

THE POTENTIAL OF MINERAL EXPLORATION IN ZAMBIA



Presented By

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A Glimpse of Great Diversification and Utilization of Africa's Potential

THE POTENTIAL OF MINERAL EXPLORATION IN ZAMBIA



PRESENTATION OUTLINE

- ABOUT ZAMBIA
- EXPLORATION WORK DONE
- WHY IT IS GOOD TO INVEST IN ZAMBIA'S MINING-INDUSTRY
- UNTAPPED MINERAL POTENTIAL
- PROSPECTING PROCEDURES AND OPPORTUNITIES
- NEW AND VIABLE INTEREST
- ZAMBIA AND ITS BID FOR DIVERSIFICATION

A Glimpse of Magnificent Potential of Diversity



ABOUT ZAMBIA

A Glimpse of Magnificent Potential of Diversity

THE POTENTIAL OF MINERAL EXPLORATION IN ZAMBIA



ZAMBIA



- Located in Central-Southern Africa
- Landlocked & has eight (8) neighbours
- Area of Zambia is 752,614 sq. km.
- Population is approximately 15 million
- Main mode of communication is by: road and rail, and air.

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ACCESS AND INFRASTRUCTURE



- Main mode of transport is Road and Rail which links Zambia to seaports in neighbouring countries.
- Our main Source of Energy is Hydropower



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EXPLORATION WORK DONE

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THE POTENTIAL OF MINERAL EXPLORATION IN ZAMBIA

BRIEF BACKGROUND OF THE MINING INDUSTRY IN ZAMBIA

- SINCE THE FIRST MAJOR PHASE OF MINING OF THE CU-CO MINERALIZATION OF THE COPPERBELT IN THE 1920'S, THE MINING INDUSTRY HAS BEEN AN ESSENTIAL AND INTEGRAL COMPONENT OF ZAMBIA'S ECONOMIC DEVELOPMENT.
- A WIDE SPECTRUM OF METALLIC AND INDUSTRIAL MINERALS AND ENERGY RESOURCES HAVE SINCE BEEN IDENTIFIED AND TO A VARIABLE EXTENT, HAVE BEEN EXPLOITED.
- MINING IN ZAMBIA HAS BEEN PREDOMINANTLY FOR COPPER AND COBALT.



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BRIEF BACKGROUND OF THE MINING INDUSTRY IN ZAMBIA

OWNERSHIP CYCLE

- FROM THE 1920S TO THE EARLY 1970S THE MINING INDUSTRY WAS PRIVATE SECTOR DRIVEN.
- THE MINING INDUSTRY WAS RE-PRIVATIZED IN 2000 AND IT HAS SINCE THEN BEEN PRIVATE-SECTOR DRIVEN.

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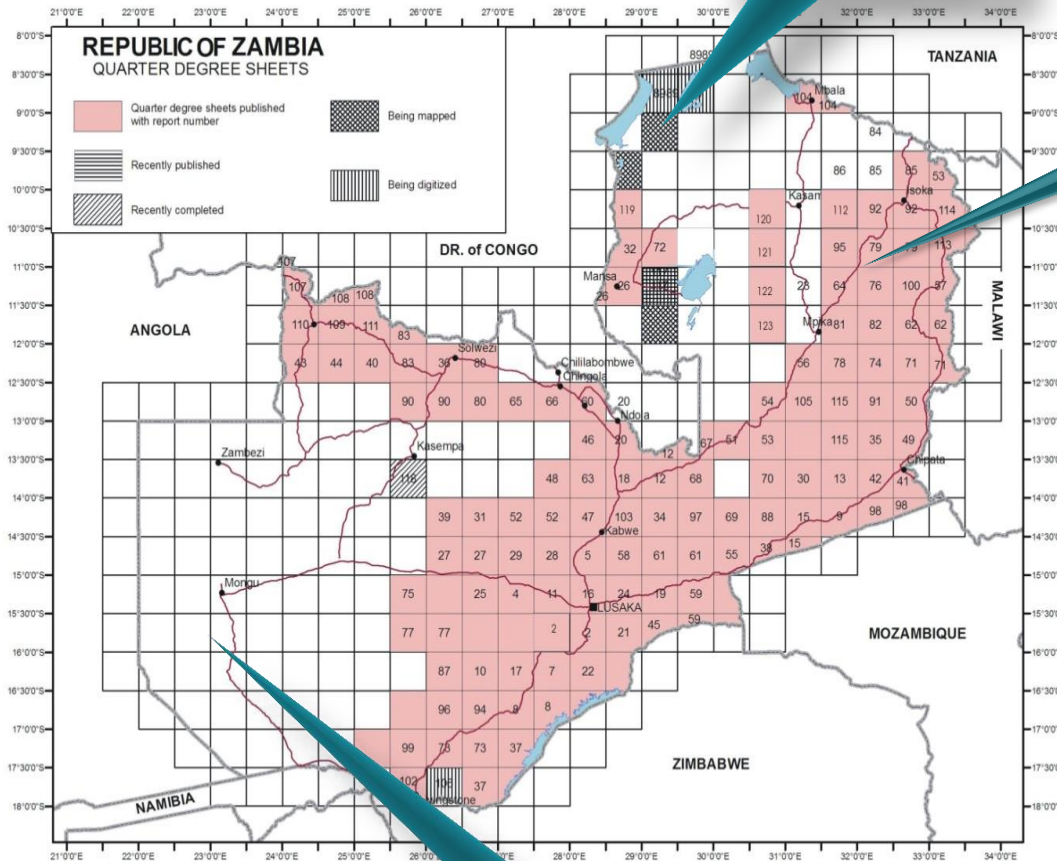
Being Mapped

