



TB AMATI STRATEGIC METALS FUND

# Amati Site Visit Series

**ORECORP**  
LIMITED



By Mark Smith, Fund Manager



## Nyanzaga Gold Project, Lake Victoria Goldfields, NW Tanzania

**A** mati fund manager Mark Smith visited the gold development project, Nyanzaga in the highly prolific gold belt of Lake Victoria Goldfields. This was an area the manager first visited as a young exploration geologist back in 1997, and to which he has now returned to check up on the ASMF investment.

→ **Figure 1: Project Location, Planes, Boats and Automobiles**



Source: Orecorp, Amati

OreCorp has completed a Definitive Feasibility Study on the project which comprises the Nyanzaga and Kilimani deposits. The plan is to mine the gold deposits by conventional open pit and underground (Long Hole Open Stopping) methods. As Nyanzaga is a development stage project, the purpose of the site visit was to gain a spatial appreciation of the potential mine site, and conduct due diligence.

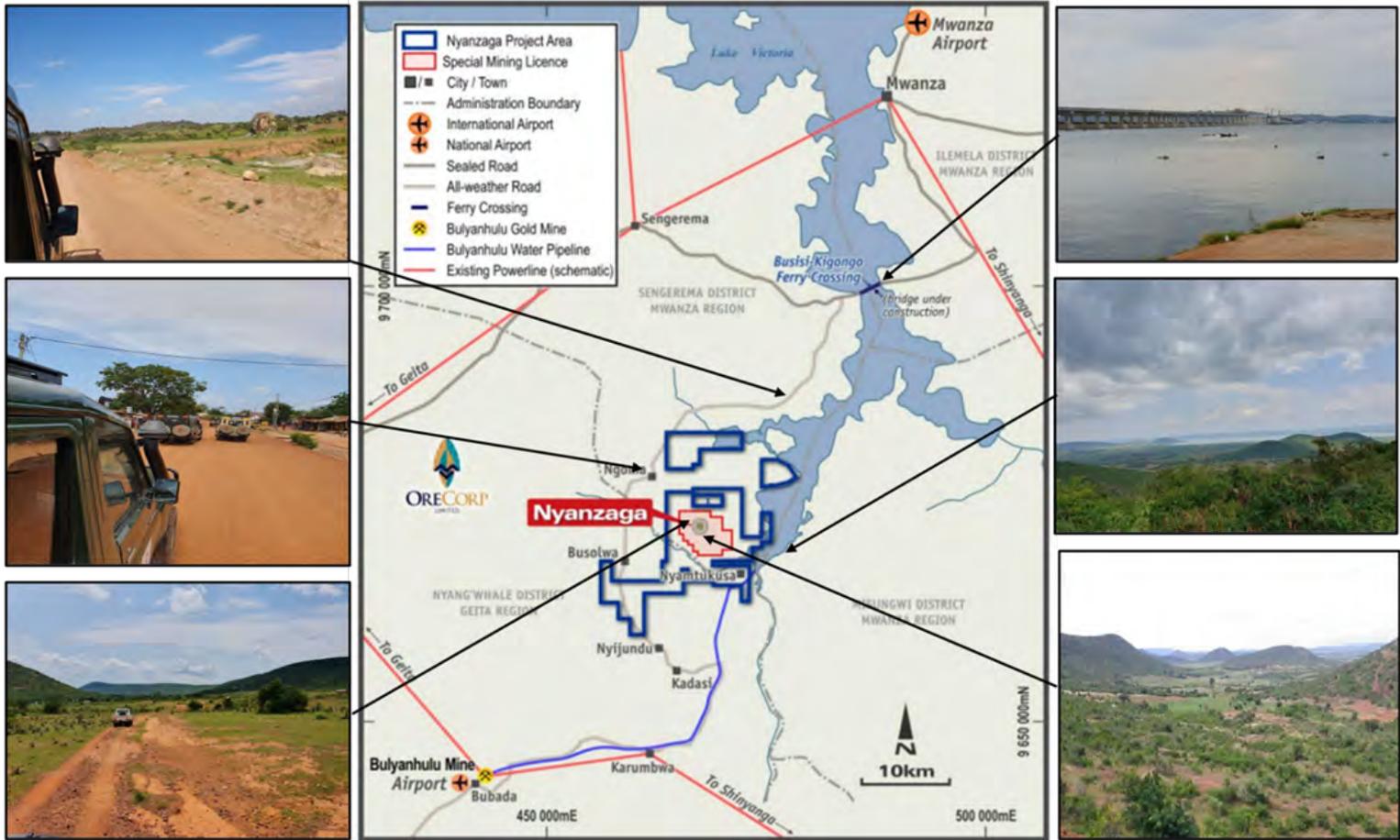
This 4th in the 'Site Visit Series' will outline the process of assessing the exploration and development prospects.

