

# Part of the boom



KEFI Minerals

**Michael Schwartz** looks at the rise of Ethiopia's mining sector and profiles some of the companies that help create the country's exceptional growth.

Ethiopia boasts one of the fastest growing economies anywhere – its rate of growth over several years has regularly been between 8% and 12%, sometimes placing it in the top five worldwide.

The Ethiopian Government realised the need for reform 25 years ago, when a then-new licencing policy covered the mining of gold and base metals, together with cement manufacture, potash, and several industrial and construction materials. These licences, for all processes up to and including actual exploitation, have subsequently been awarded to 250 companies, many from leading mining countries.

In overall economic terms, the Ethiopian Government employs five-year Growth and Transformation Plans (GTP), of which the second (GTP2) is currently running from 2016–2020, with a target of 11% average growth each year. Mining's key part in GTP2 is attested by the key strategies of gaining major foreign direct investment in minerals, higher foreign exchange from mining and increased mineral production to replace imports. One further crucial aim is enabling mining to contribute over 10% of GDP through GTP3.

In fiscal terms, Ethiopia has issued various proclamations reflecting a move from government-monopolised mining to allowing business incentives including security of tenure, tax provisions on equipment, repatriation of profits, and 35% tax on relevant income (25% for gold).

Harry Anagnostaras-Adams, Executive Chairman of KEFI Minerals, headquartered in Cyprus, profiled in this article, sets the scene.

'Ethiopia is very under-explored by any standard. The Pre-Cambrian greenstone rocks are similar to some of the most prolific mining districts in Australia, Canada, and South Africa, and so prospective within quite a large country – the size of France and Spain combined.'

## Potash in abundance

Receiving much attention in recent years, Ethiopia's potash deposits are believed to total more than 100Mt according to the Ministry of Mines, Petroleum, and Natural Gas (MoMPNG). This makes the country home to the third largest potash deposit in the world – potash is found in relatively few countries, notably Canada, which has nearly half of the world's known reserves.

The target date for Ethiopian potash to make its presence felt within global markets is 2022, according to the MoMPNG. While further exploration of the reserves continues, improvements to infrastructure are underway, notably in power, water supply, roads, and ports.

For example, in November 2017, Norway's Yara International signed an agreement in Addis Ababa with MoMPNG to instigate development of the Yara Dallol potash mine in the Afar region of northern Ethiopia. In the view of Yara president and CEO Svein Tore Holsether, 'A mine in the Afar region would contribute significantly to economic development locally and nationally. We recognise and appreciate the



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efforts made by the Ethiopian Government in supporting the project, both by providing necessary infrastructure and through making the mining agreement possible.'

In fact, feasibility studies in recent years showed significant reserves of the resources needed to generate sulphate of potash (SOP), the key fertiliser product for fruit, vegetables, and coffee.

Yara Dallol mine is expected to have a production capacity of around 600,000t/y of SOP, equivalent to approximately 10% of the global market. The products will be mined using solution mining, meaning there will be no open-pit workings at the site.

In financial terms, Yara Dallol is a 51.8% Yara International owned company, the others being Liberty Metals and Mining Holdings (25%) and XLR Capital (23.2%). A final investment decision is expected towards the end of this year. While total capital expenditure for the project has yet to be finalised, significant efforts have been made to optimise expenditure. The current estimate will almost certainly show a reduction from the previously estimated US\$740m commitment.

## Set for mining

Gold's importance to Ethiopia is recognised by the considerable number of companies currently involved with, or seeking to be involved with, this area of mining.

Formalised three years ago, the agreement between the Ethiopian Government and KEFI Minerals is advancing the Tulu Kapi gold project in western Ethiopia. The company itself is listed on the London AIM and is headquartered in Nicosia, Cyprus, and looks to success in exploring and developing gold-copper deposits in the Arabian-Nubian Shield (ANS). Tulu Kapi is 75%-owned by KEFI with a probable ore reserve of 1.05Moz of gold.

KEFI's exploration licences cover around 1,000km<sup>2</sup>. The site itself lies 360km due west of Addis Ababa. An asphalted main road to Addis Abba

lies a mere 12km from Tulu Kapi, with power lines passing within 40km.

Gold at Tulu Kapi extends over a 1,500m by 400m zone, which is open at depth (+440m). Other minerals comprise silver, pyrite, and minor sphalerite and galena.

In December 2013, all the shareholders of Tulu Kapi and the asset-ownership itself transferred to KEFI. Some US\$500m had already been spent and KEFI was brought in to get the show on the road. KEFI redesigned the mine, fully permitted its development, improved the planned community programmes, selected the major project contractors, Ausdrill and Lycopodium, and entered a shareholders' agreement with the government for it to invest and become a circa 25% project partner.

