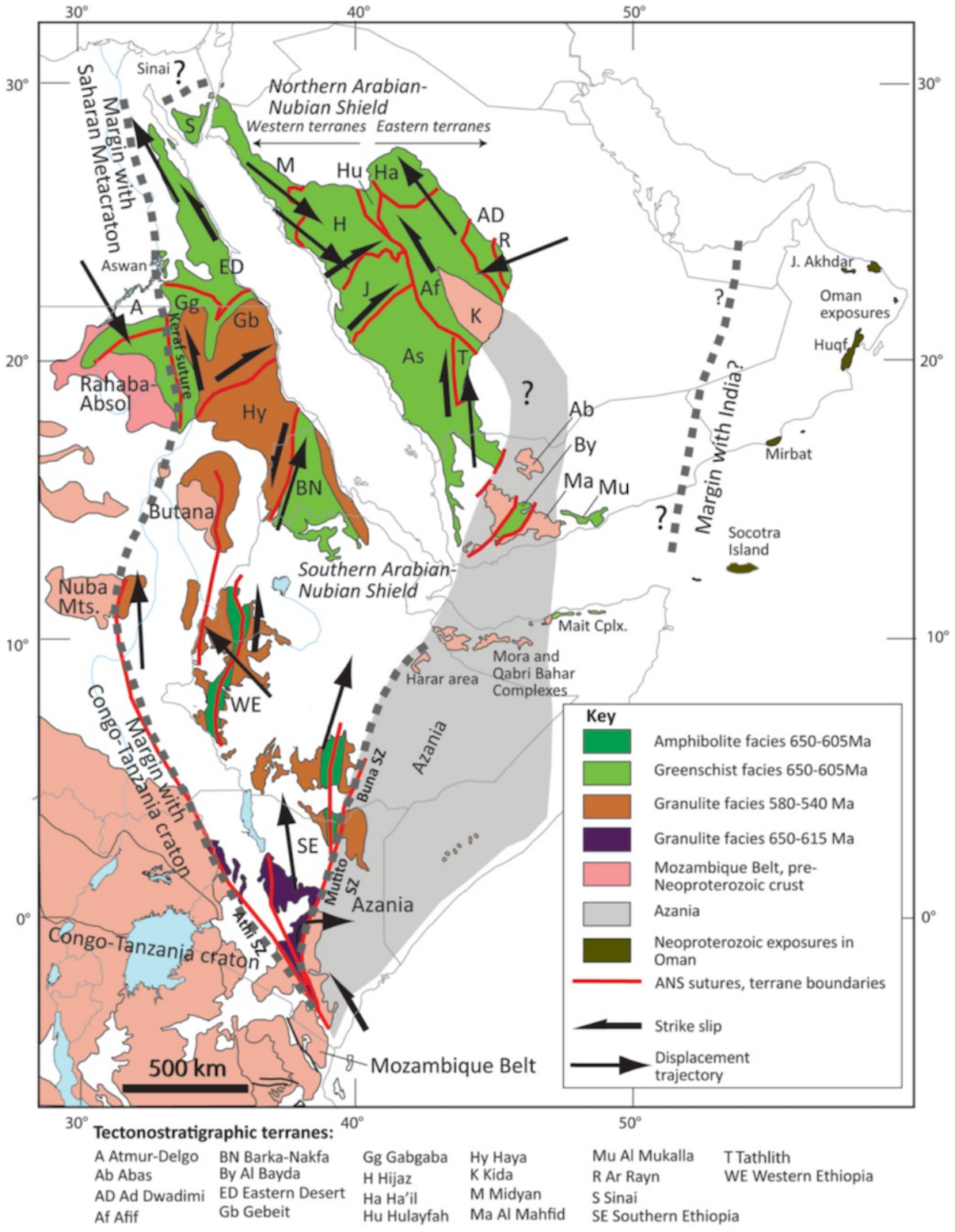
Late Cryogenian–Ediacaran history of the Arabian–Nubian Shield: A review of depositional, plutonic, structural, and tectonic events in the closing stages of the northern East African Orogen, 2011; P.R. Johnson, A. Andresen, A.S. Collins, A.R. Fowler, H. Fritz, W. Ghebreab, T. Kusky, R.J. Stern

An Expanding Arabian-Nubian Shield Geochronologic and Isotopic Dataset: Defining Limits and Confirming the Tectonic Setting of a Neoproterozoic Accretionary Orogen, 2014; P.R. Johnson

Tulu Kapi Gold Project: A history of repeated discoveries in Western Ethiopia; Fabio Granitzio, Jeff Rayner and Tadesse Aregay

