

Tulu Kapi Gold Project: A history of repeated discoveries in Western Ethiopia

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Abstract

The Tulu Kapi gold project is located in the West Oromia region of Ethiopia, approximately 550km west of Addis Ababa. The project is currently being financed by Kefi Minerals Plc with construction of an open pit mine planned to commence in early 2018. The total indicated and inferred resource is 20.2 @ 2.65 g/t gold for 1.72 Moz with an open pit ore reserve of 1.05 Moz gold.

Gold and platinum has been historically mined by alluvial and eluvial methods in the district and it is known that mining has been performed in the Arabian Nubian Shield (ANS) for at least 6,000 years, from thousands of ancient mines in Saudi Arabia, Egypt, Sudan and Eritrea (Johnson et al., 2011, Johnson et al., 2017). From 3,000 BC, the Pharaohs defined North Ethiopia as the Land of Punt, rich in resources such as gold, myrrh and ivory (Klemm et al., 2001).

The Tulu Kapi deposit has had a stop-start history of exploitation due to its modest grade in ancient times, world wars, civil uprising, communist regimes, the collapse of the gold price in the late 1990s and, most recently, over-capitalisation of the mine in times of gold price instability. Tulu Kapi has been mined and “re-discovered” several times throughout the 20th and 21st centuries. At the beginning of the 20th Century these regions of East Africa were at the centre of a gold rush (Zaccaria, 2005; Maiocchi, 2015). In Egypt and Sudan, a number of mining companies were operating, while in Ethiopia in 1901 the company Mines d’or du Wallaga, with capital of one million francs, was established in Antwerp and listed on the stock exchange (Zaccaria, 2005).

Regional geology

The ANS is a collage of Neoproterozoic juvenile arcs, younger sedimentary and volcanic basins, voluminous granitoid intrusions, and enclaves of pre-Neoproterozoic crust that crop out in the western Arabian Plate and the north-eastern African Plate at the northern end of the Eastern African orogeny (Johnson et al. 2011). Differences in the orientation of structural trends divide the shield into southern and northern parts. Prior to Red Sea-Gulf of Aden opening, the Arabian and Nubian Shields were conjoined as one of the largest tracts of juvenile Neoproterozoic crust on Earth (Johnson et al. 2011). Earliest base metal and gold mineralisation was deposited in an island arc terrane, similar to that seen in Indonesia and the Philippines today.

Similar to other parts of the ANS, Precambrian rocks in the Western part of Ethiopia are grouped into older high-grade pre-Neoproterozoic gneisses, with slivers of supracrustal rocks, and Neoproterozoic (900–500 Ma) low-grade volcano-sedimentary sequences and associated dismembered mafic-ultramafic bodies. The units are intruded by syn- to post-tectonic felsic to mafic plutons. Western Ethiopia is generally characterised by the N-S to NNE-NNW, and minor but important NW-SW structural trends. The dismembered mafic-ultramafic complexes are interpreted by many authors to be remnants of ophiolitic sequences, marking Neoproterozoic suture zones (Fig. 1).

The gold deposit styles range in a number of varying tectonic settings. In the Arabian Shield, Madh Ad Dhahab and Al Amar are epithermal gold +/- base metal deposits, Ar Rjum and Ad Duwayah (both over 3 Moz gold) are intrusive related, Mansourah and Mansarrah (together plus-4 Moz gold) are ‘listwanite’ deposits and there are a host of orogenic gold deposits. The main deposit types in the Nubian Shield are orogenic gold and gold associated with volcanogenic massive sulfides (VMS) (Johnson

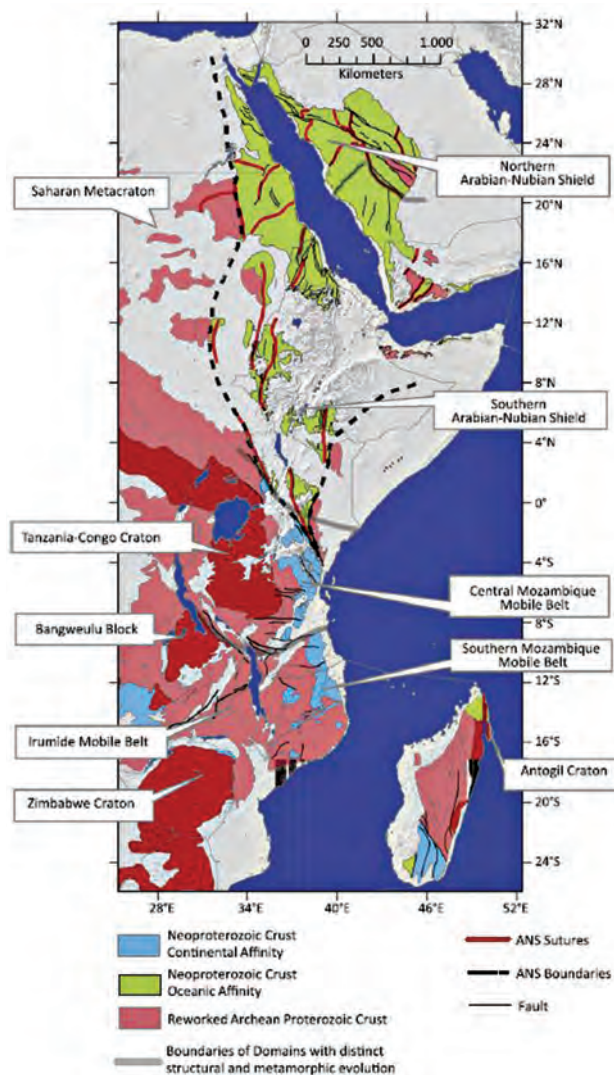


Figure 1: The Arabian–Nubian Shield in relation to East Africa as component parts of the East African Orogen. Although the Arabian–Nubian Shield extends as far south as southern Kenya, the geographic focus of this review is on the ANS between northern Ethiopia and Sinai and Jordan (after Johnson et al. 2011)

et al., 2017). The juvenile subduction-related origin of the Shield rocks and the pervasiveness of shearing and greenschist-to-amphibolite facies metamorphism associated with late Neoproterozoic orogeny are geologic features highly favorable for the development of these types of deposits, and make the combined Arabian-Nubian Shield the Earth's largest Neoproterozoic gold resource. Gold-bearing VMS deposits are currently mined at Bisha (Eritrea) and are soon to be mined at Hassai (Sudan). Orogenic gold is mined at Sukari and Hamash (Egypt), Qbgbih and Kamoeb (Sudan), Koka (Eritrea), and Lega Dembi and Sakaro (Ethiopia), and mining is due to start at Gupo (Eritrea) and Tulu Kapi (Ethiopia) in the near future (Johnson et al., 2017).

More than 20 companies are actively exploring for gold in the region and potentially important deposits are known in Egypt (Hamama-VMS), northern Sudan (orogenic gold and VMS), along strike from Bisha and in the Asmara area, Eritrea (VMS and orogenic gold), in northern Ethiopia (VMS), and in western and southern Ethiopia (orogenic gold and sparse VMS). (Johnson et al., 2017).

Few publications are available on the ANS of Western Ethiopia and most of the past exploration work in Ethiopia has been carried out without sound mineralisation models, mainly due to limited understanding of the regional geology, including structural, tectono-stratigraphy and tectono-magmatic evolution. Almost all reported occurrences and deposits of gold, platinum and other metals (copper, zinc, lead, nickel, iron) in Western Ethiopia are genetically linked to the tectono-thermal and structural evolution of the various low-grade metavolcano-sedimentary belts (Tadesse S. et al, 2003).