61% of the country has been geologically mapped.

Mapped Area

Investment opportunities exist in mapping and exploration to delineate resources.

Geological maps are available to the members of public at a scale of 1:100,000.



Unmapped Area

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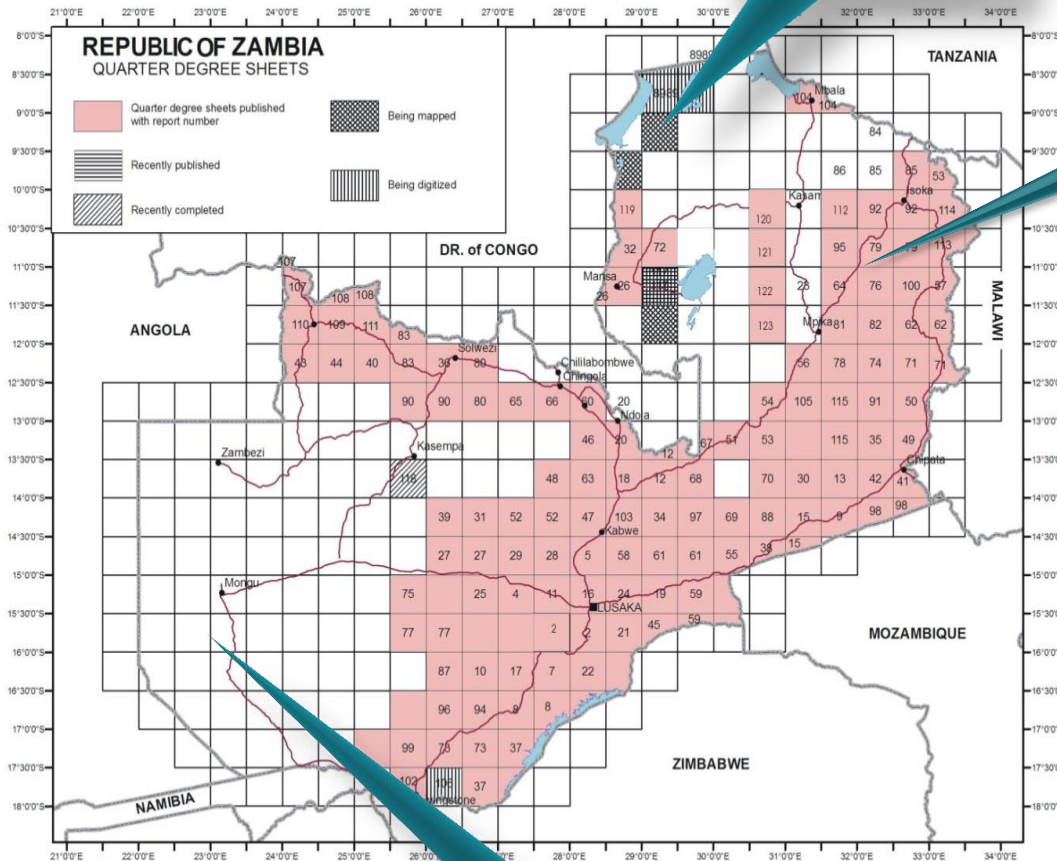
Being Mapped

Mapped Area

● A large proportion of the unmapped area lies in Western Province. This is because it is covered by thick layer of Kalahari sands; hence, requires geophysical methods to map.