### The Amati Approach: 'Boots on the ground & a check list'

1. Desk top screening of the company with a review of the technical data and the independent consultant reports.
2. Meeting senior management to discuss the financial, technical and ESG merits of the project
  - a. Site visit to assess the spatial setting of the deposit, in order to contextualize the resource, potential mining scenario and environmental impact.

This site visit is a key part of our investment process as it can highlight any fatal flaws not appreciated in the desk top review, but also allows Amati to look for opportunities not recognised by the wider market, (and in this case walk down memory lane..).

→ Figure 2: Site infrastructure, access and setting



Source: Orecorp, Amati

- Access - The Project is accessed 60km south west from Mwanza, 60km east of Geita gold mine via the sealed Mwanza-Geita Highway, crossing Smith Sound by ferry at Busisi. A bridge crossing Smith Sound is currently under construction and due for completion in 2024 which will significantly improve access to the Project.
- Power - The Project will have an installed load of 40 MW including the underground mine, with a maximum demand of 32 MW and an average continuous load of 26 MW. Power for the Project will be supplied from the Tanzania Electric Supply Company Limited (TANESCO) national grid at the Bulyanhulu substation and delivered via a new 53 km long 220 kV transmission line. A dedicated substation will be located adjacent to the CIL plant from where power is reticulated.
- Water - Project water make-up supplies will be extracted from Lake Victoria, with the water balance indicating an average flow rate of 300 m3 /hr will be required, very achievable in our view.

## Project Verification

OreCorp was granted the Special Mining Licence (SML) by the Tanzanian government on 13th December 2021, and the Environmental Certificate (EC) was transferred shortly thereafter. These two licences comprise the key permits for the Project. Ancillary permits and approvals for development will be applied for as and when required. OreCorp owns 84% of the project via wholly owned Nyanzaga Mining Company LTD (NMCL), through a joint venture with the Government of Tanzania (16% free carried interest).

Importantly, as investors OreCorp established a Framework Agreement and a Shareholder Agreement, each between NMCL and the Government of Tanzania. These agreements confirmed the key rights and obligations of all parties, as shareholders in the project, with respect to the development and management of the Project.