The geology of the Precambrian rocks of Western Ethiopia is now better understood following the publication of the 1:250,000 scale geological map by the Geological Survey of Ethiopia (GSE). Most parts of the Kefi Bila-Yubdo exploration licence area is covered by the 1:250,000 'Gimbi' map sheet while the southernmost part is covered by the 'Gore' map sheet at the same scale.

Three main deformation phases have been recognised within the Precambrian rocks in Ghimbi area (GSE, 2000). The first deformation (D1) was represented by west-verging thrust and related recumbent tight to isoclinal folds with sub-horizontal axis, and by shallow SE dipping and NE-SW-trending axial planar penetrative foliation (S1). The second deformation is considered as progressive continuation of D1 and characterised by upright folds and sinistral NE oriented strike-slip shear zones. The D2 deformation has resulted in the steepening of D1 structures.

The last phase (D3) is defined by conjugate brittle-ductile strike-slip faults/shear zones that are superimposed at high angle to the D1 & D2 structures. The NW-trending Didessa shear zone is the main structures of this deformation. Local open E-W folds are related to the continuation of the last phase of deformation.

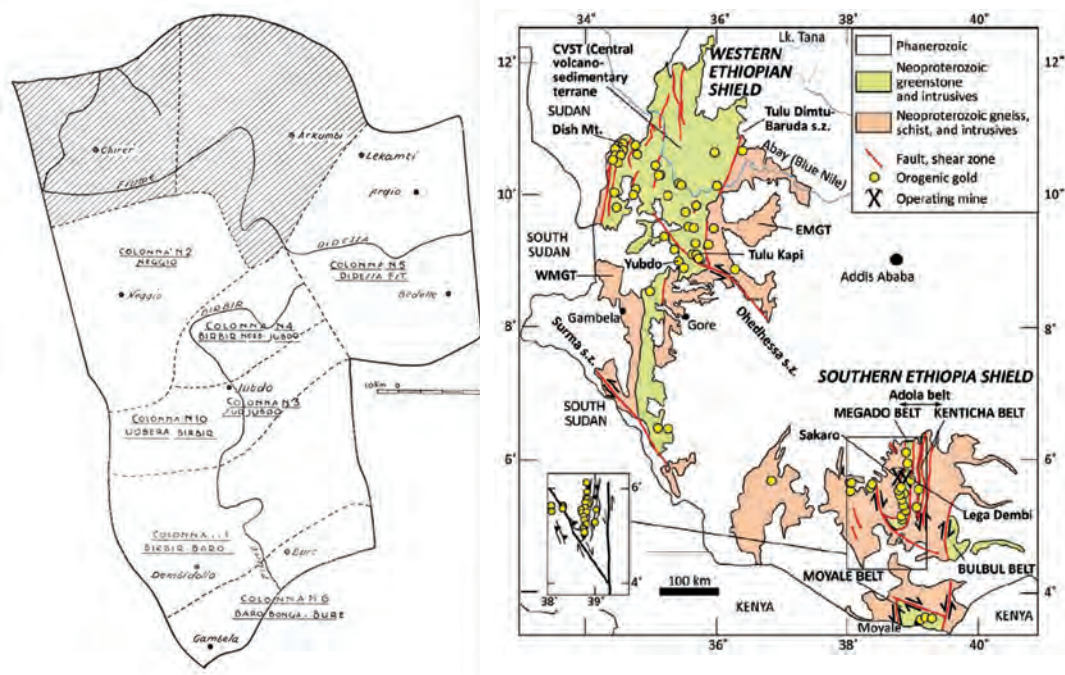


Figure 2: The map to the left shows the dislocation of S.A.P.I.E. Exploration Corps in western Ethiopia (from "Giacimenti Auriferi nell'Uollega e nel Beni Scianguil", S.A.P.I.E., 1938). In a paragraph the book reports: "During the rainy seasons, the exploration corps, reduced to eight, were located: two at Yubdo's mining district (platinum) for the elaboration of the obtained results and completion of the geological and mineralogical studies, while the other six were based in Cata, Gordoma, Tullu Capi-Gulissó (Tulu Kapi), Uabera and Burè, for the continuation of the exploration and organization of semi-industrial and indigenous exploitation under the supervision of SAPIE technicians". Map to the right: gold occurrences and producing mines plotted on a simplified map of Precambrian geology of Western and Southern Ethiopia (after Johnson et al. 2017)

Exploration history: the Italians

In 1935, Fascist Italy invaded Ethiopia, commencing a war that lasted for several months and ended with the annexation of the country to the Italian Colonial Empire, within which it remained until the yield of the last Italian garrisons in Gondar in November 1941.

In 1936, the Colonial Mining Service (SMC) was set up to carry out rapid exploration of Ethiopia. The mining industry was in fact strategic for national autarky¹ (Gagliardi, 2016).

The state promoted a number of exploration and mining companies devoted to the exploration of the colonies. The valorisation of Western regions of Ethiopia was entrusted to S.A.P.I.E.-PRASSO and to the Societa' Mineraria Italo-Tedesca (S.M.I.T.).

The activities of S.A.P.I.E. at Tulu Kapi were mainly focused on the exploitation of the "placers". Eluvial and alluvial gold mining took place in a number of nearby places including Ankori, Komto, Yaven, Buneya and in many streams found in the south and south-central parts of Kefi's current tenements. Gold recovery using gravity methods was also made possible thanks to the construction of a 29km canal through the villages of Ankori and Fabacha, which have supplied water required to process eluvial deposits (Usoni, 1952).

In 1939, S.A.P.I.E. reported reserves of approximately 37,000 oz Au in alluvials, saprolite and in quartz veins at Tulu Kapi (UNDP, 1980). The area of saprolite mining is located in the centre of the planned open cut at Tula Kapi.

The operational infrastructure of S.A.P.I.E. had a clear military setting: the prospecting groups, called "Colonne" (corps), reported to the General Directorate of Research, with offices in Yubdo, and were coordinated by a specialist engineer. In Yubdo, there was also a laboratory for the analysis of samples collected during the various prospecting stages.

Each corps was formed by 35/40 Italian and indigenous men (S.A.P.I.E., 1938), often escorted by Ascari (Eritrean soldiers embedded in the Italian colonial army), and was dedicated to the exploration of a specific district (Fig.2).

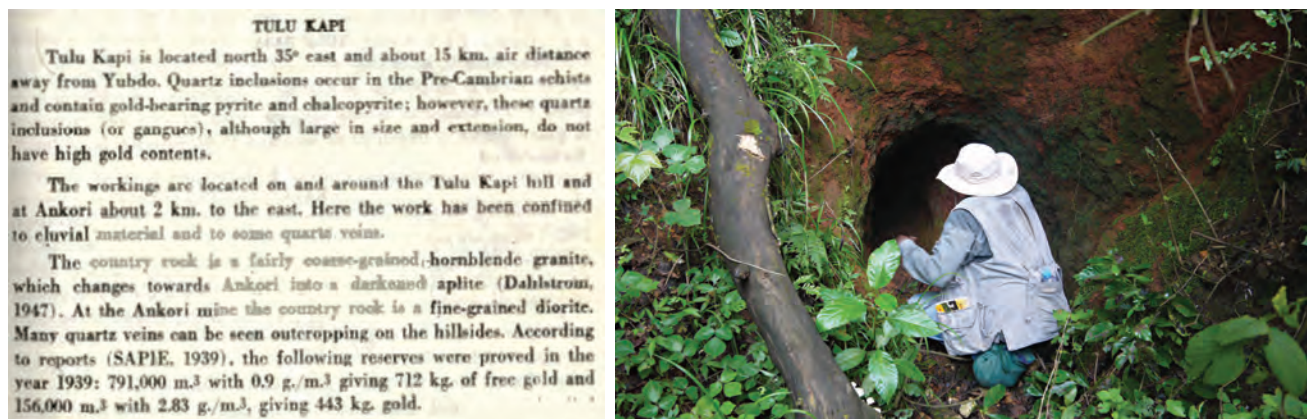


Figure 3: Left: Extract from the D. Jelenc's book "Mineral Occurrences of Ethiopia", regarding Tulu Kapi. In 1939 S.A.P.I.E. reported reserves for a total of 791,000m³, with a gold content of 0.9 g/m³ equivalent to 712kg of "free" gold (presumably contained in saprolite) and 156,000m³ with 2.83 g/m³, equivalent to 443kg of gold in primary mineralisation. Right: The entrance of the adit mentioned by Jelenc, made accessible again thanks to recent prospecting works

