INAUGURAL MEETING OF THE TASK TEAM ON AUTOMOTIVE AND MINERAL BENEFICIATION SECTOR

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Presentation:

SACU Member State's Mineral Beneficiation Strategies and policies

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SECTORS BRANCH- RESPONSIBLE FOR INDUSTRIAL DEVELOPMENT (POLICY RELATED WORK)- WORKING CLOSELY WITH OTHER BRANCHES THAT PROVIDE INDUSTRIAL FINANCING SUPPORT, INVESTMENT PROMOTION AND TRADE ADMINISTRATION, TO NAME A FEW. ALSO WORK CLOSELY WITH OTHER DEPARTMENTS AT ALL SPHERES OF GOVERNANCE: NATIONAL, PROVINCIAL AND LOCAL (AND INTERNATIONAL); ENTITIES, ACADEMIA, INDUSTRY, LABOUR AND CIVIL SOCIETY ORGANISATIONS.

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- BACKGROUND
- SOUTH AFRICA’S POLICY LANDSCAPE
- ENHANCING REGIONAL INTEGRATION

PURPOSE OF PRESENTATION

IT IS THREE-FOLD:

- ❑ TO SHARE INSIGHTS ON SOUTH AFRICA'S MINERAL RESOURCE ENDOWMENT IN RELATION TO REGIONAL AND GLOBAL PARTNERS
- ❑ PROVIDE BRIEF OVERVIEW ON SOUTH AFRICA'S POLICY LANDSCAPE, THAT HAVE IMPLICATION FOR THE DEVELOPMENT OF MINERAL RESOURCES DEEMED CRITICAL FOR GLOBAL TRANSITION TO LOW CARBON ECONOMIES.
- ❑ PRESENT VIEW POINTS ON POSSIBLE AREAS OF COLLABORATION IN AS FAR AS CRITICAL MINERALS AND BATTERY VALUE CHAINS IS CONCERNED- especially in the context of rising protectionism and trade wars.

The presentation is biased towards battery value chains, for application not only in the automobile sector, but to other energy transition technologies as well.

We are excited to form part of this discussion today, as we believe it has potential to pave the way for more future engagements (bilateral and/ or multilateral levels) for regional integration in this space.

BACKGROUND

- Global transition to low carbon economies brings with it massive demand for mineral resources that are considered critical/ strategic to the production of energy transition technologies (world view that- for RSA- all are critical- noting other countries' critical lists).

- Critical minerals are increasingly sought after to produce carbon net zero-linked energy transition technologies, namely: electric vehicles, magnets and energy efficient devices; battery storage; cleaner and renewable energy generation and distribution technologies as well as aerospace and defence; electronics, telecommunication systems; artificial intelligence and the 4th industrial revolution technologies.

- No single country in the world holds significant amounts of all these minerals at once. They are scattered geographically, across the world, with specific SADC countries (notable the DRC on cobalt; Mozambique on graphite; Zimbabwe and Namibia on lithium and South Africa on PGMs, Manganese and REEs) leading regionally on the supply side.

- The rush to secure access is what scares the most- policies and strategies being issued globally, and cooperative agreements signed on various levels of the mineral value chain.

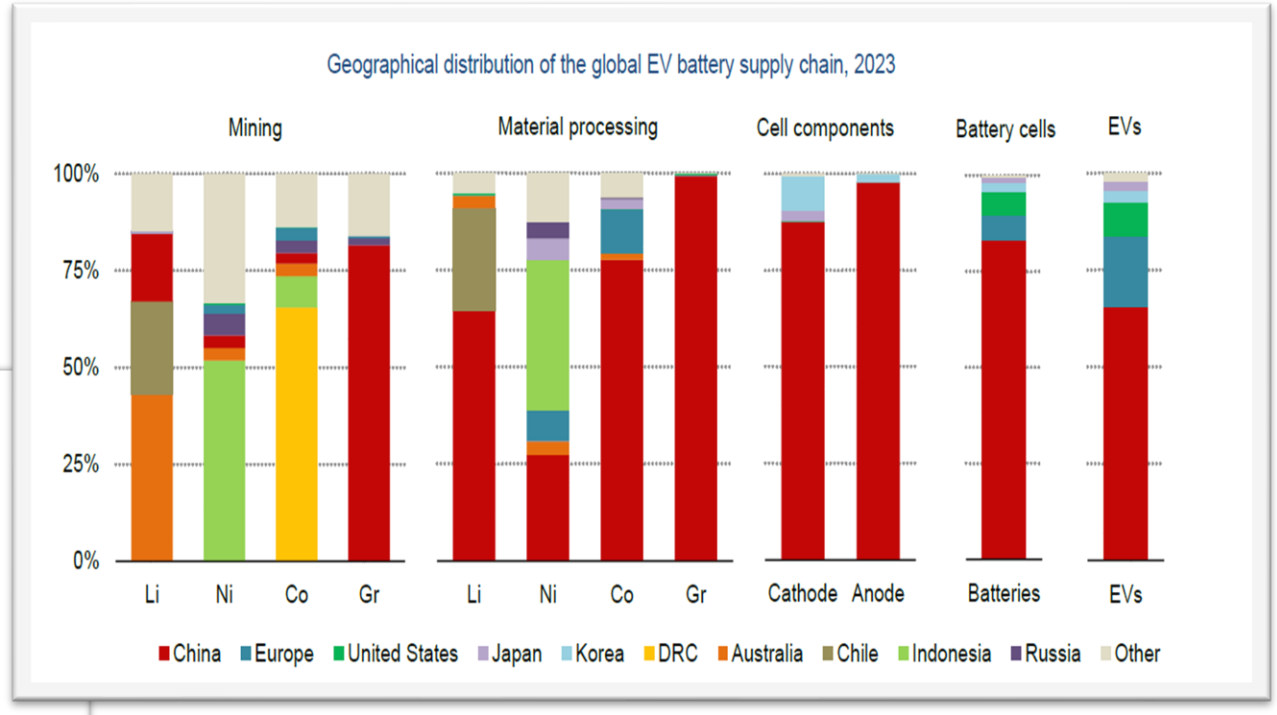
- MoUs, strategic partnerships, agreements, stakes arrived at between the producer/consumer countries and supplier countries on:
  - Cobalt, lithium, copper, graphite, PGMs, etc.
  - At the same time, it becomes exciting to see collaborations going beyond mere extraction and export of raw minerals, to building refineries, processing plants, and where deemed feasible, the assemble facilities. While few, but real life stories are beginning to surface in the continent- with cases such as the Morocco precursor NMC and LFC refinery plants, South Africa's MMC, among others.