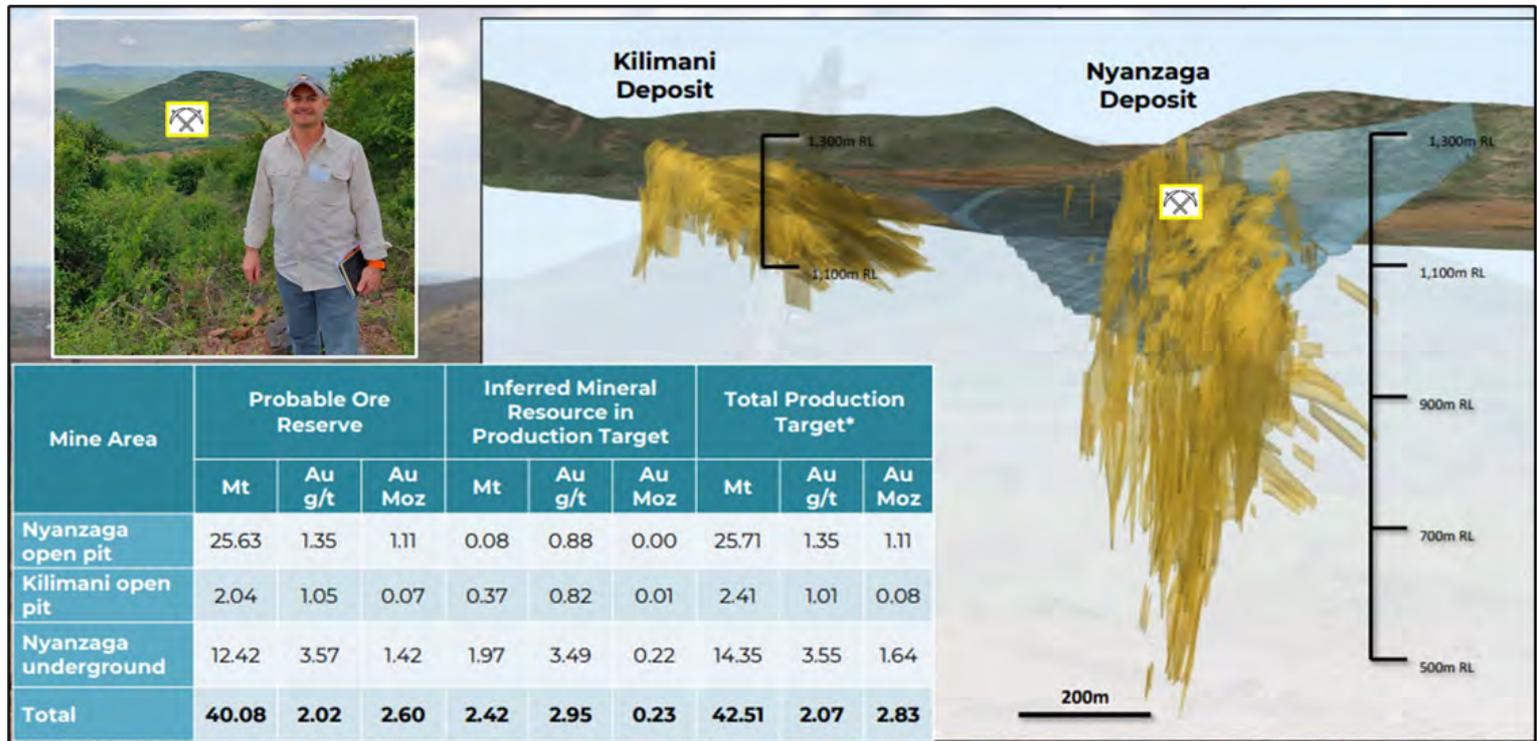
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### Nyangaza project scope

These gold deposits lend themselves to combined open pit and underground extraction with a production target of 42.51 million tonnes (Mt) @ 2.07 g/t gold for 2.83 million ounces (Moz) contained gold. The Life of mine (LOM) average gold production estimated at 234,000 oz per year over 10.7 years, with peak gold production of 295,000 oz/pa; averaging 250,000 oz pa for the first eight years.

- Pre-production capital cost of US\$474M includes underground development, open pit pre-strip, plant and associated project infrastructure and US\$36M contingency.
- A high margin project with low all-in sustaining cost (AISC) of US\$954/oz
- Post-tax NPV(5%) of US\$618M and IRR of 25% (based on a US\$1,750/oz gold price)
- Targeting first gold from Nyangaza in H1 CY2025

→ Figure 3: Fund Manager Mark Smith overlooking Nyangaza & Kilimani deposits



Source: Orecorp, Amati

The open pits are scheduled to deliver 1.2 Moz at 1.32 g/t gold and a low 3.7:1 (waste: ore) strip ratio with the underground mining scheduled to deliver 1.64 Moz (including underground development material) at 3.55 g/t gold. The underground mine is to be developed to a depth of 700m below surface, however the deposit remains open at depth, thus offering resource potential and mine extension. The metallurgical test work confirms an average LOM gold recovery of 88% through a conventional 4 Mtpa Carbon in Leach (CIL) processing plant.