In January 1938, the Corp No.4 was active in the Tulu Kapi area, led by the geologist Alberto Parodi (fig. 4, 5, 6). His task was to carry out alluvial exploration at the Kapi hill and reactivate the "abandoned local mine". A young geologist, Alfredo Pollini, also prepared his thesis in this area (Fig.8), and as with Parodi, he was a disciple of Ardito Desio². Once graduated, Pollini became Head of Column No.16 (Fadda, 2017). In 1940 the total production of the 'Africa Orientale Italiana' colony was 465kg gold, of which 387kg was from Eritrea and 78kg from Western

¹If achieved, it would give Italy economic self-sufficiency.

²Ardito Desio, (1897-2001), Italian geologist and explorer who led the first successful expedition to scale K2, the world's second tallest mountain; he did not make the final assault to the peak, however, owing to his age. The 1954 feat was largely attributed to his meticulous planning and disciplined military strategy. During World War I Desio served as lieutenant of the Alpine Troops. He later attended the University of Florence, where he studied natural sciences; he then began what became a lifetime post as a professor at the University of Milan. Desio was the author of more than 400 geologic publications. He served as president (1966-73) of the Italian Geological Committee and was the recipient of numerous honors related to the 1954 climb. Desio traveled extensively; he led scientific expeditions in Africa, the Middle and Near East, and Antarctica. He was credited with the discovery of the first deposits of natural oil and gas in Libya (1939) and with having been the first Italian to reach the South Pole (1962). His book Ascent of K2 (1955) was translated into 11 languages.

Ethiopia (Podestà, 2009). Mining initiatives however registered very high production costs due to local labour costs (higher than those in neighboring areas such as Yemen and Sudan), higher transport costs, fuel and electricity and the need to pay for transit rights through the Suez Canal for transport to Italy (Gagliardi, 2016). As a result of this situation, the Italian exploitation of Tulu Kapi ceased in 1941. There is no news of gold mining exploitation by the British liberators, while artisanal gold mining is likely to have been continued by the local population.



Figure 4: Alberto Parodi, geologist head of S.A.P.I.E. exploration Corps No.4 at Tulu Kapi (photo A. Pollini 1938)



Figure 5: A group of artisanal gold miners at Tulu Kapi. (photo A. Pollini and A. Parodi 1938)



Figure 6: A group of artisanal gold miners at Tulu Kapi. (photo A. Pollini and A. Parodi 1938)



Figure 7: Nugget weighing approximately 1.5kg found at Tulu Kapi placer (picture after Usoni, 1952)

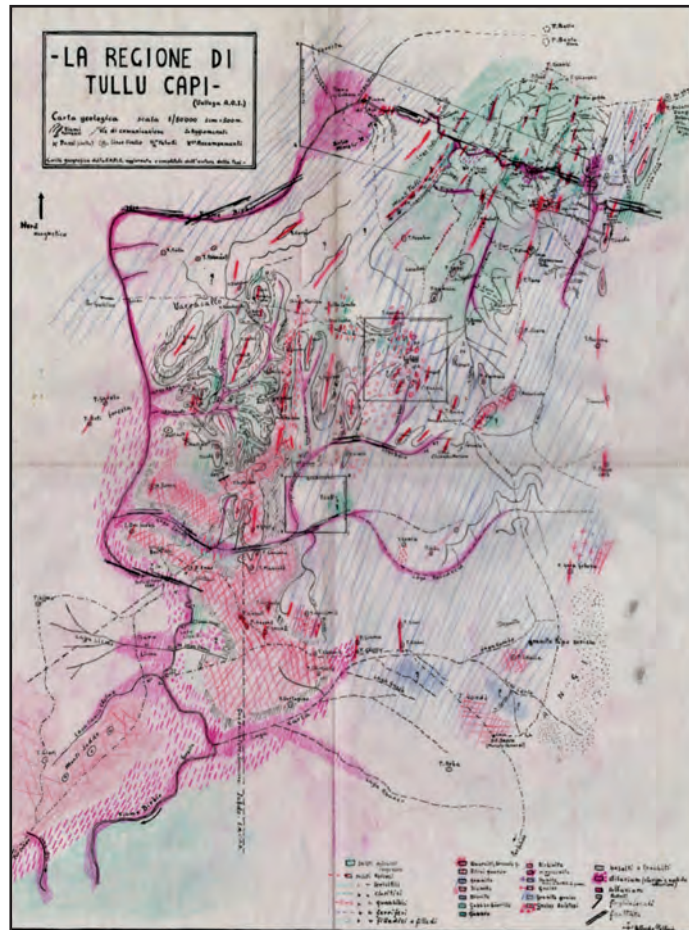


Figure 8: 1938 Geological sketchmap of Tulu Kapi (after 'La geologia della regione di Tullu Kapi, Ovest etiopico – Wallega. A. Pollini thesis, 1938)

The modern era

Relatively modern exploration and prospecting works started in the area after the creation of the Geological Survey of Ethiopia in 1968. Reconnaissance and detailed mapping mineral surveys carried out by the United Nations Development Program (UNDP) from 1969 to 1972 were the first important reported works which outlined the “Nejo-Yubdo” mineralised belt, including the Tulu Kapi deposit and the satellite prospects of Kefi surrounding Tulu Kapi and many other sites of historical and active alluvial, eluvial and hard rock gold mining.

Although the UNDP (1972) geological, geochemical and geophysical and test drilling results were sufficiently encouraging to do follow-up work, there was no significant geological and exploration activities in the Tulu Kapi-Yubdo area in period between 1973 to 1996, during the socialist regime (1974-1993) which saw periods of war (with Somalia and Eritrea), civil war and famine.

In 1996, Canadian company Tan-Range Resource (TRR) was granted the first privately owned exploration licence in an area which included Tulu Kapi. The company undertook exploration, including test drilling in Tulu Kapi. Despite encouraging surface and test drilling results, TRR abandoned the licence area in 1998, possible due to a significant drop in the gold price and tensions associated with the separation and independence of Eritrea.

The following exploration and prospecting results of UNDP and TRR were the bases for Golden Prospect Mining Company (GPMC), wholly-owned subsidiary of Minerva Resources plc to apply for the Tulu Kapi-Ankori exploration licence, which was converted later (in April 2015) by Kefi to a large-scale gold mining licence, and other two proximal exploration licences.

A) UNDP (1969-72)

The mineral survey of the UNDP was the first systematic and comprehensive exploration and prospecting work in the region. The UNDP survey in western Ethiopia covered an area of about 75,584sq km. The survey started by compiling and assessing all known geological work, mineral occurrences and mineral working sites, followed by reconnaissance geological, geochemical (soil, stream, rock) and airborne geophysical (magnetics, radiometric) surveys. This preliminary phase was followed by detailed exploration (which included test drilling) over selected targets. At Tulu Kapi, UNDP drilled three diamond holes for a total of 362m immediately north of the planned

open pit, and reported a hard rock gold mineralisation in the area for the first time. The best gold intersections in diamond holes include 0.7m @ 27 g/t gold (BH-10) and 26.2m @ 2.8 g/t (BH-11) associated with altered syenite with disseminated sulphide and quartz veins.