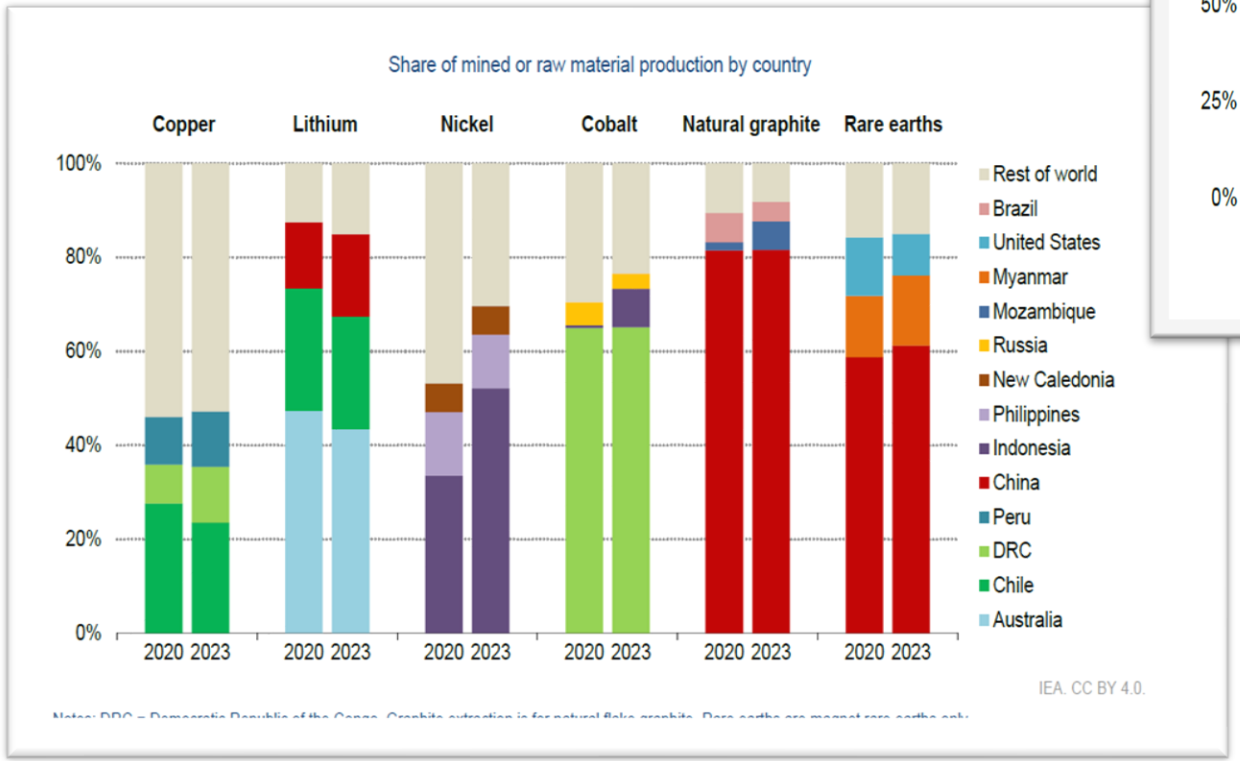
- The International Energy Agency (IEA) 2024 report notes that the objectives between the producer/ consumer countries (e.g. China, EU, USA) differ from the objectives of the supplier counties (e.g. the DRC, South Africa, etc). While the former focuses on boosting mineral supply resilience, the later seeks to maximise socio-economic benefits from their resource endowment.

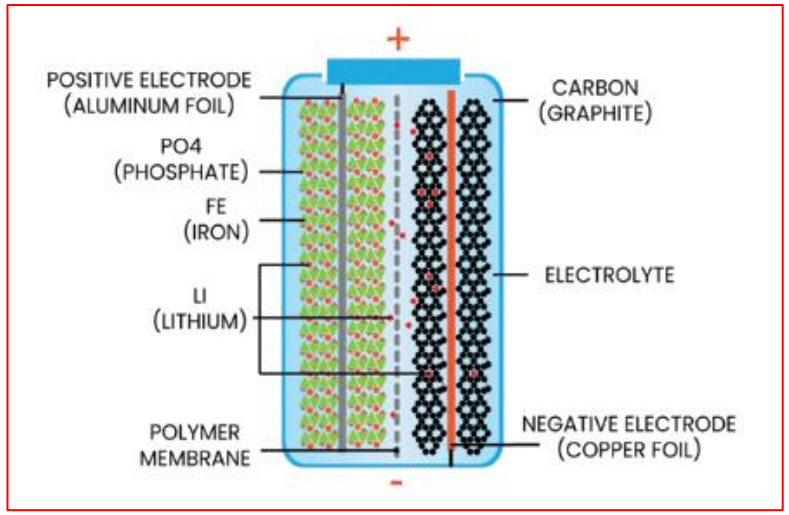
- It looks like- some agreements continue to promote value addition outside the borders of the continent- perpetuating the status quo.