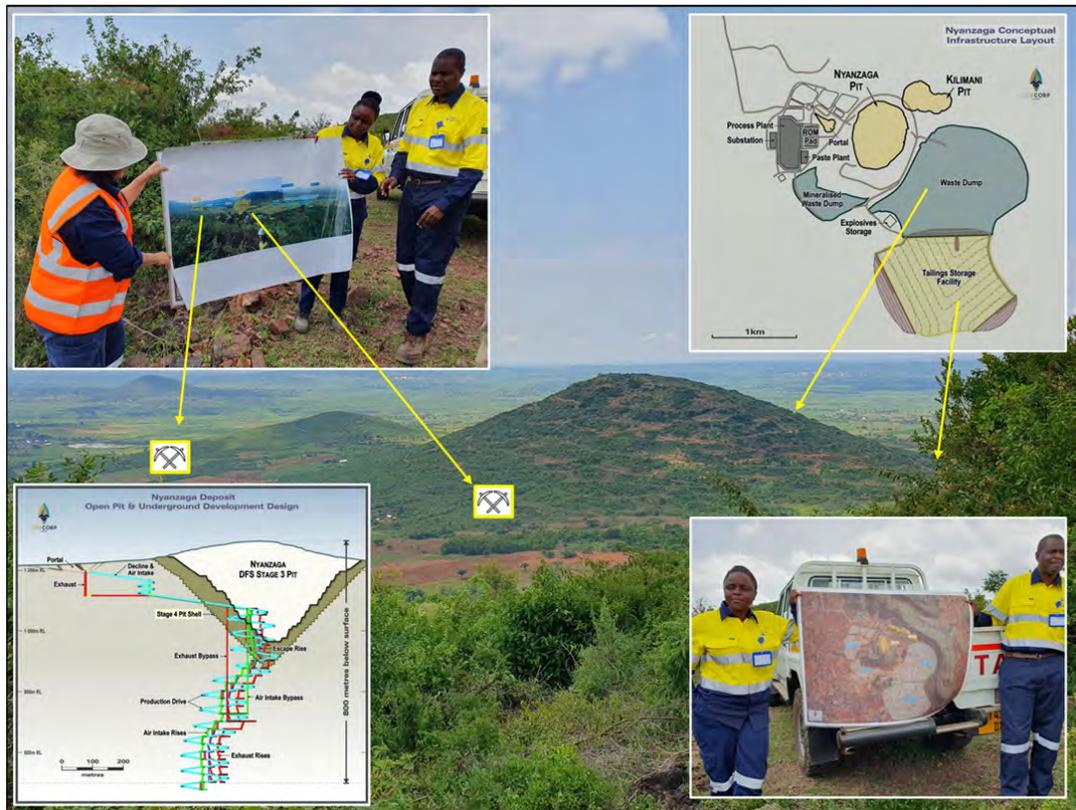
The underground mine will use conventional mechanised mining equipment such as jumbos, loaders, underground trucks and longhole drills. The mine will be accessed by a decline. An area close to the process plant and Run of Mine (ROM) pad was identified as being suitable for the boxcut and decline (Figure 4). The underground development will start 6 months ahead of the open pit mining and underground production will build up over the initial three years to reach an ore production rate of 1.5 Mtpa. Open pit production ramps up over the initial three years (to 2.5 Mtpa) as additional working areas are opened.