B) Tan-Range Resources (1996-98)

The company acquired the Tulu Kapi-Ankori exploration licence (20sq km) in 1996 and carried out integrated geological, grid based soil, induced polarisation and resistivity dipole-dipole geophysical surveys. The company also drilled five shallow diamond holes totaling 373m at Tulu Kapi. Best results included 6m @ 2.48 g/t gold and 5m @ 2.59 g/t.

C) “The discovery”: GPMC (May 2005 to August 2009)

Golden Prospect Mining Company (GPMC), wholly-owned subsidiary of Minerva Resources, selected the Tulu Kapi-Ankori exploration licence after evaluating all previous geological and exploration works in the area, particularly the exploration data of TRR. GPMC acquired the exploration licence (20sq km), in May 2005 as well as the Yubdo (535sq km) and Bila-Gulliso (275sq km) exploration licences in June 2004 and December 2006 respectively.

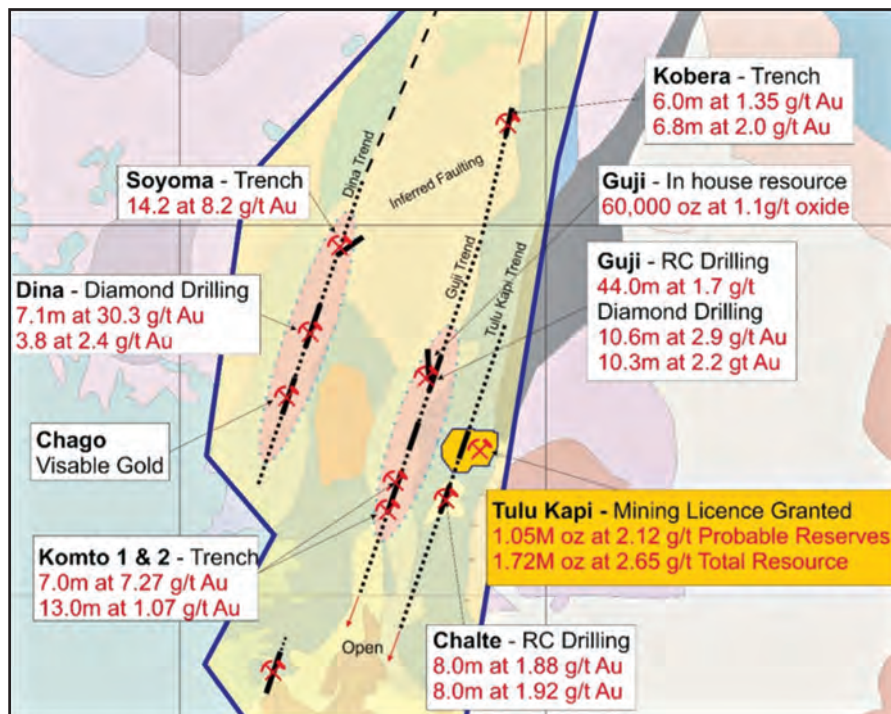


Figure 9: Mineralised trends and satellite prospects in the Tulu Kapi-Gulliso areas. Results of preliminary exploration

After reviewing the data generated by TRR, GPMC carried out further detailed exploration including geological mapping, trenching, and ground geophysics (IP-Resistivity), and conducted three drilling phases for a total of about 6,908m over 34 diamond drill holes (TKBH_001 to TKBH_034) using a 80m by 80m grid layout. GPMC drilled also further four holes (TKBH_001_TKBH_004), for a total of 701m during the first phase programme in 2006. The “discovery” Hole TKBH_004 (37m @ 4.61 g/t gold), encouraged further funding for drilling in the area.

D) Nyota Minerals (2009-2013)

Minerva, GPMC’s parent company, was acquired by Nyota Minerals Ltd in July 2009. Immediately after the takeover, a maiden inferred resource of 690,000oz gold was independently estimated by Hellman & Schofield Pty. Ltd (H&S) in September 2009 in accordance with the guidelines of the JORC Code. Supported by promising results, Nyota triggered an aggressive exploration programme. From July 2009 to May 2011, Nyota carried out systematic exploration to international standards at Tulu Kapi, performing an early trenching programme (234m); 42,000km-lines of airborne geophysics (magnetics and radiometrics) covering all licences and ground magnetic and IP-resistivity surveys.

Since acquisition of the project, sufficient detailed and advanced exploration work was undertaken by Nyota to complete a DFS. Where drilled 305 diamond drill holes for a total of 71,015m and 401 RC drill-holes for a total of 51,543m, including 70 hydro RC holes totaling 6,201.8m, and excavated 16 trenches for a total length of 349m.

The 2012 resource estimate (October 2012), in accordance with the guidelines of the JORC Code (2004), was

carried out by Wardell Armstrong International (WAI) based upon 189 diamond drill holes and 302 RC drill-holes totaling 86,873m and 73,284 samples within a deposit area of 700m by 1,400m by 500m. The resource comprised 14.59mt @ 2.36 g/t for 1.108 Moz (indicated) and 10.31mt @ 2.3 g/t for 764,000oz (inferred), using a 0.5 g/t gold cut-off.

Deeper drilling discovered a high-grade “feeder zone” of mineralisation at depth, immediately below the planned open cut: drill hole TKBH-074 intersected 25.7m @ 23 g/t (416.24-442.00m down-hole). The high-grade gold mineralisation remains open along strike, down plunge and at depth. Notably, the most northerly hole drilled into the deepest portion of the deposit intersected 90m @ 3 g/t gold.

Nyota completed the DFS in December 2012 and submitted it to the Ministry of Mines in 2013. The DFS evaluated construction of a 2 Mtpa CIL processing plant and estimated initial capital expenditure of US\$289 million, including an allocation for working and sustaining capital.

The gold price reached US\$1,800/oz in 2012 and the DFS was based on a gold price of US\$1,500/oz. Unfortunately, the gold price declined rapidly in 2013 to close the year at US\$1,200/oz. Unable to finance the mine, Nyota could not apply for a mining licence and was forced to seek a partner.

E) Kefi Minerals (December 2013 to date)

The “discovery” by Kefi was essentially one of geological interest as Kefi had discovered several new gold occurrences in its JV exploration properties in Saudi Arabia that were associated with felsic dykes and albite alteration. A search of similar styles of mineralisation led to the company geologists to research the Tulu Kapi deposit in early 2013.

The decline of the market capitalisation of Nyota soon after the announcement of the DFS and 2 Moz @ 2.3 g/t gold resource led Kefi to approach Nyota for a business arrangement in mid-2013. Due diligence work showed that capital costs could be significantly lowered for mining infrastructure, equipment and plant, and a switch to contract mining rather than owner-operated mining. Furthermore, selective mining was possible thanks to the distinction in colour between the ore (white albite alteration) and waste (green).

Kefi acquired 100% project ownership from Nyota in two tranches; 75% in December 2013 and the remaining 25% in September 2014. The Government of Ethiopia is entitled to a 5% free-carried interest in an operating mine. Kefi pursued an alternative approach for Tulu Kapi aimed at significantly reducing the anticipated aggregate capital and operating expenditure, which provides less start-up risk and a higher overall return.

One could argue that this potential overhaul of the project and economics was the resurrection and “re-discovery” of the Tulu Kapi gold project by Kefi. Hopefully, the final chapter in a long gestation period of the gold deposit to become a 1 Moz open cut mine.