GLOBAL ENDOWMENT AND MANUFACTURING CAPABILITY

China being ahead of everyone in almost all mineral production processes







LIB Cell components

China's dominance largely on natural graphite and rare earths only- as worried as all producer/ consumer countries w.r.t. the supply of all other minerals

Key Estimates according to the IEA

1. Investment Needs

- To reach **net-zero emissions by 2050**, **annual clean energy investment** needs to **rise from about $1.8 trillion in 2023 to over $4 trillion by 2030**.
- More than **two-thirds** of this investment will be in **emerging and developing economies**, outside of China.

2. Energy Mix Shift by 2050 (Net Zero Scenario)

According to the IEA's *Net Zero by 2050* roadmap:

- **Fossil fuels** fall from nearly **80% of global energy supply today to around 20% by 2050**.
- **Solar and wind** become the dominant sources, together making up nearly **70% of global electricity generation**.
- Sales of **internal combustion engine (ICE) vehicles** end by **2035 in advanced economies**.

3. Emissions

- Without additional policies, global CO_2 emissions are expected to **peak by 2025** but **plateau** thereafter.
- Under current policies, the world is on track for a **2.4–2.6°C** temperature increase by 2100.
- Under the Net Zero Scenario, **emissions decline by over 40% by 2030**, and reach **net zero by 2050**.

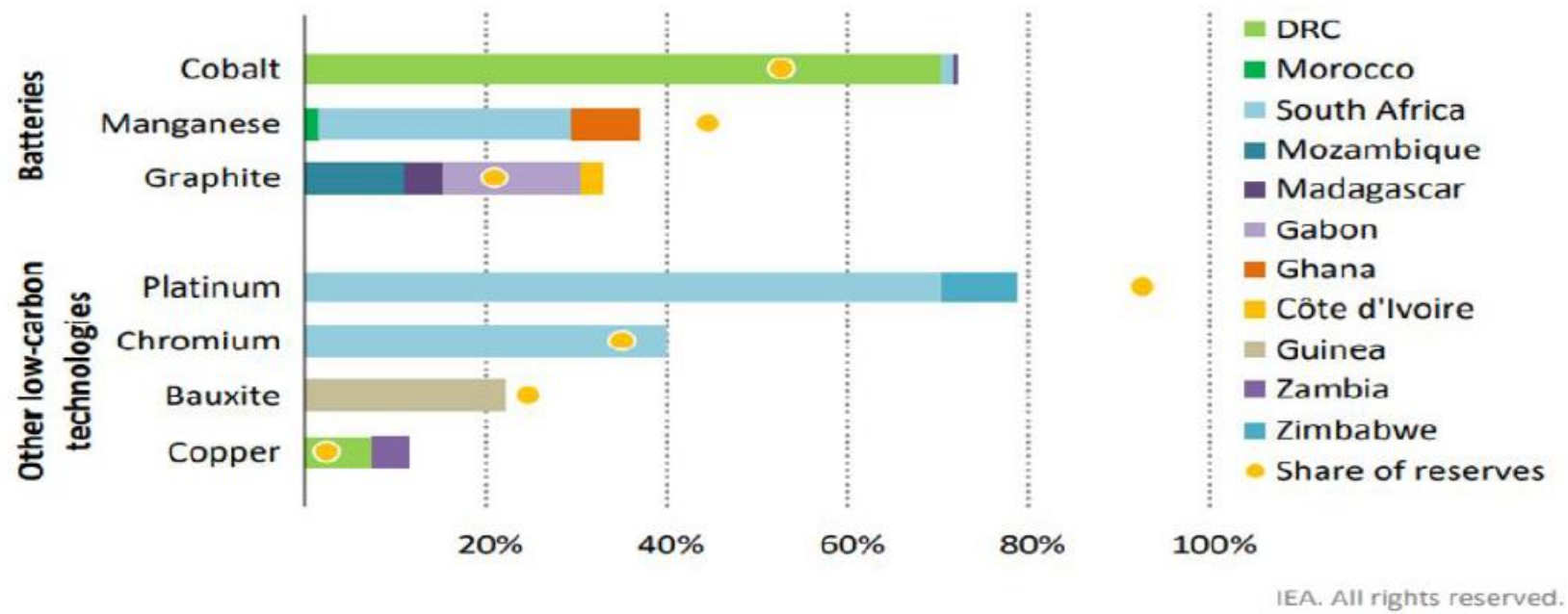
4. Critical Minerals

- Demand for **critical minerals** like lithium, cobalt, nickel, and rare earth elements is expected to **increase 4–6 times by 2040**, mainly driven by EVs and battery storage.

5. Employment and Economic Impact

- The clean energy transition could create **14 million new jobs** by 2030, but around **5 million jobs in fossil fuel sectors** will be lost or transformed.

AFRICA'S ENDOWMENT



Sub-Saharan Africa holds a significant share of the world's mineral resources that are critical to clean energy technologies

Note: Graphite refers to natural graphite.