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The LOM schedule is developed from a practical mining schedule that maximises project value, things we check =

- Higher grade to the mill by adopting a strategic stockpiling strategy
- Maintaining the open pit mining rates, despite not required to sustain plant feed, brings forward approximately 120 koz of gold that would otherwise been delayed to the last four years of the project if a slower mining rate was used. The accelerated mining costs are offset by the benefit associated with early access to the gold and reduced open pit mining overhead.
- Reduced fixed costs of open pit contractor miners on site
- Ability to blend open pit and underground mine feed according to grade and recovery of different ore types.
- Given the flat topography of the proposed plant site, mine haulage costs from mine to mill will be low.
- The Tailings Storage Facility (TSF) will consist of a zoned, downstream-constructed embankment with the design utilising natural ridges to reduce the volume of embankment construction materials required, saving money.
- The TSF design storage capacity of 50 Mt is conservative as it exceeds the 42 Mt of tailings expected to be generated by the process schedule and does not consider the tailings which will be required for backfilling purposes. Provides project flexibility to mine more resources.

➔ Figure 4: OreCorp providing technical plans (orientation) and showing underground development



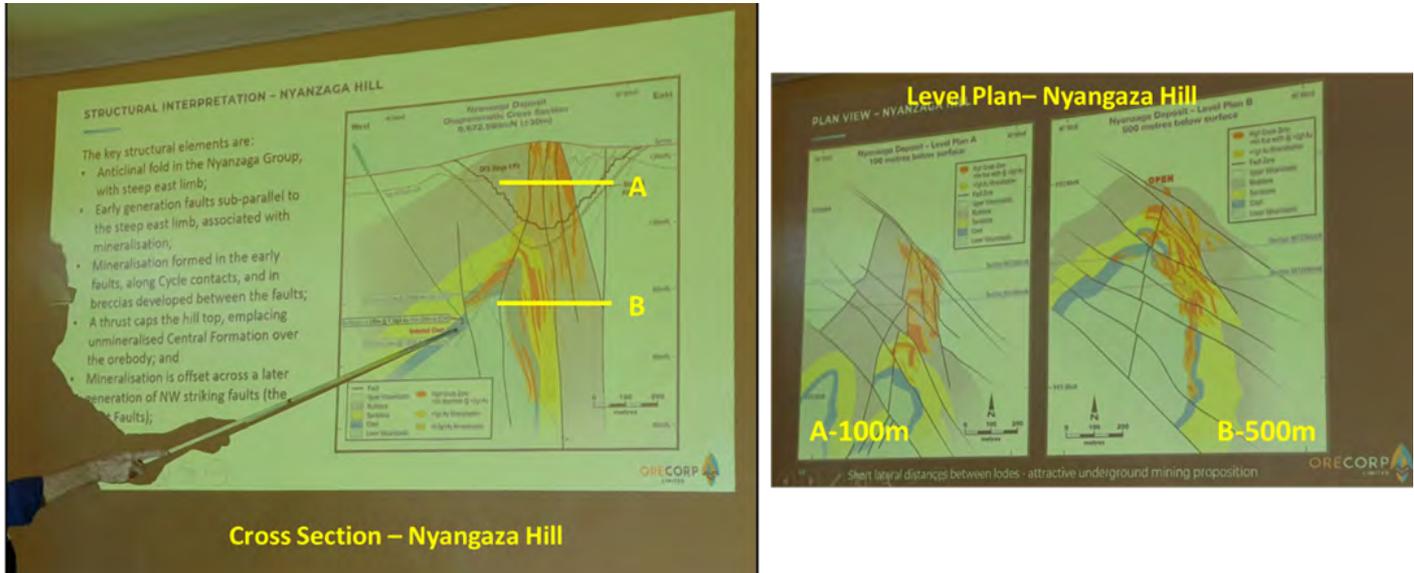
Source: OreCorp, Amati

### Geological due diligence - from class room to core shack

The Nyanzaga and Kilimani deposits occur within a sequence of folded sedimentary and volcanic rocks. The current interpretation of the Nyanzaga deposit recognises a sequence of mudstone, sandstone and chert units folded into a northerly plunging fold (anticline) – Figure 5.