TULU KAPI GOLD PROJECT COMPARISON OF PROJECT PARAMETERS	KEFI DFS UPDATE MAY 2017 & ADJUSTED FOR CONTRACT MINER	KEFI SEP 14 OWNER-MINER REVIEWED	KEFI DEC 13 OWNER-MINER PRELIM EST	VENDOR OWNER-MINER DFS 2012
Total Investment	\$180M	\$150M	\$163M	\$289M
Project Finance	\$135M*	\$100M	\$100M	N.A.
Equity & Other	\$45M**	\$50M	\$63M	N.A.
Gold Production	980Koz	925Koz	852Koz	986Koz
All-in Costs	\$933/oz	\$844/oz	\$773/oz	\$995/oz
TPA Ore and Grade	1.5 to 1.7Mt@2.1g/t	1.2Mt@2.4g/t	1.2Mt@2.4g/t	2Mt@1.8g/t
Waste : Ore	7.4:1	10:01	7:01	9:01
EBITDA pa at \$1,250/oz	\$55M over 8 years	X 11 years	X 11 years	X 9 years
IRR A/T at \$1,250/oz (4)	22%	26%	42%	N.A
NPV8% A/T@\$1,250/oz	\$97M***	\$83M	\$88M	N.A.

Notes: *Includes capitalised interest over 30 months
 **Includes Government of Ethiopia buying 20% at Project level for \$20M
 ***At start of construction, \$272M at start of production

Table 1: Tulu Kapi project parameters. All-in-Costs are All-in Sustaining Costs plus initial capital expenditure divided by gold production over life of mine



Figure 10: Kefi RC drilling at Tulu Kapi (photo: Kefi Minerals plc 2014)

Geology, alteration and mineralisation

The Tulu Kapi region has typical Precambrian type geology which is characterised by prominent hills of intrusive rocks and deeply incised valleys containing meta-sediments and meta-volcanic rocks. Gold is hosted in quartz-albite alteration zones as stacked sub-horizontal lenses in a syenite pluton into which a swarm of dolerite dykes and sills have been intruded. Gold mineralisation extends over a 1,500m by 500m zone and is open at depth (plus-550m below surface). The mineralisation is characterised by a simple mineralogy comprising gold, silver, pyrite and minor sphalerite and galena. The gold is free milling with metallurgical recoveries averaging 93% for oxide and sulphide ore in the planned open pit. At depth beneath the main body of mineralised syenite, there is a zone adjacent to the Bedele Shear Zone that is characterised by significantly higher gold grades, with occasional coarse visible gold, more base metal sulphides and a shallower apparent dip than the main body above it.

The main mineralisation stage at Tulu Kapi is composed of an assemblage of hydrothermal minerals that are present in highly variable abundances and include quartz, albite, carbonate, biotite, muscovite, epidote, sulphide and gold (Pollard, 2007). The mineralisation commonly occurs in veins, crackle zones and minor breccia zones (Figs. 11 to 14). The typical Tulu Kapi gold mineralisation within the pit is associated with sulphide-bearing albite alteration and quartz veins (replacement and fracture fillings). Albite occurs as overgrowths on original syenite feldspar and also as newly formed crystals in veins and cavities. It is uncertain whether the albite associated with the mineralisation is the same stage as the pervasive albitisation of the syenite. However, since the albitised syenite is cut by quartz veins that pre-date the mineralisation, it is suspected that the pervasive albitisation is an earlier event (Pollard, 2007). A minor generation of late-stage pyrite veins is weakly developed. The veins are typically less than 10 microns wide and have been observed to crosscut muscovite veins. No gold has been observed in association with these veins. The sulphide minerals identified include pyrite, sphalerite, bornite, chalcopyrite, galena and arsenopyrite. In addition, tetrahedrite-tennantite was tentatively identified by Pollard (2008). Pyrite is by far the most abundant sulphide and occurs as coarse- to fine-grained infill and as alteration spots in syenite. Aggregates of small crystals are common and typically these also contain crystals of silicate and carbonate minerals (Figs. 12, 13) to form a sieve-like texture. Lack of considerable arsenic, antimony and tellurium minerals suggest that the majority of gold could be found as a free gold (Fig. 21). Petrographic and metallurgical test works also show that gold is predominantly non-refractory.



Figure 11: Quartz and pyrite in albitised syenite overprinted by a shear fabric. GKP-11. (photo Pollard, 2008)

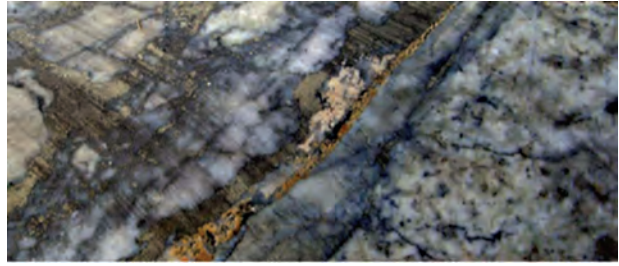


Figure 12: Albitised syenite cut by several vein stages including early cream-colored deformed quartz, grey quartz, pyrite and late carbonate. Core specimen. TKBH-009 (photo Pollard, 2008)

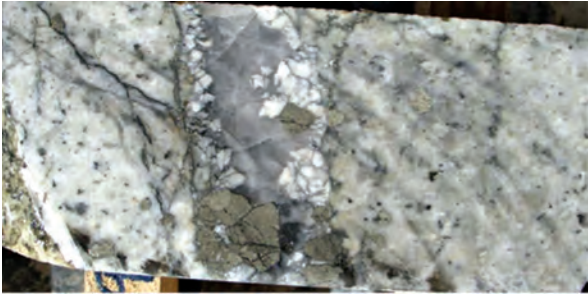


Figure 13: Albitised syenite cut by a vein with quartz, carbonate and pyrite. Core specimen TKBH-010 (photo Pollard 2008)

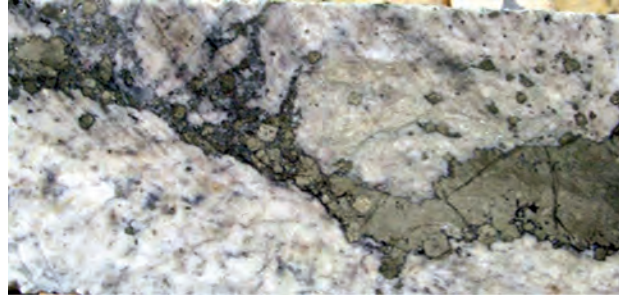


Figure 14: Albitised syenite cut by a massive fracture controlled pyrite vein. Core specimen TKBH-010 (photo Pollard, June 2008)

Data review and mineral resource verification

Since acquiring Tulu Kapi in December 2013, Kefi reviewed and interpreted the extensive previous data assembled, carried out trenching and limited drilling to increase geological understanding and to verify the previous resource model. Kefi pre-acquisition due diligence identified that, by adopting a revised development strategy, which included selective mining of the ore body, the Company could reduce the capital requirement and increase the grade of material mined.

Using the same resource estimation methodology of the vendor, Kefi was able to upgrade the indicated resource by 68% to 21.2mt @ 2.73 g/t for 1.862 Moz gold (from 1.108 Moz @ 2.36 g/t) in March 2014 by updating the database to include a total of 71 infill drill-holes drilled by Nyota in late 2012 after the DFS resource in October 2012.

As a result of upgrading the indicated resource, the inferred category was reduced to 2.9mt @ 2.03 g/t for 189,000oz gold (from 764,000oz @ 2.30g/t). An independent review of Kefi's resource model was performed by AMC consultants Pty Ltd. (AMC), who advised areas to be addressed in due course after planned further drilling and surface sampling, and during the reserve re-estimation process.