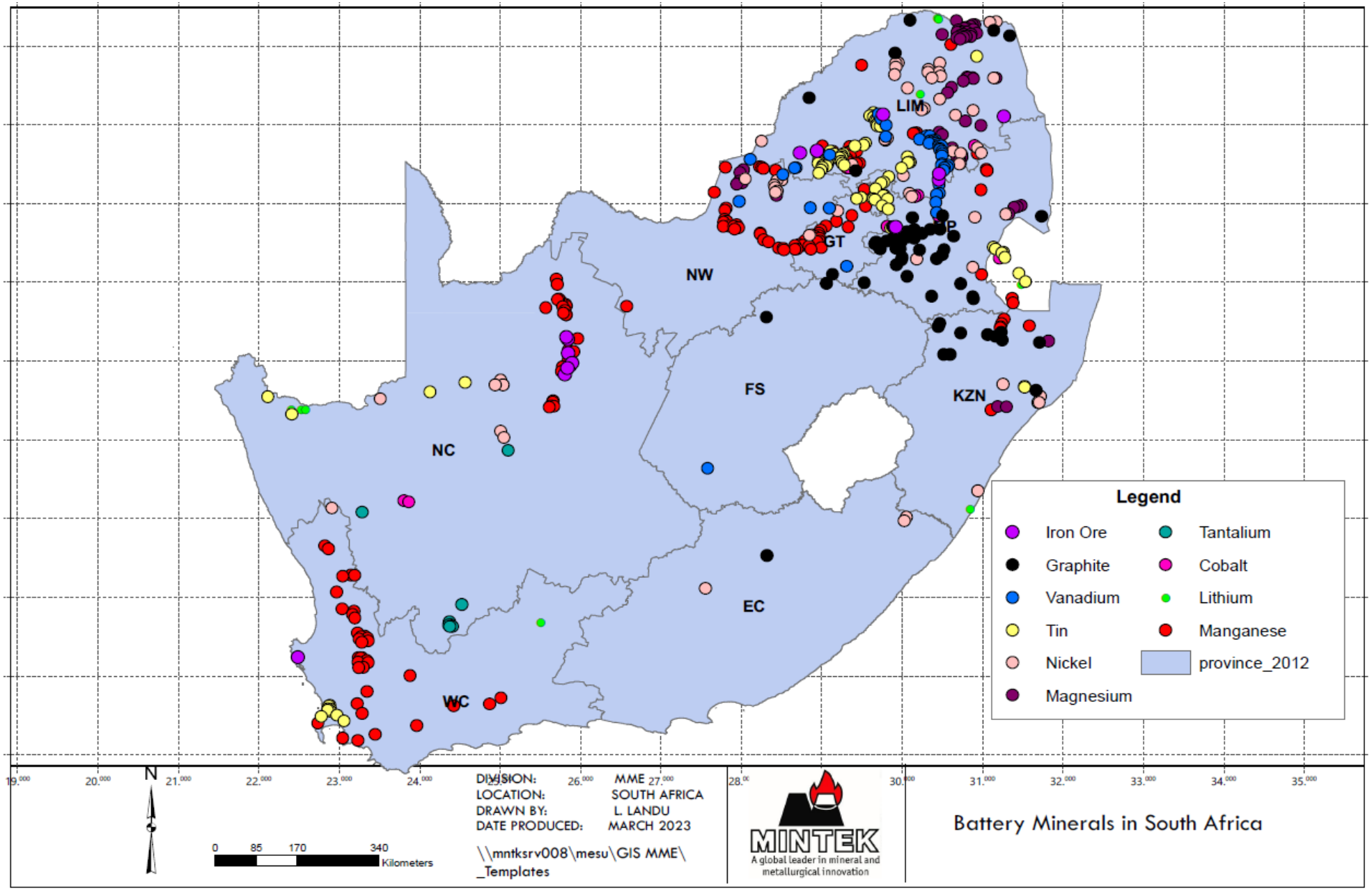
Sources: USGS (2021) and S&P Global (2022).

MINERALS COUNCIL SOUTH AFRICA

Huge mineral endowment and mining exists in the region, with very minimal movement along the value chain

To capitalize on this potential, a need exists to facilitate movement beyond mere extraction and trade of raw minerals, but to develop regional processing and manufacturing capabilities.

SOUTH AFRICA'S ENDOWMENT & CAPABILITY



Company	Capacity (in kt)			
	Material	Mining	Smelting	Refining
South 32 ltd.	Aluminium	-	823	-
Nkomati Joint Venture	Cobalt	1.2	-	-
	Copper	10	-	-
	Nickel	21	-	-
Palabora Mining	Copper	65	110	140
	Iron	9000	-	-
AMPLATS	Copper	13	11	13
	Nickel	33	-	33
IMPLATS	Copper	7	7	7
	Nickel	6	-	16
Hotazel manganese mines	Manganese	4500	-	-
United Manganese of Kalahari	Manganese	4000	-	-
Assmang	Manganese	3800	-	-
	FeMn	16000	-	300
Tshipi e Ntle Manganese Mining	Manganese	3600	-	-
Evraz Highveld Steel and Vanadium	Vanadium	28.3	-	-
	Iron	2700	-	-
Bushveld Minerals	Vanadium	?		8
Glencore	Vanadium	10	-	-
	FeCr	-	-	400
Kumba Iron Ore	Iron	51700	-	-
Glencore and Merafe Resources	FeCr	-	-	1703

IF I WERE TO CLASIFY ALL COUNTRIES INTO THE FOLLOWING CATEGORIES:

- **PRODUCER COUNTRIES** (enhanced capability in the mid-stream to downstream activities- processing these minerals, refining them and eventually assembling them to final products- e.g. battery cells and battery assemblies, electrolysers for green hydrogen development, fuel cells, electric vehicles, solar panels, wind turbines and many energy transition technologies.

- **CONSUMER COUNTRIES-** largest markets and incentives to encourage the offtake of these technologies.