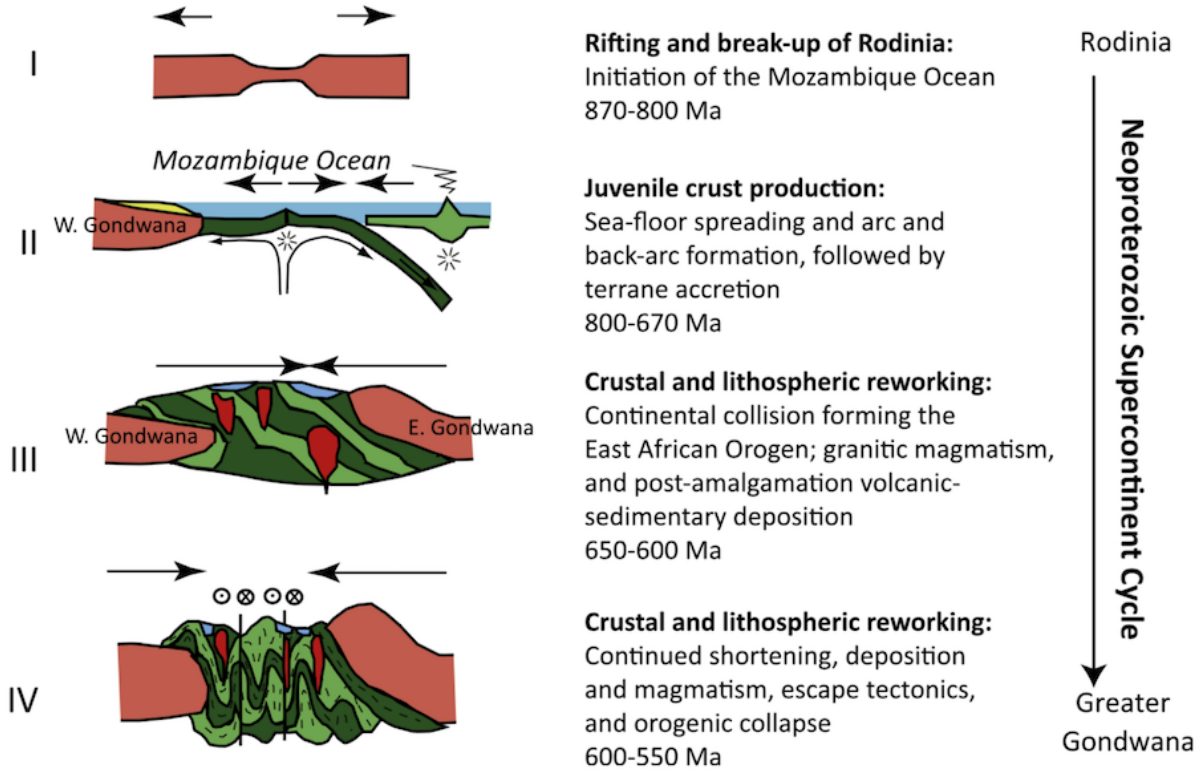
Gold-bearing volcanogenic massive sulphides and orogenic-gold deposits in the Nubian Shield, P.R. Johnson, B.A. Zoheir, W. Ghebreab, R.J Stern C.T. Barrie, R.D. Hamer, 2017

Figure 45: Structural and metamorphic map of the Arabian-Nubian Shield, showing tectonostratigraphic terranes, suture zones, the boundary between eastern and western arc terranes in the Arabian Shield and boundaries between the Arabian-Nubian Shield and flanking older crustal blocks. Arrows show displacement trajectories and sense-of-shear during transpressive orogenic phases in the region.



Source: An Expanding Arabian-Nubian Shield Geochronologic and Isotopic Dataset: Defining Limits and Confirming the Tectonic Setting of a Neoproterozoic Accretionary Orogen

Figure 46: Schematic illustration of stages in the development of the Arabian-Nubian Shield showing its setting in the supercontinent cycle, bracketed by the break-up of Rodinia and the assembly of Gondwana



Source: Late Cryogenian–Ediacaran history of the Arabian–Nubian Shield: A review of depositional, plutonic, structural, and tectonic events in the closing stages of the northern East African Orogen