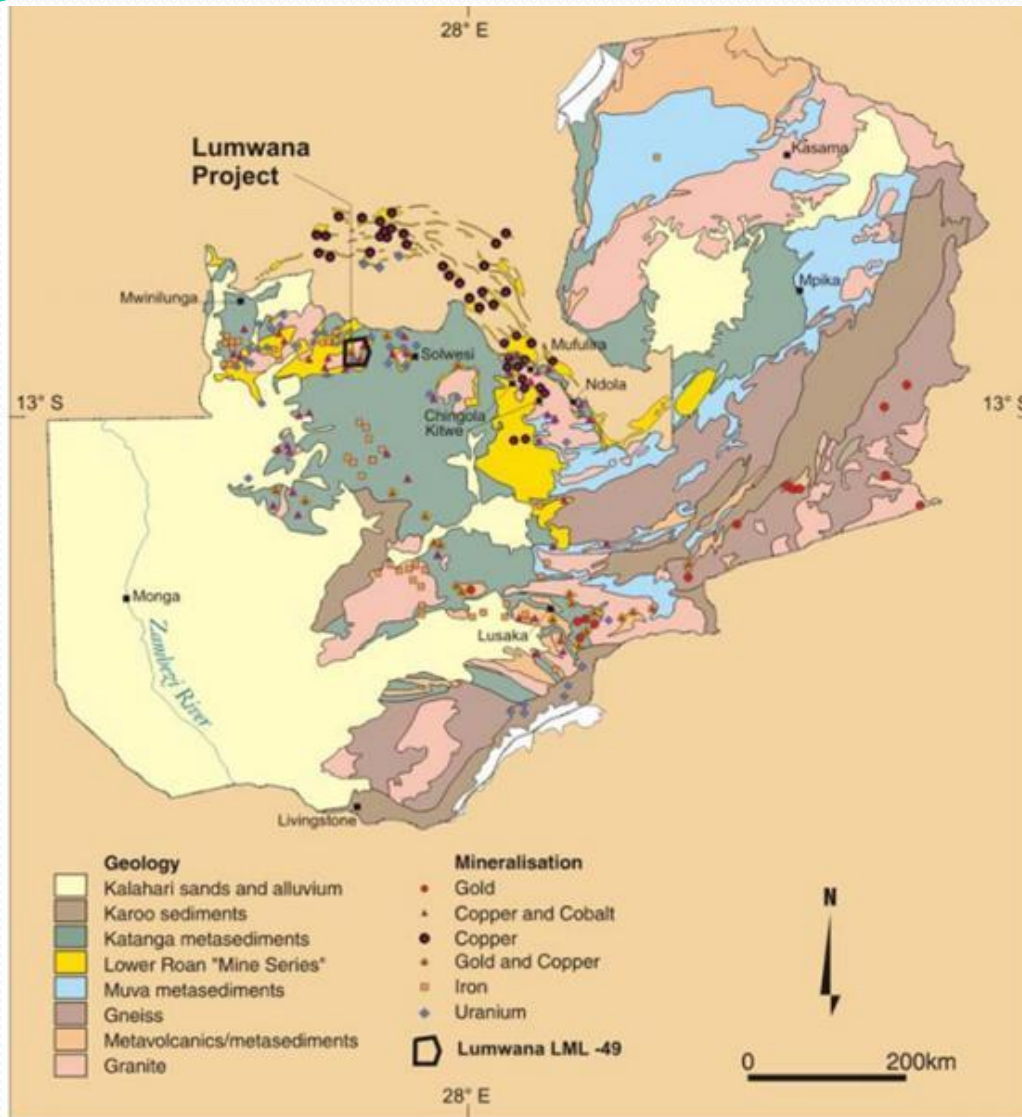
● This area presents an opportunity to potential investors to explore for the potentially undiscovered minerals in that region.

Unmapped Area



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- **Zambia** hosts a quarter of the Katanga copper-cobalt deposits.
- **Copper-cobalt deposits**, together with other base and precious metals, have helped sustain the Zambian economy since independence.
- Zambia was rated the **7th** **largest** producer of copper in the world in 2012.