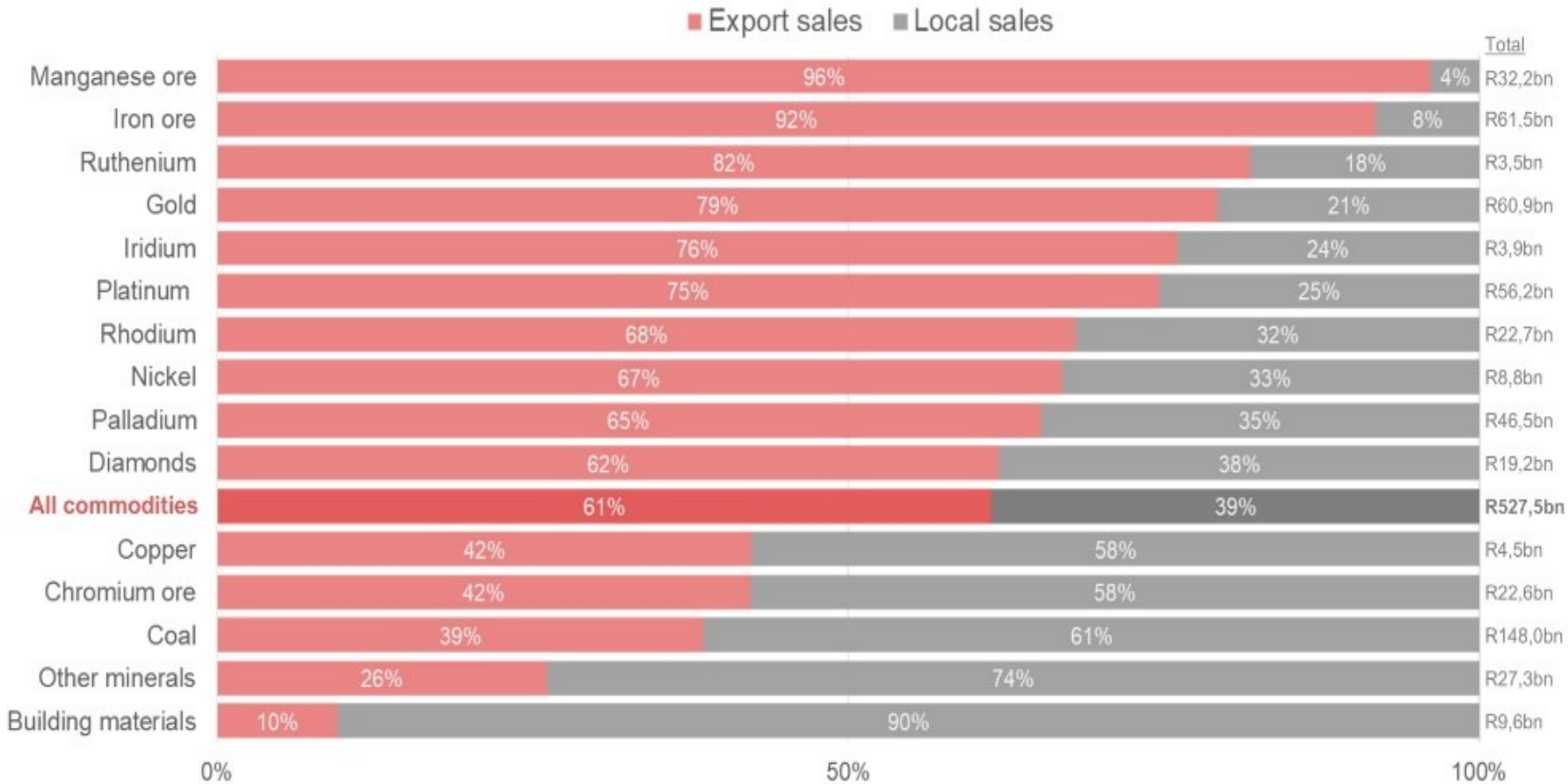
- **SUPPLIER COUNTRIES-** largest mining operations and supply of raw materials, and perhaps semi beneficiated products. These supply these to the producer and consumer countries.

I think most of us in the region, including South Africa, fall largely in the last category. Even though some processing and beneficiation activities are taking place. Most our resources still leave the region in raw or very less beneficiated form than it should be for us to obtain the maximum socio-economic and environmental benefits from the processes.