Under the permits of 2015, mining is licensed for 20 years. KEFI's definitive feasibility study at that time looked at conventional open-pit working with carbon-in-leach processing. Since then, further work has established process plant capacity at 1.9-2.1Mt/y (up from 1.2Mt/y) and gold production at 980,000oz over eight years with plans to develop other nearby deposits to increase mine-life and expand operations throughout the Tulu Kapi district.

All-in sustaining costs are to be less than US\$800/oz, with net operating cash flow averaging US\$70m/y for the first three years at a gold price of US\$1,250/oz. KEFI's initial capital expenditure is estimated at US\$145m on a contract-mining basis.

Anagnostaras-Adams explained the next stage in KEFI's strategy to *Materials World*. 'KEFI aims to close the financing to fund the development of Tulu Kapi and then commence construction.' He also looked in more general terms at how sympathetic the Ethiopian Government is towards mineral exploration. 'The government is very keen for the mining sector to develop but there are no tax incentives for mineral exploration. On the down side, 'the state of emergency has caused bureaucratic inertia in the past'.

One key advantage lies in the fact that, 'Ethiopia has cheap power which is a big plus for mining projects. KEFI is also helped by the lack



of artisanal mining, which, 'exists in certain areas of the country, particularly in areas reserved for artisanal miners. However, it is irrelevant in the area near Tulu Kapi'.

On 15<sup>th</sup> February, a potential spanner was thrown into the works when the Ethiopian prime minister, Hailemariam Desalegn, resigned due to mass protests. In a statement just days after, KEFI announced that its activities 'have been unaffected as regards its daily interface with the various government agencies and with the community at Tulu Kapi'. The company also confirmed that the Ethiopian Ministry of Mines, Petroleum, and Natural Gas has signed off the transfer of the mining licence from KEFI to Tulu Kapi Gold Mines Share Company Limited, jointly-owned by the government and KEFI.

### Prosperous harvest...

While at a relatively early stage in its ambitions, East Africa Metals (EAM), a Vancouver-based mineral exploration company, owns 70% of Ethiopia's Harvest polymetallic project and all of the Adyabo project, both lying in the Tigray region around 600km north-west of Addis Ababa. Its mining licence application for Harvest has been approved.

Both Harvest and Adyabo benefit from a key factor – their presence within the prospective Asmara belt, in turn found within the ANS. Several Volcanic Massive Sulphide (VMS) mineralisations have been discovered.

Harvest itself features three adjacent concessions covering some 86km<sup>2</sup>. At Terakimti, the most advanced of these prospects, 70 drill holes have revealed peak results of 3.8% copper, 1.3g/t gold and 14 g/t silver over 73.8 m. EAM's application, lodged with the national ministry of mines, was submitted in August 2016 and approved in December 2017.

EAM has used a number of techniques to ascertain mineralisation levels. They include not just drilling but also a combination of anomaly detection during a 1,500 line-kilometre airborne survey as well as locating bedrock artisanal gold workings – the latter have been mapped

and sampled in preparation for ranking and potential future drilling.

EAM's work has revealed indicated mineral resources of 2.13Mt containing nearly 90Mlbs of copper, 86,000oz of gold, 1.13Moz of silver, and nearly 67Mlbs of zinc. This, together with the inferred mineral resources, shows a potential to find even more resources at greater depths.

### ...and confidence at Adyabo

West of Harvest is EAM's 200km<sup>2</sup> Adyabo project within an unexplored part of the ANS, Adyabo having been acquired from Tigray Resources in 2016. The area is considered highly prospective for gold-rich VMS, as well as high-grade gold-copper-zinc and various alluvial and bedrock artisanal gold workings.

The area is highly prospective for high sulphidation gold rich VMS – submarine porphyry related high-grade Au-Cu +/- Zn, and orogenic (structurally controlled) gold deposits, and contains numerous alluvial, eluvial, and bedrock artisanal gold workings.

Recent work has focused on defining drill targets through follow-up and first pass exploration. Over 50,000 geochemical soil, stream, and rock chip samples have been completed, defining numerous gold and base metal anomalies that have been followed up with other relevant techniques.

In Adyabo's case the inferred mineral resources run to 3.215Mt with 408koz of gold at an average 3.92g/t, 16.8Mlb of copper at 0.24% copper on average, together with 132koz of silver at an average 1.4g/t.

### Growth expected

Ethiopia is well on its way to achieving a high-growth economy with mining playing its full part. The country hosts mineral resources which have yet to be explored, although their existence within the particularly productive ANS – among other areas – is clear evidence of just how mining will make that crucial contribution.