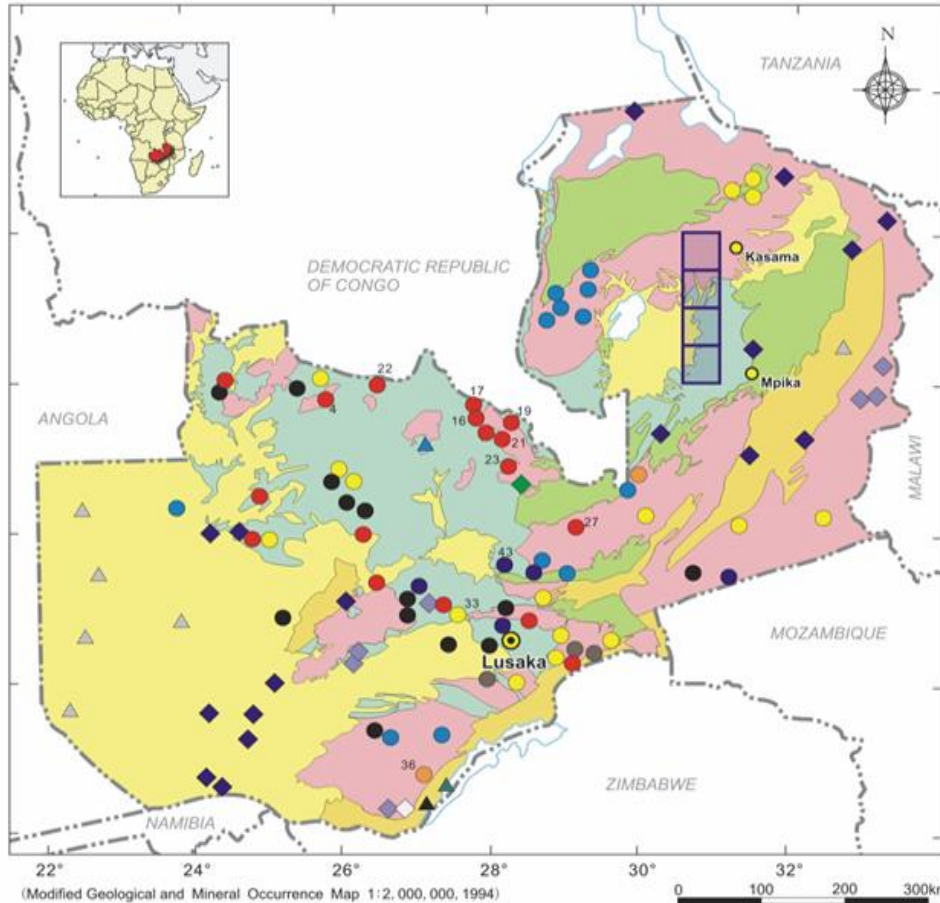


WHY IT IS GOOD TO INVEST IN ZAMBIA'S MINING-INDUSTRY

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..... a great diversity of mineral occurrences does exist in Zambia



- | | |
|-----------------|--------------|
| ● Copper/Cobalt | ◆ Aquamarine |
| ● Gold | ◆ Emerald |
| ● Lead Zinc | ◆ Diamond |
| ● Nickel | ▲ Coal |
| ● Tin | ▲ Oil, Gas |
| ● Manganese | ▲ Uranium |
| ● Iron | ◇ Amethyst |

Zambia is well endowed with:

- Base and Precious metals
- Industrial minerals and
- Gemstones

Exploration work is required to delineate these resources through:

- Aerial geophysical surveys
- Geochemical surveys
- Followed by drilling.