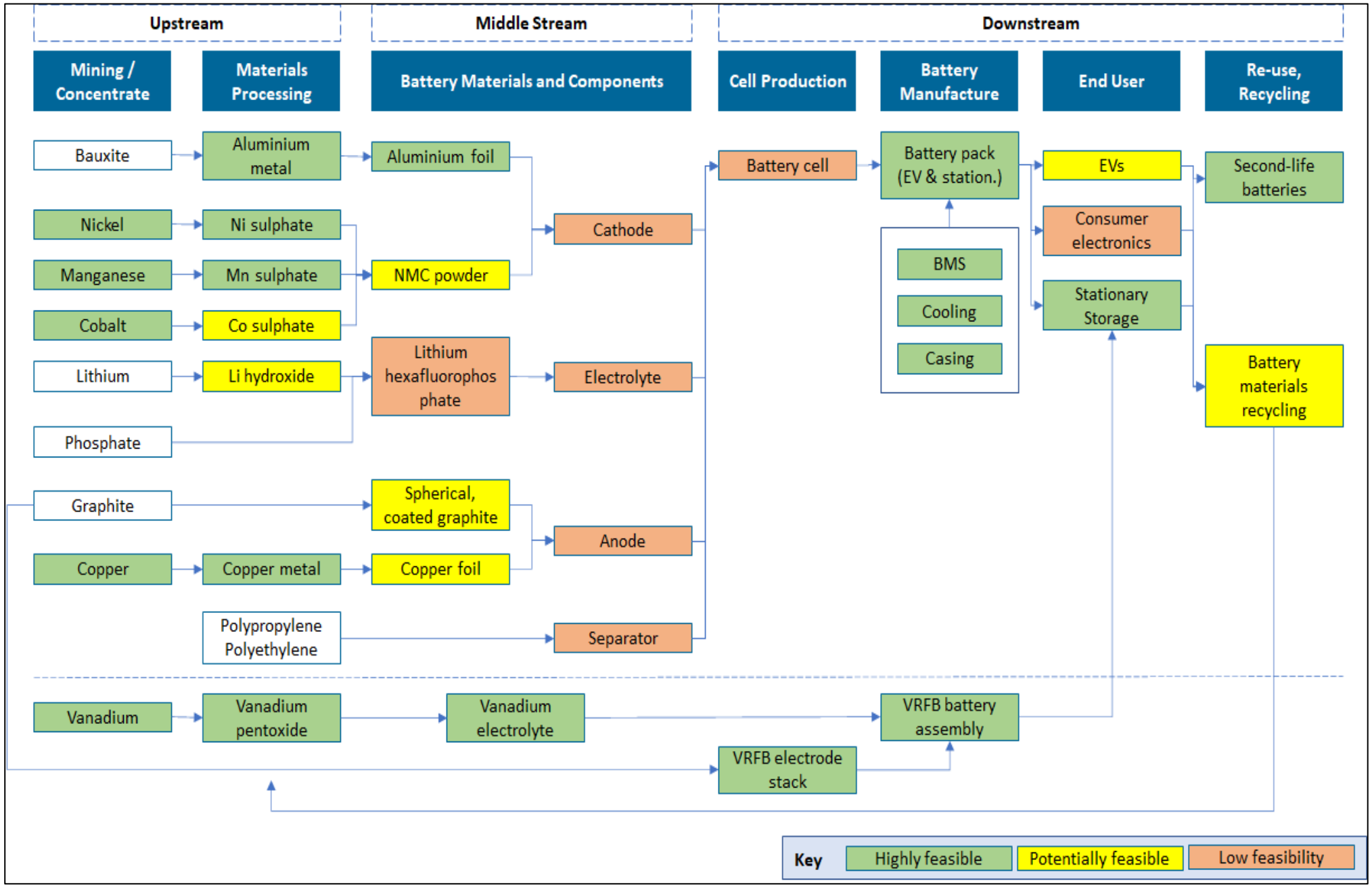
We are however slowly witnessing a paradigm shift, with more and more discussions emphasising the importance of ensuring that we add more, and more value on our mineral resources.

In 2019, export earnings contributed 61% of total mining sales

Breakdown of total sales: export and local sales



Source: Mining industry, Report No. 20-01-02 (2019). Table 8



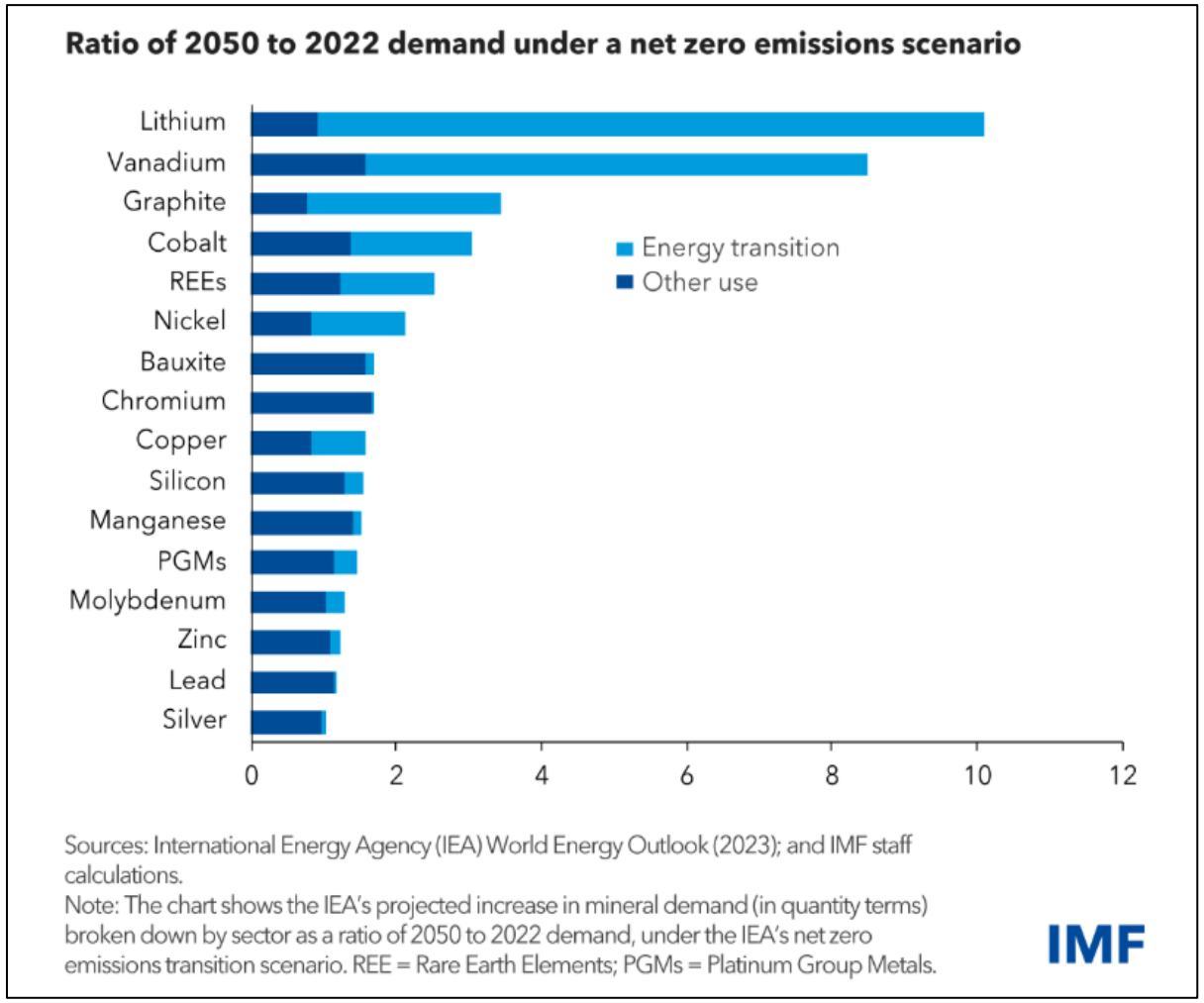
On overlying the IDC's investment projects and other local industry players- evidence of local interest in this space can be noted throughout the value chain