The Kilimani deposit, located 450 m northeast of Nyanzaga, is developed in the fold hinge of plunging anticline. The bulk of the Kilimani deposit occurs in the heavily weathered zone, within 140 m from surface.

→ Figure 5: Geological and structural presentation of the deposits by chief geologist



Source: Osino Resources

Gold mineralisation at Nyangaza is concentrated at the intersection point of the fault structures and the plunging Nyangaza Anticline. Mineralisation at the Kilimani deposit is currently mostly defined in the oxidised to partially oxidised profile and implies secondary enrichment. The mineralisation style at Kilimani appears similar to the Nyangaza, fault-controlled mineralisation. It is reasonable to assume that the fluids between Nyangaza and Kilimani are interconnected. Kilimani may have been a higher-level development of the Nyangaza system now structurally juxtaposed.

We observed the multiple phases of sedimentary deposition (4 sediment rock types) and 3 phases of sulphide mineralisation associated with multiple phases of silica flooding. Mineralisation is also further influenced by folding and faulting. This will potentially affect throughput grade and recovery rates to the processing plant. This aspect of the project will have to be carefully managed as mining will occur from various parts of the orebody.

The Nyangaza testwork showed recovery rates from 84% to 92% gold and 52% to 64% silver. Mudstone exhibited mild preg-robbing characteristics and these will be counteracted with the CIL circuit design. The Kilimani oxide testwork showed 96% gold recovery from cyanidation and gravity extraction. Metallurgical recovery over the LOM is expected to average 88% at a grind size of P80 75µm.

→ Figure 6 - Orecorp chief geologist explaining the geological setting of the Nyangaza project



Source: Orecorp, Amati

→ Figure 7 – Fund Manager Mark Smith reviewing key geological sections and assayed core



Source: Amati

## ESG

In the project area the primary source of livelihood for most households is subsistence farming with approximately 12% depending on other sources, including artisanal mining, fishing, salaried employment, general labour, livestock keeping and small trading.

- A detailed resettlement action plan and livelihood restoration plan is under development.
- The Environmental and Social Impact assessment (ESIA) was conducted and granted an Environmental Certificate for the Project in February 2018.
- To support the Project's potential application for funding from International Finance Institutions OreCorp conducted a review of the ESIA against the Equator Principles and current, relevant, International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (IFC, 2012) and World Bank Group standards and guidelines.
- The gap analysis identified several areas for improvement (from national to international standards), which are being addressed and results will be incorporated in a revised ESIA document – Figure 8.

Important to our site visits is to understand what the social impacts a mine might have to the area. OreCorp has identified 2 villages which need resettlement. The survey identified 364 households losing dwellings and land and a resettlement action plan (RAP) is being finalised to international standards. Compensation options include cash, in-kind or a combination of the two.

Livelihood restoration and integration programmes are being draw up along with construction of sample houses.

→ Figure 8 - The framework for an environmental and social management plan

1. Air quality management plan
2. Noise management plan
3. Blasting and vibration management plan
4. Site water management plan
5. Land and soil management plan
6. Cyanide management plan
7. General and hazardous waste management plan
8. Hazardous substances management plan
9. Acid mine drainage management plan
10. Terrestrial biodiversity management plan
11. Aquatic biodiversity plan
12. Social influx management plan
13. Community and health management plan
14. Cultural heritage management plan
15. Emergency response plan