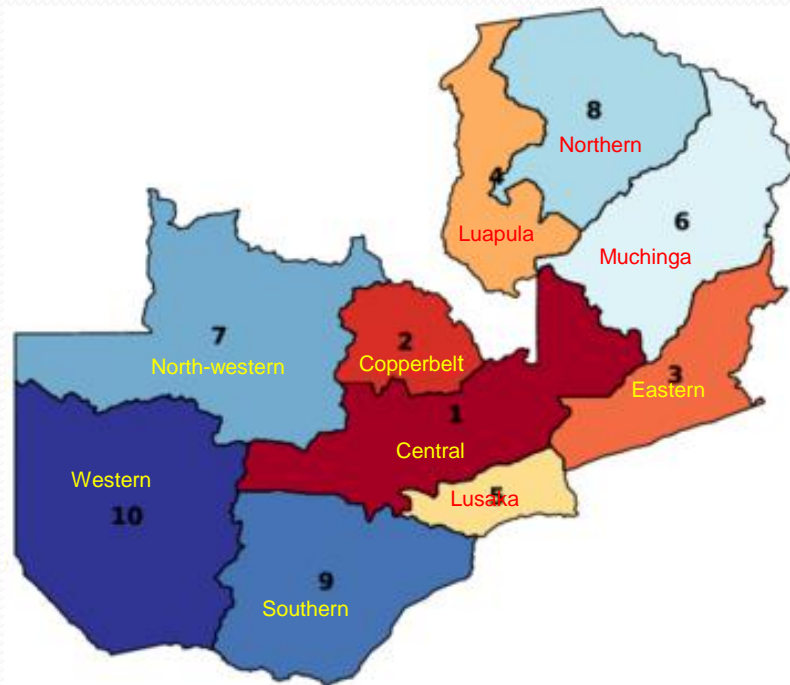
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DIVERSITY OF MINERALS FOR INVESTMENT OPPORTUNITIES



Zambia has a wide spectrum of mineral resources and spans a range of minerals, some of which are: copper, cobalt, gold, manganese and nickel.

- However, the full economic potential of some these minerals, located in the various provinces of Zambia, has not been realised. These include:



- Emeralds



- Amethyst and aquamarine



- Manganese

- Iron

- there are also energy minerals such as uranium and coal in the southern part of Zambia.

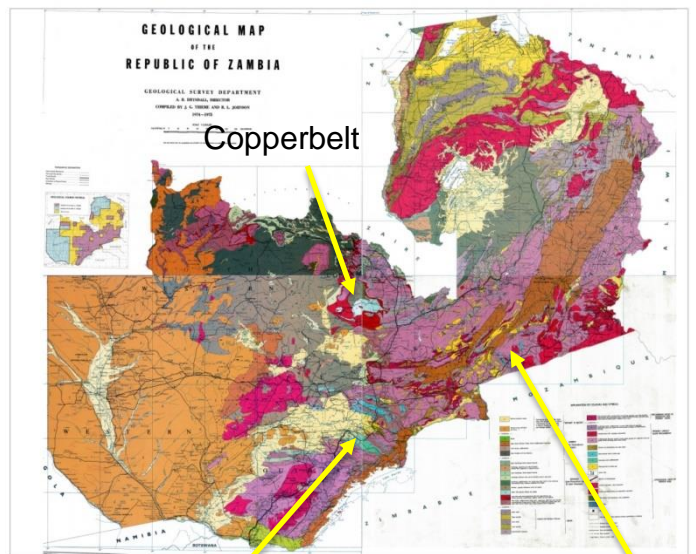


DIVERSITY OF MINERALS FOR INVESTMENT OPPORTUNITIES

Apart from the afore-mentioned minerals, Zambia has industrial minerals whose full potential has also not been fully tapped. Examples include:

Limestone

- Carbonate rocks are a common component of the Katanga Supergroup and also occur within the Basement Supergroup. Limestone and dolomite are abundant in the area around Lusaka and these and other deposits in the Southern, North-Western, Northern and Luapula Provinces have been identified as being suitable for agricultural use.
- High-purity, low-MgO limestones are currently being exploited from the lower Katanga succession near Ndola on the Copperbelt.
- Extensive deposits of limestone and dolomite exist around Lusaka, in the southern part of Central Province and in isolated scattered occurrences in Eastern Province.