Geological setting

The Arabian-Nubian Shield comprises mostly low-grade, greenschist metasedimentary and metavolcanic rocks, derived from ocean island-arc volcanism. Greenschists are metamorphic rocks that formed at low temperatures of 300-500°C and low pressures of 3-20 kbar, at crustal depths of 8-50 km. Ophiolites, pieces of oceanic crust that have been lifted above sea level onto the edges of continental plates, are abundant across much of the shield, from its northern extreme, almost to the equator. They range in age from 890 Ma to 690 Ma, documenting some 200 million years of oceanic magmatism, and they are found in suture zones dating from 780 Ma to 680 Ma, reflecting 100 million years of terrane convergence. High-grade metamorphic rocks were exhumed from beneath the low-grade sequence both in extensional and compressional settings. The Shield was intruded by plutonic rocks (igneous rocks formed at great depth) in different tectonic settings. Finally, younger rocks including dykes, molasses-type sedimentary rocks (sandstones, shales), potassium rich ('high-K') volcanic rocks, and alkaline granitic rocks were formed during the later tectonic stages of the Shield's evolution.

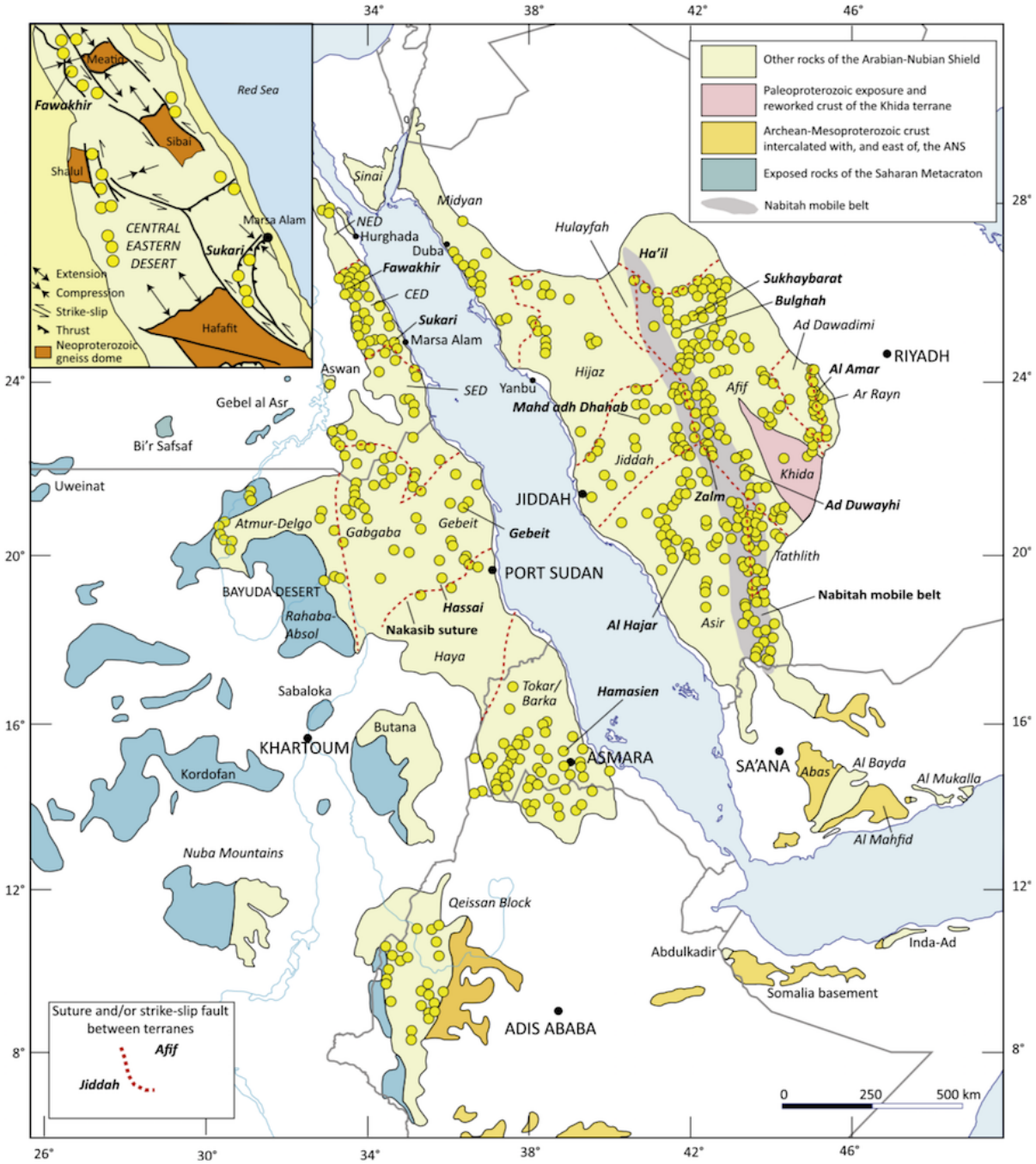
Gold deposits

The Arabian-Nubian Shield hosts a number of different gold deposit styles, in a variety of tectonic settings. The occurrences are predominantly late Cryogenian–Ediacaran (650 Ma to 542 Ma) orogenic-type gold in a variety of structural and lithologic settings, though there are a variety of other deposit types. In the Arabia Shield, Madh Ad Dhahab and Al Amar are both epithermal gold, Ar Rjum and Ad Duwayah are intrusive related, and Mansourah and Mansarrah are listweanite deposits. In the

