

AFRICA'S GREEN MINERALS STRATEGY: BOLSTERING AFRICA'S ROLE IN THE BEV AND RE VALUE CHAIN

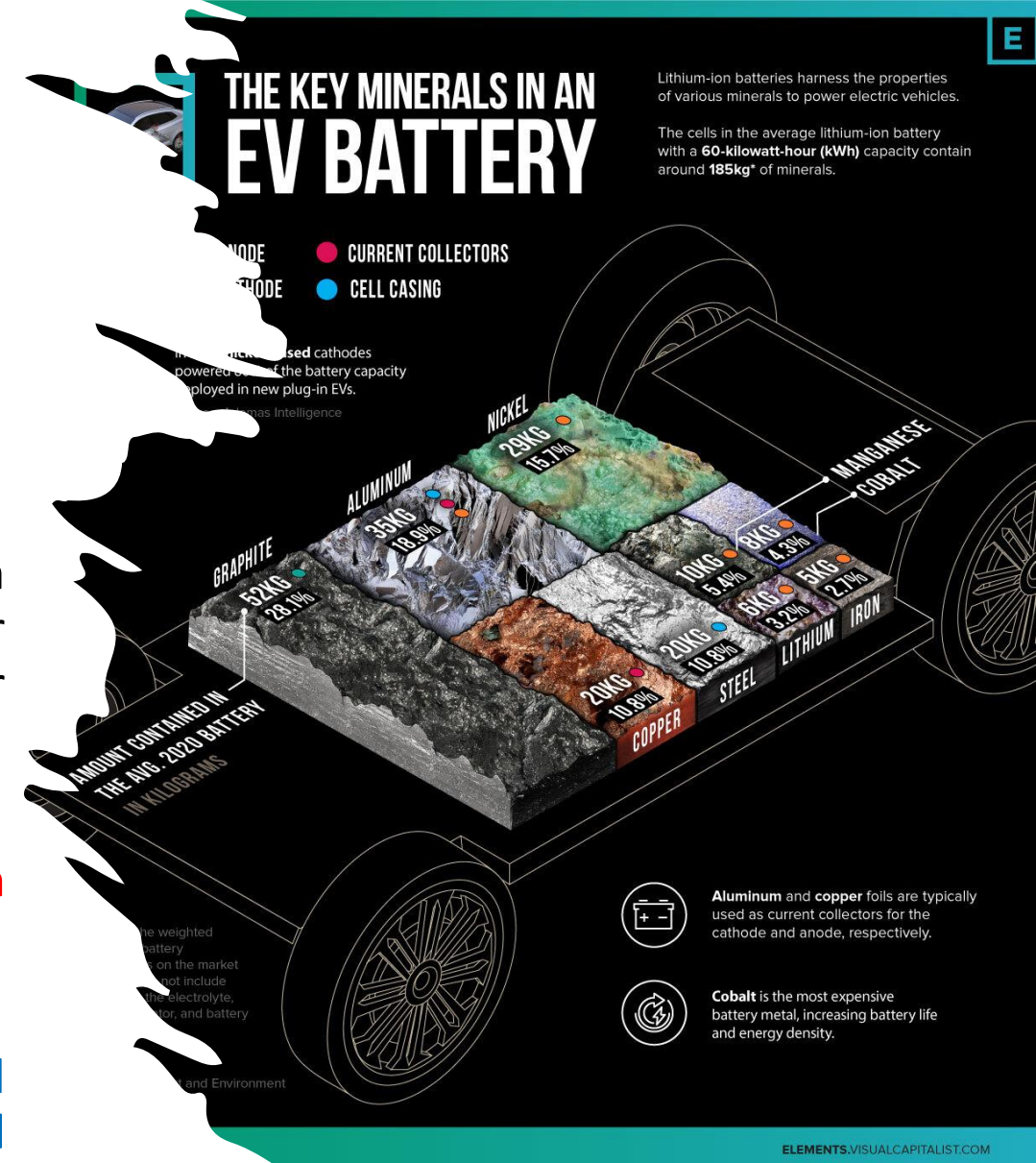
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BACKGROUND: The Energy Transition will be Minerals Intensive