Southern

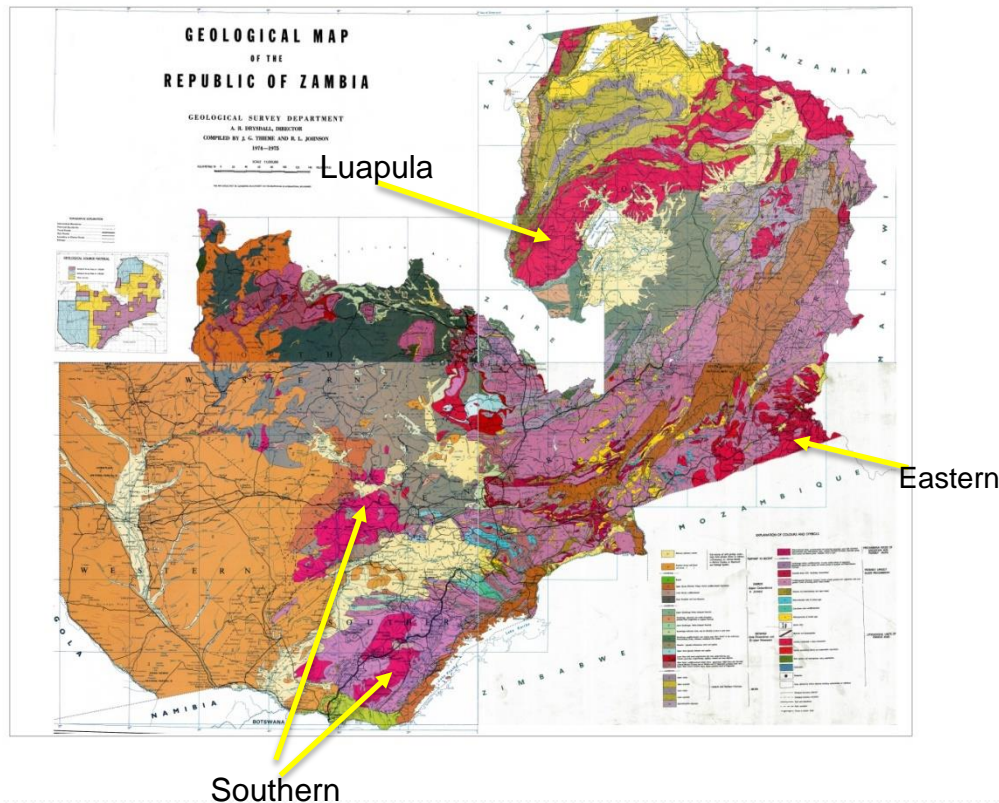
Eastern



DIVERSITY OF MINERALS FOR INVESTMENT OPPORTUNITIES

Granite

Zambia has an extensive coverage of granite in Luapula, Northern, Muchinga, Southern, and Eastern Provinces. However, this industrial mineral, which could be used to pave roads, to make tiles, to decorate buildings, among other uses, has not been used as extensively as it has been used in China or South Korea. The exploitation of this mineral remains untapped.