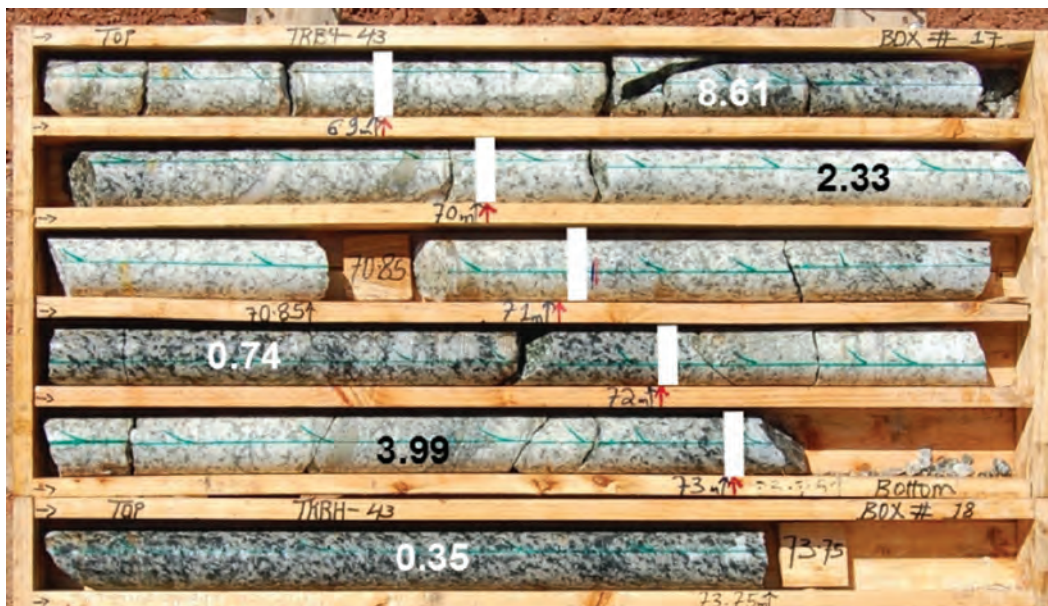


Figure 15: Drill hole TKBH 43; 6.-77.1m, showing the ore interval ending at 73.0m and visual control of the ore-waste boundary

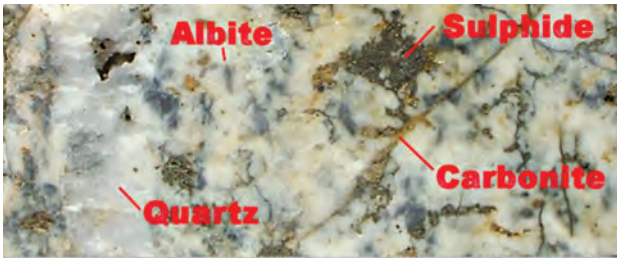


Figure 16. Hand Specimen. Albitised syenite (white) with quartz vein and sulphide overprint. WOF c5.0cm. Slab (Taylor, 2008)

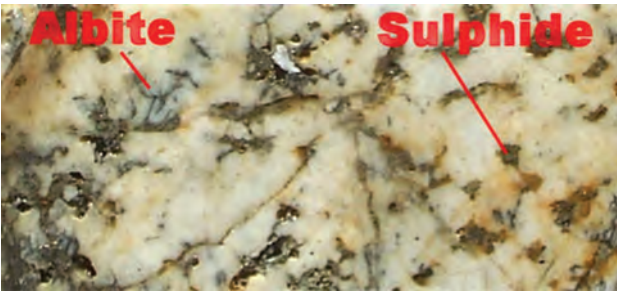


Figure 17. Specimen from interval with 8.85 g/t Au. Albitised syenite (white) with sulphide overprint. WOF 5.0cm. Slab. (Taylor,2008)

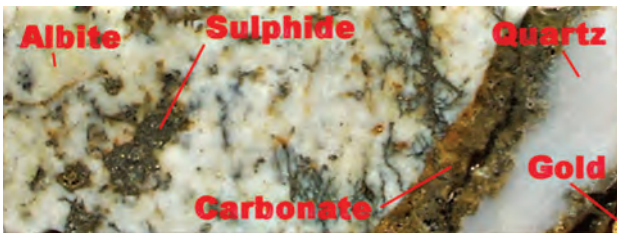


Figure 18: Specimen from interval with 34 g/t Au. Albitised syenite (white) with quartz vein, carbonate and sulphide overprints. Gold is visible and coarse grained. WOF c5.0cm. Slab. (Taylor, 2008)

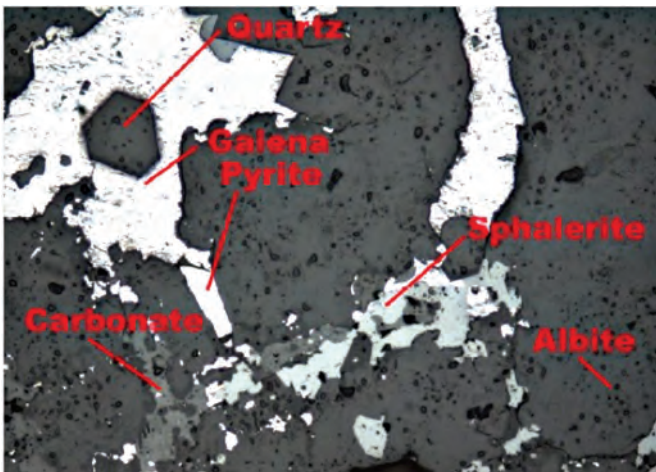


Figure 20. Specimen 59.60m. GKP14. Sulphide assemblage. WOF c1.4mm. Reflected light (Taylor 2008)

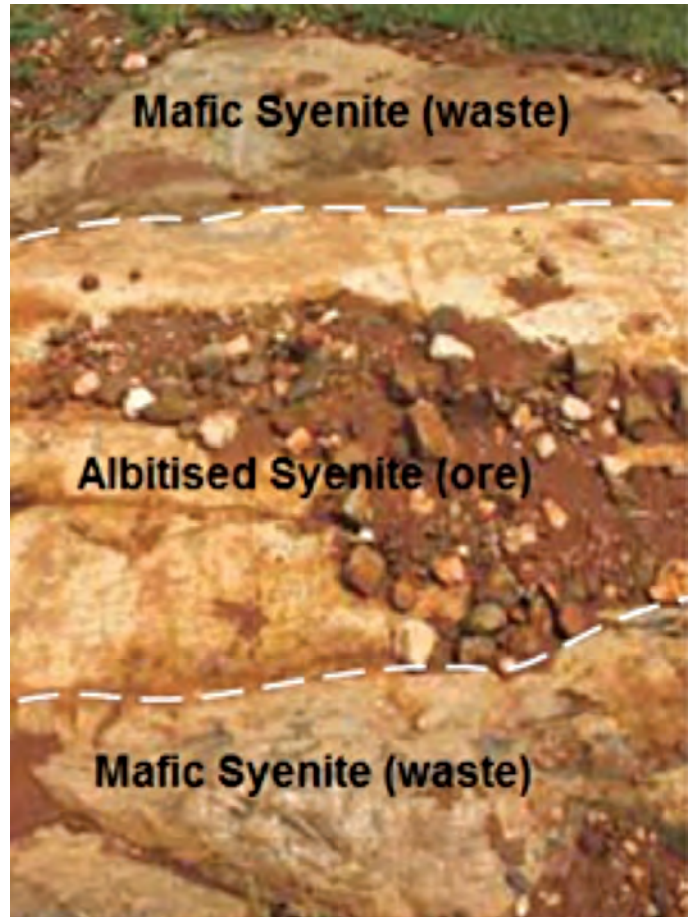


Figure 19. Typical outcrop of albitised syenite bounded by unaltered mafic syenite, at south-central part of Tulu Kapi