- **Green Minerals are at the core of the energy transition - Ni, Mn, Co, Li, C, P, Fe & REEs.**
- **But the production of many of these minerals currently is more geo-spatially concentrated.**
- The energy transition will create rising dependence on critical/green minerals, especially due to appliances for energy storage (Li-ion batteries), EVs and also feedstock for manufacturing renewable energy equipment
- **Minerals Demand expected to increase 5-fold and more in the most likely scenario**
- **Supply constraints and disruptions: Recent announced export bans in Africa (Zimbabwe, Namibia, Nigeria etc.) and China's new restrictions on some critical mineral exports.**



Lithium - ion Battery Demand Outlook

GWh/year

2,500

2,000

1,500

1,000

500

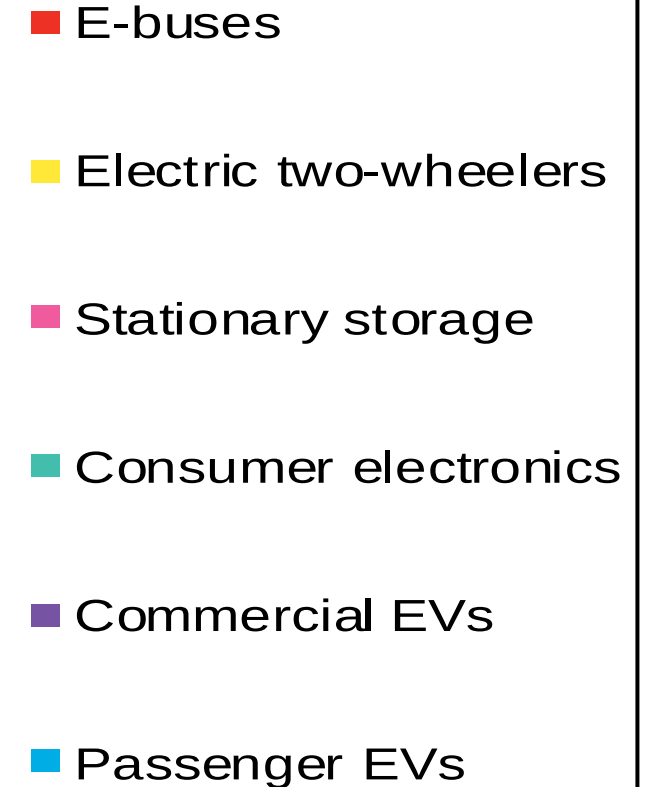
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EVs expected to grow rapidly due to the buoyant Chinese, European and the USA car markets.