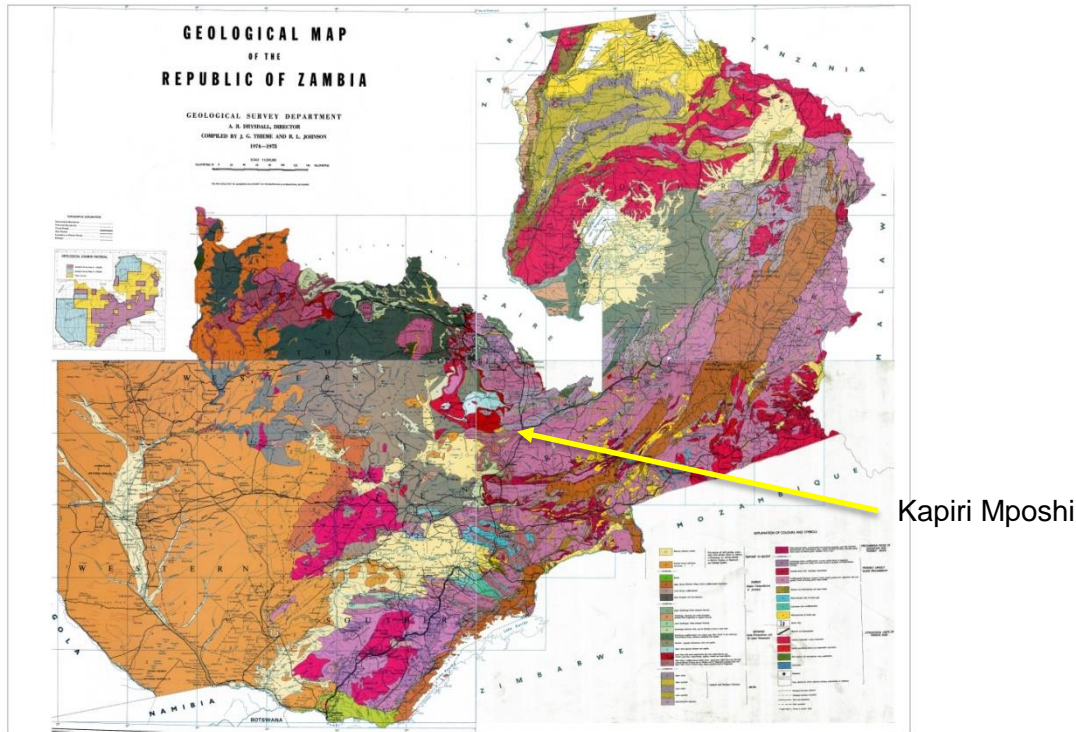




DIVERSITY OF MINERALS FOR INVESTMENT OPPORTUNITIES

Silica Sand

- Sands of various specifications occur throughout Zambia but the only occurrence to have been exploited is the deposit of high-quality glass sand at Kapiri Mposhi which was the basis for glass manufacture by Kapiri Glass Products Ltd., until the recent closure of the company.
- The sand is an unconsolidated eluvial deposit derived by the weathering of quartzites of the Muva Supergroup.



Southern



DIVERSITY OF MINERALS FOR INVESTMENT OPPORTUNITIES

Phosphate

- Apatite is the most important potential source of phosphate. In Zambia significant syenite-hosted deposits include the apatite-quartz bodies of Chilembwe, near Petauke in eastern Zambia, and breccia and pegmatite bodies in syenite intrusions near the north-eastern margin of the Hook Granite Complex.
- Carbonatites in Zambia are mostly related to Karoo-age rifts and very substantial low-grade apatite deposits have been noted in two of these - Kaluwe in the Rufunsa-Feira area and Nkombwa Hill at the northern end of the Luangwa Rift.

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ENABLING POLITICAL & SOCIAL ENVIRONMENT

- Zambia has peace and political stability.
- The Government has undertaken to protect the investor's investment and the investor.
- We have no history of seizure of private sector assets.
- We have no history of search parties for abducted foreign investors.
- Favourable policy environment for private investment.
- The mining sector is regulated through the **Mines and Minerals Development Act no.11 of 2015** which ensures security of tenure.

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THE POTENTIAL OF MINERAL EXPLORATION IN ZAMBIA



CURRENT MAJOR PLAYERS IN ZAMBIA'S MINING INDUSTRY

- **KONKOLA COPPER MINES Plc, Vedanta, (Copperbelt Province)**
- **MOPANI COPPER MINES Plc, Glencore, First Quantum Minerals (Copperbelt Province)**
- **LUMWANA MINES COMPANY, Barrick Gold, (North-Western Province)**
- **KANSANSHI MINING Plc, First Quantum Minerals, (North-Western Province)**
- **CNMC LUANSHYA COPPER MINES Plc, CNMC, (Copperbelt Province)**
- **NFC AFRICA MINING LIMITED, CNMC, (Copperbelt Province)**
- **CHIBULUMA MINES Plc, Metorex, (Copperbelt Province)**
- **MAAMBA COLLIERIES LIMITED, Nava Bharat, (Southern Province)**
- **GERMFIELDS (KAGEM MINE) Copperbelt Province of Zambia**