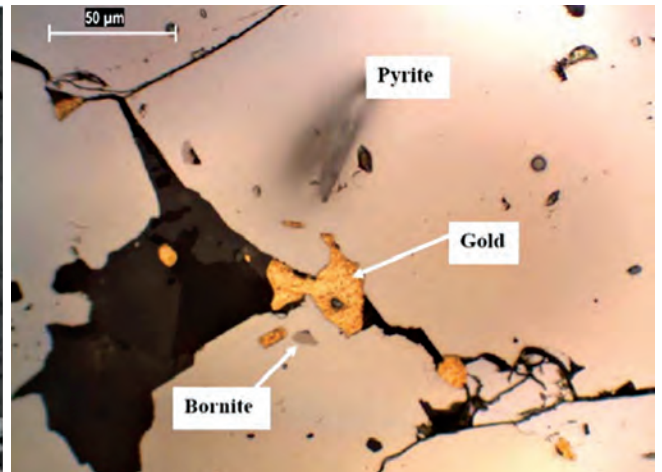


Figure 21. Coarse gold occurring within cracks in pyrite, within pyrite and within the silicate matrix. Sample B4076, reflected light (Pollard, 2007)

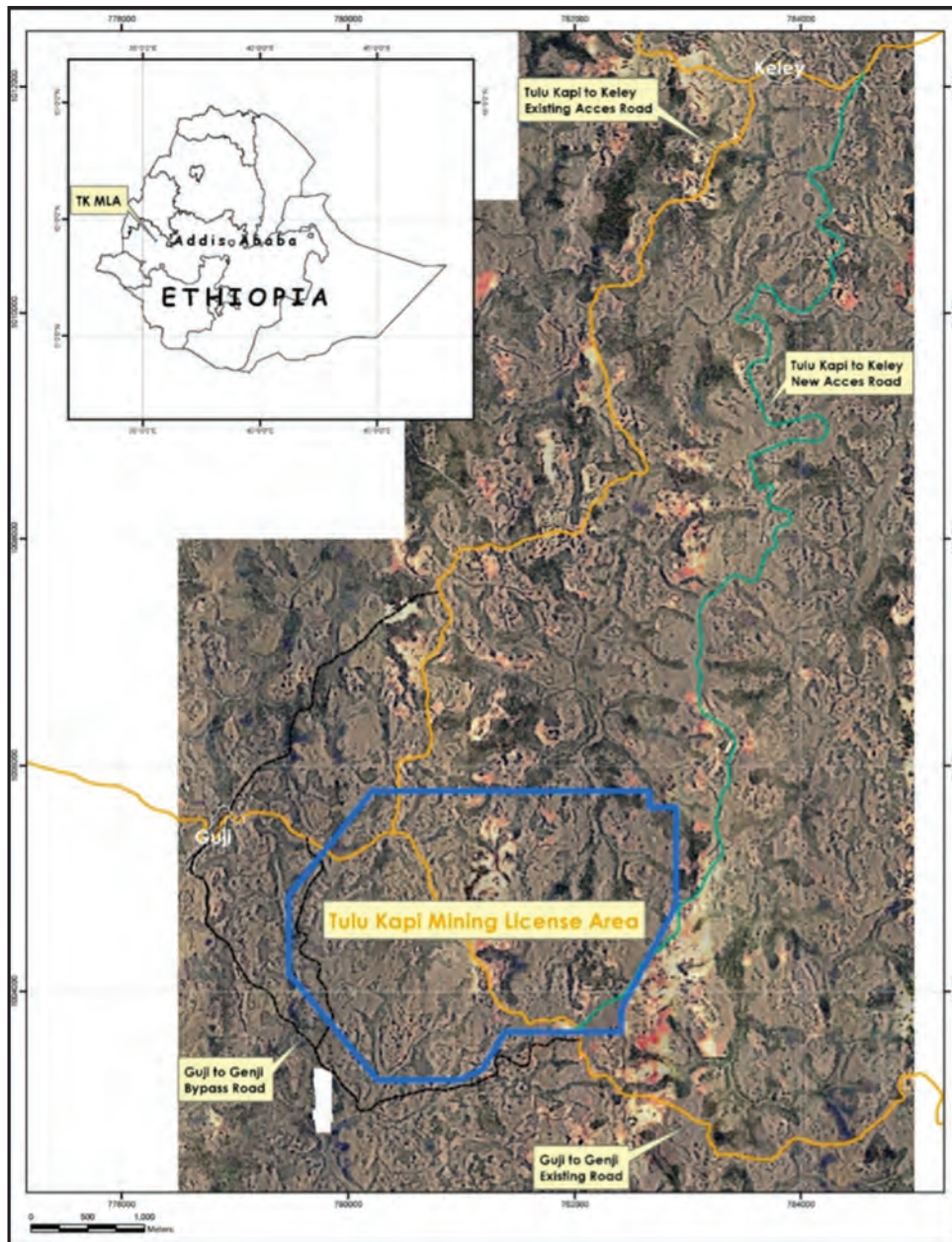


Figure 22: Map showing the Tulu Kapi Mining Licence

To support this new resource estimate and geological interpretation, Kefi carried out trenching and reverse circulation drilling from mid-February to end of May 2014. A total of 82 trenches for a total of 1,050m and 30 RC holes (TKRC032 to TKRC061) for a total depth of 4,283m drilled in the planned open pit area.

The trenching program, mapping and reverse circulation infill drilling confirmed the north-east strike continuity of mineralisation. The individual vein zones can be traced for up to 200-400m along strike at surface and up to 500m down dip in drilled sections.

In August 2014, Snowden Mining Industry Consultants performed an independent resource estimate using ordinary kriging with dynamic anisotropy to align the local strike and dip of the mineralised trends and confirmed Kefi's previous March resource estimate.

At a cut off of 0.45 g/t gold for potential open cut material above 1,400m RL and a cut-off of 2.5 g/t below 1,400m RL (planned depth of the open cut is 1,450m RL) the resources are:

JORC (2012) Resource category	Reporting elevation	Cut-off (g/t Au)	Tonnes (Mt)	Au (g/t)	Ounces (Million)
Indicated	above 1,400 RL	0.45	17.31	2.37	1.32
Inferred	above 1,400 RL	0.45	4.77	1.91	0.29
Indicated and Inferred	above 1,400 RL	0.45	22.08	2.27	1.61
Indicated	below 1,400 RL	2.50	1.07	5.88	0.20
Inferred	below 1,400 RL	2.50	0.56	5.67	0.10
Indicated and Inferred	below 1,400 RL	2.50	1.63	5.81	0.30
Total Indicated	All		18.38	2.57	1.52
Total Inferred	All		5.33	2.30	0.39
Total Indicated and Inferred	All		23.71	2.51	1.91

Table 2: Tulu Kapi resources as reported by Snowden in 2014

In February 2015, Snowden confirmed an updated resource at a 0.3 g/t gold cut-off which incorporated wire framing of the mineralised lodes to improve the confidence in the geological model. The main difference in this estimate and the August 2014 estimate is a lower inferred resource, the indicated remaining the same at slightly higher grade and total ounces.