Source: OreCorp

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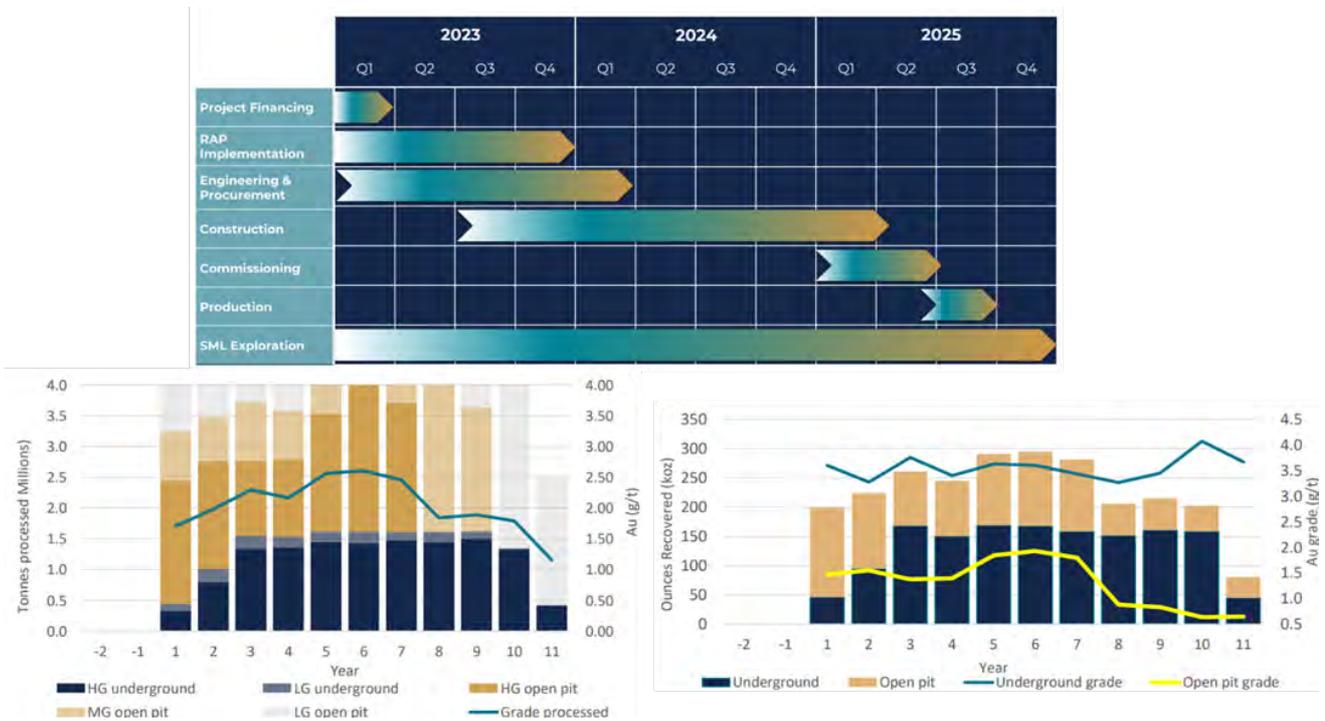
This framework is in addition to the RAP. A draft mine closure plan is also being developed in accordance with the requirements of the Tanzanian Ministry of Minerals Mine Closure Guidelines (2019). Apart from fulfilling Tanzanian regulatory requirements, consideration of impacts associated with the closure and post closure phases is also a requirement under the IFC Performance Standards (2020).

It is important to stress if a company doesn't have a social licence to operate it has nothing. This industry is a partnership between capital, labour and governments and the responsibility of mining companies is to shepherd and embrace that partnership to ensure delivery of value to all the stakeholders.

You can't kick the tyres and lick the rocks from a Bloomberg Screen!

The fund managers of the ASMF hope to highlight through these 'Site visit notes', the importance of going on site to projects, be it exploration, development or producing mines. There are many moving parts to building a mine which can take well over 10 years to achieve. Having the dual expertise to appreciate these issues certainly helps the managers navigate the 'pit falls' which is resource investing.

→ Figure 9 – The culmination of hard work = Gold production and value to all stakeholders



HG high grade; MG medium grade; LG low grade

Source: OreCorp



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