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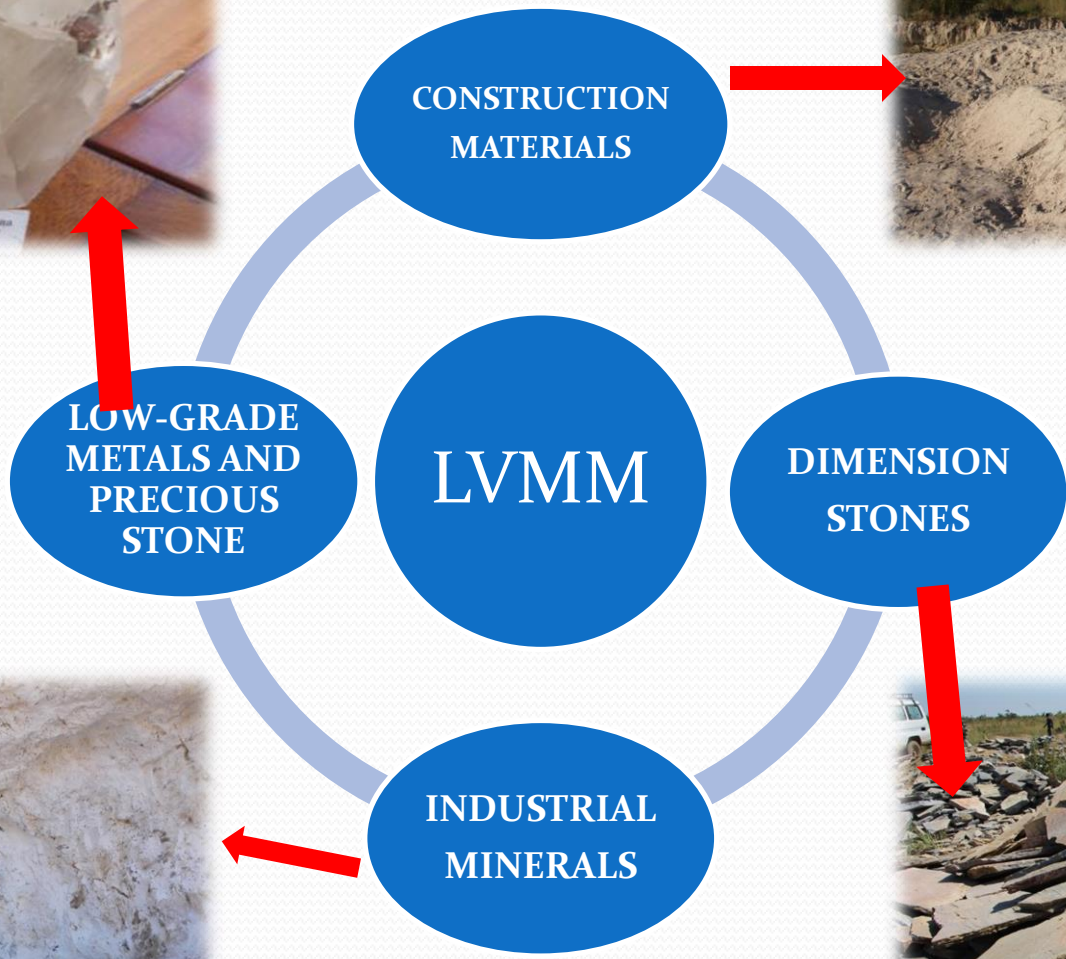
UNTAPPED MINERAL POTENTIAL

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- Zambia is endowed with different Low Value Minerals and Metals (LVMM) spread out country-wide.
- We have grouped these into the following four major categories on the basis of mining method, processing involved, market and their use:
 1. Construction materials - marble, basalt, granite, etc (used for decorations); phyllite, slates (used for paving.)
 2. Dimension stones – sandstones, granite (for slabs and blocks)
 3. Industrial Minerals – non-metallic, non-fuel minerals (raw material for cement, fertiliser, etc.)
 4. Low grade metals and precious stones - including low market-value jewellery *or aesthetic products, e.g. garnet* (*these constitute more than 80% of the Gemstone production*)

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PROSPECTING OPPORTUNITIES

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Evaluation of the geology of Zambia over the past 50 years has indicated the potential for the following:

CRUDE OIL

NATURAL GAS

COAL BED METHANE (CBM)

Zambia appears well endowed with energy minerals but we need to search, tap and mine.

Oil Exploration



Eastern - Zambia

3,270 meter hole in Chama in 1987/88
South Eastern Luangwa indicates
petroleum presence
Further work to be done in Luangwa Basin

NW - Zambia

Microbial analysis – 12 sites positive for oil
6 sites positive for gas
Confirmed presence of oil in sub surface
Chavuma and Zambezi
Exploration concessions – to determine reserves
EOI to be issued for exploration blocks

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- Strong indications of the presence of oil and gas have been obtained with the method of microbial prospecting for oil and gas (MPOG) across Zambia.
- Soil samples collected in areas with potential for oil and gas in Zambia and were sent to Micropro Gmbh Microbiological Laboratories in Germany.
- The laboratories use the new technology for microbial prospecting for oil and gas.

We get to the bottom of things!
Microbial Propection for Oil and Gas (MPOG®)



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- The government has demarcated 51 blocks for petroleum exploration.
- Some of the blocks have been allocated to successful bidders that went through the process of competitive bidding.
- Exploration works in some blocks are currently on-going by companies like Rift Petroleum Limited, Tullow B.V Limited, and others.



Way forward;

- Exploration works in **oil** blocks (is ongoing in some blocks)
- **Uranium**: exploration (**Dennison Mine and African Energy** are active in this area)
- **Coal**: Open for more exploration as there is much potential (two mines are currently operating – **Collum Coal Mine and Mamba Collieries**)
- **Geothermal** : Exploration (**Kalahari Geo-energy** are active in this area)

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- Investors are encouraged to come to Zambia and invest in mineral exploration in the remaining 39% of the country that is not mapped to lead to the opening up of new green field mines.

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THANK YOU FOR YOUR ATTENTION

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