JORC (2012) Resource category	Reporting elevation	Cut-off (g/t Au)	Tonnes (Mt)	Au (g/t)	Ounces (million)
Indicated	Above 1400 RL	0.45	17.7	2.49	1.42
Inferred	Above 1400 RL	0.45	1.28	2.05	0.08
Indicated and Inferred	Above 1400 RL	0.45	19.0	2.46	1.50
Indicated	Below 1400 RL	2.50	1.08	5.63	0.20
Inferred	Below 1400 RL	2.50	0.12	6.25	0.02
Indicated and Inferred	Below 1400 RL	2.50	1.20	5.69	0.22
Total Indicated	All		18.8	2.67	1.62
Total Inferred	All		1.40	2.40	0.10
Total Indicated and Inferred	All		20.2	2.65	1.72

Table 3: Tulu Kapi resources as reported by Snowden in February 2015

In April 2015, Snowden reported the following open cut Ore Reserves for Tulu Kapi

JORC (2012) Reserve category	Cut-off (g/t Au)	Tonnes (Mt)	Au (g/t)	Ounces (Moz)
Probable - High grade	0.90	12.0	2.52	0.98
Probable - Low grade	0.50 - 0.90	3.3	0.73	0.08
Total	Total	15.4	2.12	1.05

Table 4: Tulu Kapi in-pit ore reserves as reported by Snowden in April 2015

Tulu Kapi: Underground mine potential

The total indicated and inferred resource under the planned open cut is 1.54mt @ 5.41 g/t gold, containing 268,000oz gold (84% indicated). The mineralisation is open down plunge to the north and at depth.

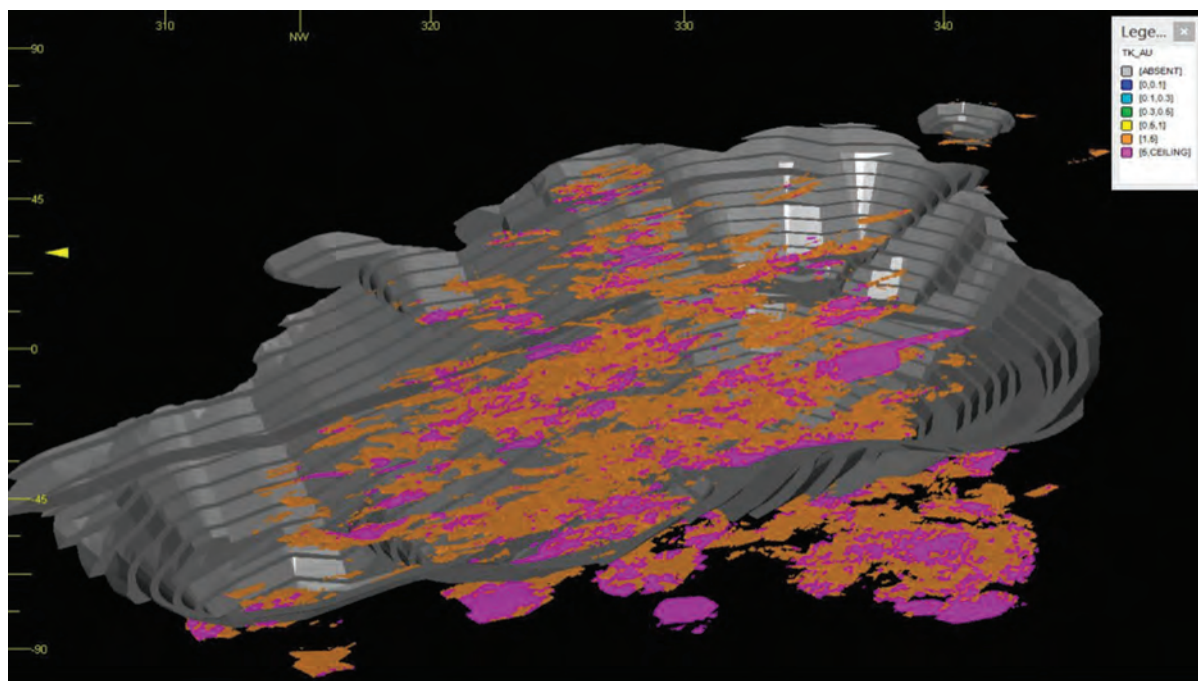


Figure 23: 3D view of TK, looking NW, showing the 2015 planned open cut and wire-framed mineralised lodes both in-pit and outside pit. Note the plunge of high-grade ore to the north below the open cut (i.e. to the right)

Borehole No	Depth From (m)	Depth To (m)	Mineralised Width (m)	Grade (g/t Au)
TKBH- 287	351.80	364.05	12.25	5.34
	393.00	397.00	4.00	9.82
TKBH-288	377.00	379.00	2.00	11.68
TKBH-291	356.00	369.96	13.96	10.55
	373.00	378.00	5.00	7.60
	382.45	386.00	3.55	6.25
TKBH-292	375.00	384.00	9.00	5.82
TKBH-293	384.00	394.00	10.00	4.33
	435.55	445.00	9.45	15.04
TKBH-295	368.00	369.00	1.00	12.35
	388.00	390.00	2.00	3.97
	399.00	402.90	3.90	3.60
TKBH-296	342.00	344.00	2.00	19.45

Table 5: High-grade drill intercepts from the “feeder zone” immediately below the planned open cut mine

Tulu Kapi exploration licences

The Yubdo and Bila-Gulliso ELs lie to the immediate west of the Tulu Kapi mining licence (Fig. 3). They host two parallel NNE-trending structures similar to Tulu Kapi and have a number of prospects which could provide an additional plus-1 Moz gold satellite feed to the central TK processing plant.

Reconnaissance investigation in late 2014 by Kefi, identified the Komto I and II, Guji and the Soyoma prospects as the best bulk tonnage open-cut targets.

The Komto I to Guji structure is over 6km in strike (see Fig 24 below). Shallow RC and limited diamond drilling at Guji was conducted primarily on the oxide by Nyota. In 2014, Kefi conducted a limited RC drilling programme with a best intercept of 44m @ 1.7 g/t gold. The mineralisation remains open along strike and at depth.

Trench and rock chip channel sampling by Kefi in 2015 identified new gold mineralisation at Komto II and mapping has extended this structure north to Guji and south to Komto I.

The host rocks are weathered meta-sandstones which have returned up to 7m @ 7.27 g/t gold in trench sampling. Kefi is targeting 250,000-300,000oz @ 1-1.5 g/t of shallow oxide resource (0-35m depth) in the Komto-Guji corridor which could be mined and processed in a low-cost heap leach. Initial CN bottle roll test work has returned 94% gold recovery on the trench samples at Komto II (150micron fraction)



Figure 24: Best trench (and 1970 UNDP drill hole) results (2015) in the Komto 1 and 2 prospects and best drill intercepts at Guji, in the Yubdo EL. The Komto-Guji corridor is over 6km in strike and only limited drilling has tested the oxide and sulphide potential

Conclusions

The discovery of Tulu Kapi was a culmination of many factors over a long period of time. The Arabian-Nubian Shield was long known to host many thousands of gold and base metal occurrences and was a good place to explore and that brought the initial Italian interest.

The long history of discovery involved at least seven entities; S.A.P.I.E, UNDP, GSE, Tan Range, Minerva, Nyota and Kefi over circa 80 years.

World wars and politics and gold price retarded recognition of the resource potential until the multi-million ounce potential was realised in 2009-2010.

Kefi's interest in the Tulu Kapi started in 2013 with researching other gold deposits in the ANS associated with albite alteration and the realisation that it could make the open-pit project economics work even at a gold price of US\$1,200/oz.

The Tulu Kapi district has plenty of upside with the high-grade mineralisation beneath the planned open cut and kilometres of ore grade material in the nearby Komto and Soyoma belts.

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