MORE RESURFICING PLAYERS THROUGH OUT THE VALUE CHAIN

Slide hidden due to potential confidentiality breaches

NB- a transition from conventional routes to transition technologies, e.g.

- PGMs for Cat Converters to PGMs for fuel cells.
- Manganese for alloys to manganese for batteries.
- Bauxite (imports) for aluminium (various uses) to aluminium foil for battery cathode material.



SOUTH AFRICA'S POLICY LANDSCAPE

- **South Africa's policy landscape spans from those directly seeking to promote mineral beneficiation, to those indirectly creating the market for these minerals. Also they cut across the mandates of various government departments:**

THOSE WITH DIRECT PROVISIONS FOR BENEFICIATION:

- **The Mineral Industry Beneficiation Strategy of 2011-** recognises that beneficiating the minerals to finished consumer goods not only increases the revenue gained from the exploitation of the mineral resource, but also significantly increases labour absorptive capacity of the industry .
- Specific provisions within the **Mineral and Petroleum Resources Development Act of 2002 (e.g. Section 12-** giving the Minister some powers to enhance the beneficiation of any unwrought or semi-fabricated metals (gold and platinum in particular)-before any export of such can take place.
- Listing of critical minerals and the related strategic framework- still under development.
- **The Mining Charter (2010):** provision for mining companies to offset up to 11% of their ownership requirements against the value of their levels of beneficiation.
- **Investment Strategy (2021):** as one of the national priorities- exploration, mining and manufacturing value-chains that feed into Green Economy sectors (Hydrogen, Lithium Batteries, Fuel Cells, Solar Photovoltaic panels, inverters, and turbines for wind and water use);

THOSE INDIRECTLY CREATING A MARKET FOR CRITICAL MINERALS

- **The Electric Vehicles Whitepaper** (implication for RREs for EV motors, battery cathode, anode and electrolyser precursor materials).
- **The Renewable Energy Masterplan (SAREM**) (implication for RRE for wind turbine magnets, battery materials, aluminium, copper, BMS and assembly opportunities, circular economy including the recycling opportunities).
- **The Hydrogen Society Roadmap** and the **Green Hydrogen Commercialisation Strategy** (implication for electrolyser cathode and anode materials)
- The **Just Energy Transition Investment Plan (JET-IP)** (implication for all of the above)
- **The Renewable Energy Independent Power Producer Programme** and related Frameworks (Integrated Energy Plan, etc).

The minerals required to feed into the technologies of these programmes- we have- in South Africa, in the region and/ or in the continent

Resource mobilisation considerations: urgent need to finance/ support the policy frameworks

Key to the successful roll out of these policy instruments is availability of appropriate financial, as well as non-financial instruments, and we continue to mobilise these:

- **The fiscus-** policy advocacy for the allocation of funds to incentivise/ target energy transition technologies- A suite of incentives already exists (while focusing on various sectors- schemes/ **provisions targeting mineral and battery value chains are still yet to be incorporated)**

- **The limited nature of the fiscus** however dictates that we explore and diversify our search, including among others:
  - Local and international Development Financing Institutions (DFIs)
  - Commercial banks(green financing, green bonds, etc)
  - Sustainability focused mechanisms:
    - Global Climate Facility (GCF),
    - Adaptation funds,
    - The Global Environment Fund (GCF), and others.

- Other instruments that could be pursued, include more fiscal reform measures such as the identification and provision of appropriate tax rebates, holidays, subsidies, duties, import taxation, even "the beg thy neighbor export taxes" we have seen other countries implementing, and many other fiscal measures.

- It could even extend to the question of why not ring-fence funds obtained from "polluter pays policies", such as the carbon tax, etc., reallocating funds to support the exploration, mining and processing of our mineral riches.

- Also, support for the pursuit and provision of preferential pricing for logistics and for energy use- given that the processing of minerals often tends to be very, very energy intensive.

INSIGHTS ON POSSIBLE REGIONAL INTEGRATION

- While the benefits of market expansion, according to the 2024 IEA report, are shared across different regions, especially for mining, China alone holds around 50% of market value for refining, with Africa witnessing a 65% increase in market value by 2030.