Nubian Shield, the main deposit types are orogenic gold and gold associated with VMS mineralisation. Gold bearing VMS deposits are mined at Bisha (Eritrea) and at Hassai (Sudan). Orogenic gold is mined Sukri and Hamash (Egypt), in Sudan, Eritrea and at Lega Dembi and Sakaro (Ethiopia).

This combination of the subduction-related origin of the Shield, widespread shearing, and metamorphism associated with late Neoproterozoic orogeny are highly favourable for the development of these types of gold deposits. The Arabian-Nubian Shield hosts the largest known Neoproterozoic gold resource on Earth.

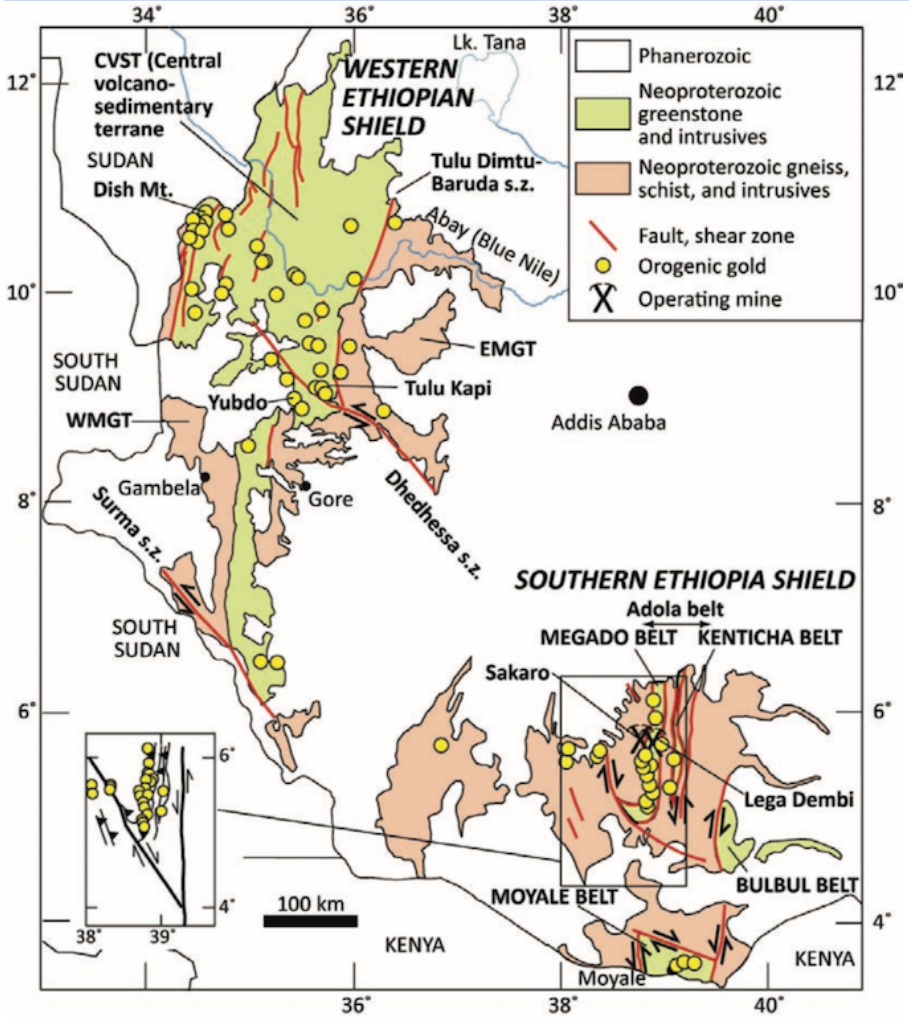
Figure 47: Simplified plot of gold occurrences in the Arabian–Nubian Shield



Source: Late Cryogenian–Ediacaran history of the Arabian–Nubian Shield: A review of depositional, plutonic, structural, and tectonic events in the closing stages of the northern East African Orogen

Tulu Kapi in Western Ethiopia, and Lega Dembi in Southern Ethiopia are both orogenic gold deposits. The Tulu Kapi deposit is hosted by syenite in strongly sheared metavolcanic and metasedimentary rocks in what is known as the central volcano-sedimentary terrane greenstone belt.

