Highlights on the Mineral Properties of Ezana Mining Development PLC
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1. Introduction

1.1 Objective

- To give highlights on the major discoveries of orogenic gold and VMS mineralization and iron deposits

1.2 Company profile

Ezana

- an Indigenous company established in 1994 G.C
- a subsidiary of EFFORT which owns 15 companies
- staffed with 70 permanent and 20 contract employees
- owns the only accredited geochemical laboratory in Ethiopia
2. Regional Metallogeny of northern Ethiopia

• The Northern Ethiopia basement area being the southern extension of the ANS is with high potential for orogenic gold and VMS deposits
  ➢ But it is also the least explored part

• The discoveries of gold bearing VMS deposits at Bisha, Debaruba, Embaderho in Eriteria and Terer, terakmiti, Adi-Bladai, Nefasit and Meli in Tigrail indicate the high prospectivity of the region

• The orogenic gold deposits in Koka-zara in Eriteria, Maetsobula and Maihibey in Tigrail (Ethiopia) also indicate the geological suitability of the region for economic gold deposits.
Geology and some VMS deposits/occurrences of ANS
Simplified geological map of Axum Map sheet and location of the auriferous gossans (after Tadesse 1997; A.Araya, 2008)
3. Gold and VMS prospects

3.1 Mineral properties
• Ezana owns gold and base metal exploration licenses over the northern Ethiopia basement rocks in Tigrai region

3.2 VMS prospects/occurrences

Terer VMS
Best RC drilling intersection indicated: 25m @ 2.4% Cu, 2.76% Zn, 0.71 g/t Au, 35 g/t Ag
• This the first poly metallic massive sulphide discovery in Ethiopia
• To maximize the resource Airborne Geophysical Survey was conducted over the Terer and surrounding areas
  ➢ Conductive layers were outlined to be verified by ground surveys
Meli VMS(underling gold rich gossan)

• Test drill cores indicate: 17.35m @1.51g/t Au, 37.1g/t Ag, 4.2%Cu, 0.7% Zn

• Geologically complex area, hence TEM geophysical survey is recommended to understand the subsurface trend and extension of the mineralization.
Massive Sulphide on Meli area
AdiAbayo Gossan

• Channel samples indicated: **20m@1.8g/t** including **1m@9.7 g/t**
• It is under follow-up exploration
• Test drilling is recommended

3.4 Other base metals occurrences

• Abreha Atsibeha Zn-Cu-Ag prospect
• Tsahafiemba Cu prospect
• Both these prospects were transferred to JV with Shandong Mining(China)
3.3 Orogenic gold prospects

Maihibey gold prospect
• Found in northwestern zone of Tigrai region
• Located about 1150 km from Addis
• Best intersections of gold from core drilling are:
  - MH-DH-6: **18.5m@9.69g/t Au** (including **139.69g/t/1m**)
  - MH-DH-21: **21m@7.7g/t Au**, **11.7m@1.6g/t Au** and **20.5m@3.3g/t Au**
  - MH-DH-33: **17m@6.8g/t Au**
• Two main gold zones outlined
• Further drilling needed for resource evaluation and maximization

Other gold prospect areas
• Adimehmeday: **19 g/t Au** (from rock chip sample)
• Indatekoda: **8.33 g/t Au** (from rock chip sample)
Gold & VMS prospects
4. Gold Mine Development

Meli gossan gold mining

- Gold rich oxide zone overlying VMS mineralization
- Gold reserve of 2.1 tones
- Procurement of Gold processing plant (CIP) is on progress
- Production plan is 840 tons ore/day (4.5kg)/day
- Infrastructures and utilities are nearly completed
- Residential and office buildings as well as tailings dam are completed
- Production is expected to commence after one year
- The Maihibey gold prospect can be potentially used as a gold resource feed to the Meli gold processing plant.
5. Iron Ore Exploration

- Indaselassie and Mentebteb iron deposits are located in north western Tigray about 1085 and 1185km from Addis respectively.
- The iron resource is 190 million ton ore with average grade of 30.5%Fe (low grade goethite-hematite ore).
- Feasibility study is on progress by Tata consulting engineers that could enable to mine the iron ore and establish iron and steel making plant.
- Currently pilot scale testing of the ore samples is on progress by an Indian laboratory, NML, to validate the bench scale test result.
- The feasibility is expected to be finalized till the end of 2014.
6. Synergy

**Ezana**

- trained an average of 15 students from Mekele university ever year with practical applications in mineral exploration and analytical laboratory
- is serving as a source of geo-science data for it has been working in the northern Ethiopia for more than 20 years.

7. JV partnership

- Ezana has been working jointly with two foreign companies Tigrai resources (Canadian) and Shandong (Chinese) in Tigrai, northern Ethiopia
- Recently, Ezana entered in to a JV agreement with the giant USA based mining company, Newmont Corporation
8. Community Development

To alleviate the water supply problem of Meli village

- one shallow bore hole drilled and one well rehabilitated and fitted with hand pumps

- The local miners are allowed to work in our prospect license areas even in primary gold workings to improve their household incomes.

- Ezana has prepared a plan in collaboration with Mines Agency of Tigrai to assist the local artisanal gold miners in delineating placer gold deposits and providing technical training
9. Conclusions

• As an indigenous company, despite of its financial and technical constraints, it has managed to discover gold, base metals and iron ore deposits and occurrences and develop small scale gold mining.

• Without owning a single mine, its involvement in assisting the local artisanal miners, community development activities reflects its commitment of discharging social responsibility.

• Due to the local capacity constraints, Ezana is jointly working with technically and financially capable foreign mining companies in order to boost the exploration works and ultimately mining.
Thank you