- The report notes that as the producer and consumer countries continue to build their resilience- securing the supply of minerals from Africa, Africa's trade and integration policy has a huge role to play in safeguarding the regions' interests internally, further boosting Africa's negotiating power when dealing with external partners. The existing multilateral arrangements- SACU, SADC and the AfCFTA- deemed necessary to provide avenues towards needed integration w.r.t critical minerals.

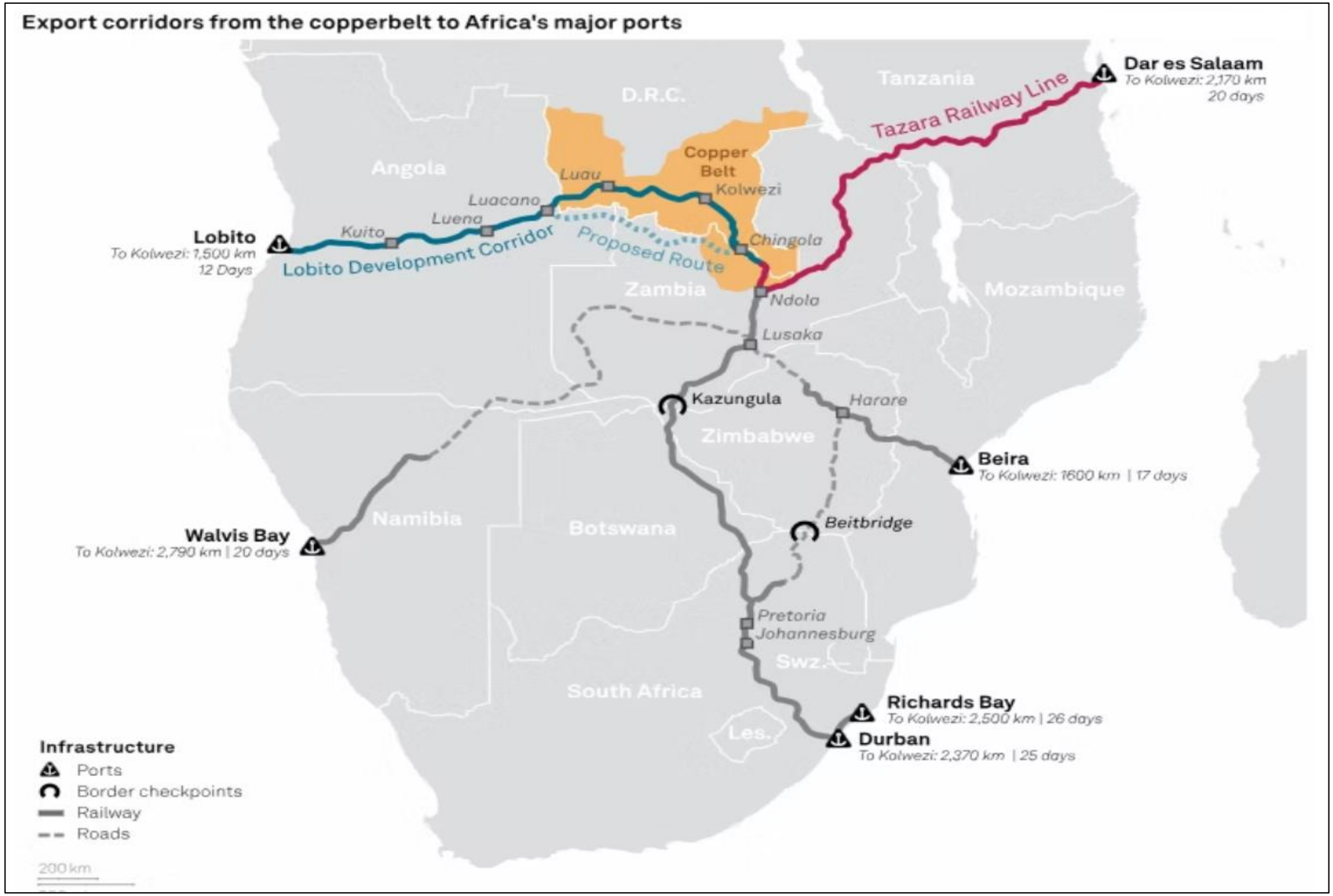
  - Need to enhance regional bilateral relationships, identifying and removing barriers to trade in raw minerals, beneficiated and final products to the continent.

  - Mutual support for fair distribution mineral processing activities (e.g. batteries)- drawing on each others expertise and specific mineral endowments.

  - Setting up of cross border Special Economic Zones (SEZs) –facilitating local beneficiation of minerals sourced from each country.

  - Continue enhancing bilateral trade, enhancing markets beyond borders of the region- including the conventional producer and consumer countries- AGOA, BRICS and others.

  - Jointly facilitating infrastructure development activities, including road and rail networks.


Export corridors from the copperbelt to Africa's major ports
Dar es Salaam
To Kolwezi: 2,170 km
20 days
Tanzania
D.R.C.
Tazara Railway Line
Copper Belt
Angola
Luau
Kolwezi
Luacano
Luena
Kuito
Lobito
To Kolwezi: 1,500 km
12 Days
Lobito Development Corridor
Proposed Route
Chingola
Zambia
Mozambique
Ndola
Lusaka
Kazungula
Harare
Zimbabwe
Beira
To Kolwezi: 1600 km | 17 days
Namibia
Botswana
Beitbridge
Walvis Bay
To Kolwezi: 2,790 km | 20 days
Pretoria
Johannesburg
Swz.
South Africa
Richards Bay
To Kolwezi: 2,500 km | 26 days
Les.
Durban
To Kolwezi: 2,370 km | 25 days
Infrastructure
Ports
Border checkpoints
Railway
Roads
200 km

SIYABONGA…..