Figure 48: Gold occurrences and producing mines in Western and Southern Ethiopia

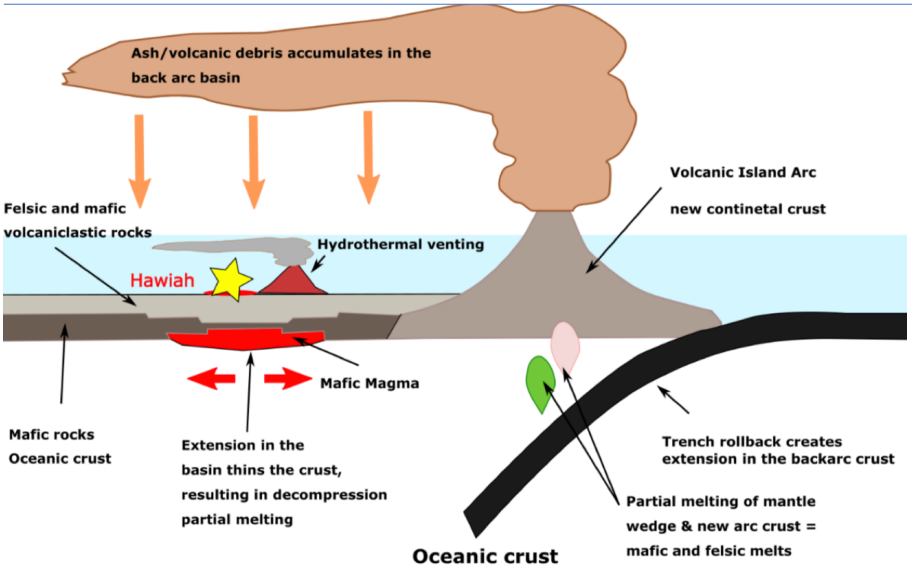


Source: Gold-bearing volcanogenic massive sulphides and orogenic-gold deposits in the Nubian Shield; P.R. Johnson et al, 2017

Volcanogenic massive sulphide (VMS) deposits

Hawiah is an example of VMS mineralisation. VMS deposits are an important source of copper, accounting for ~6% of global production, as well as a significant supplier of zinc (~22%), lead (~10%), gold (~2%) and silver (~9%). VMS deposits tend to follow tectonic plate boundaries and ancient underwater volcanic activity and tend to occur in clusters, with sometimes as many as 20 or more such deposits within an area of several tens of square kilometres. This clustering of ore lenses in close proximity, and the polymetalic nature of the deposits suggests potential for long-term production. The Arabian-Nubian Shield hosts a number of notable VMS deposits including Bisha (Nevsun and Zijin Mining) and Asmara (Sichuan Road and Bridge Mining Investment Development) in Eritrea, Hassaii (Ariab) in Sudan, and Jabal Sayid (Barrick and Ma'aden) and Al Masane (Al Kobra Mining) in Saudi Arabia.

Figure 49: Formation setting for the Hawiah deposit, modified after Volesky, 2017



Source: KEFI

Appendix 4: Companies mentioned

Company	Code
KEFI Gold and Copper	KEFI.L
African Gold Group	AGG.V
Barrick Gold	GOLD
Caledonia Mining	CMCL
Endeavour Mining	EDV.TO
Galiano Gold	GAU
Hummingbird Resources	HUM.L
Newcore Gold	NCAU.V
Newmont	NEM
Orca Gold	ORG.V
Orezone Gold Corp	ORE.V
Osino Resources	OSI.V
Pan African Resources	PAF.L
Perseus Mining	PRU.AX
Predictive Discovery	PDI.AX
Robex Resources	RBX.V
Shandong Gold	1787.HK
Shanta Gold	SHG.L
Thor Explorations	THX.V
Tietto Minerals	TIE.AX
West Africa Resources	WAF.AX

The author

Simon Francis is a UK qualified chartered accountant with significant experience in the natural resources and minerals sector. Simon led research in the sector in various roles at major financial institutions including Macquarie, Samsung and HSBC, in a career spanning more than 20 years. He has been involved in approximately US$4bn of capital raising, for a number of natural resources companies. Simon has been engaged in the financing of early stage companies using production agreements, and has privately funded exploration companies in various metals and jurisdictions. Simon seeks to deploy capital in undervalued mining and resources opportunities that have been missed by the market.