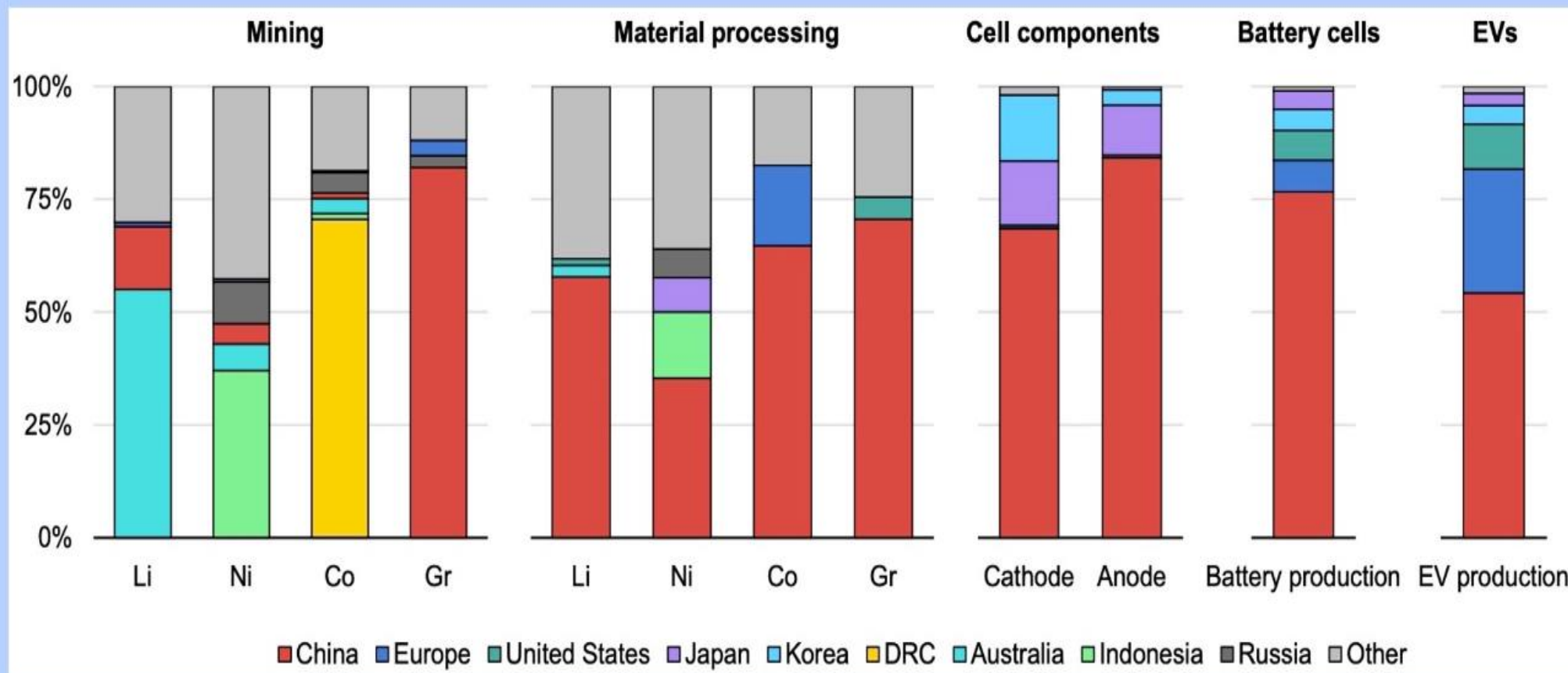
Factors:

1. National subsidies & new models
2. CO₂ emission standards
3. Generous tax credits
4. Policy to phase out about 50% of ICEs by 2035.

But EV uptake in Africa is yet to gain momentum
Low Hanging fruit-2/3 Wheelers



The Global Battery and EV Supply Chain



IEA, July 2022: “Geographic distribution of the global EV battery supply chain”

China dominates global critical mineral supply chains, accounting for 60% of world-wide production and 85% of processing capacity. Opportunity for Africa to penetrate the Global BEV Market based on its green minerals

Africa's Key Minerals for Green Technologies

Mineral	Clean energy technology	Share of global reserves in Africa	Key African countries with reserves
Platinum group metals	Green hydrogen	92%	South Africa, Zimbabwe
Cobalt	EVs	56%	DRC, South Africa, Zambia, Madagascar
Manganese	EVs, wind	54%	Gabon, South Africa, Côte d'Ivoire, Ghana
Chromium	Geothermal, solar, wind	36%	South Africa
Bauxite	Wind, solar	24%	Guinea, Ghana
Graphite	EVs	22%	Madagascar, Mozambique, Tanzania
Zirconium	Green hydrogen	15%	South Africa, Senegal, Mozambique
Vanadium	Steel, batteries	13%	South Africa
Copper	EVs, wind, solar	6%	DRC, Zambia
Lithium	Batteries	4%	DRC, Zimbabwe, Mali, Ghana
Nickel	EVs, wind	4%	Madagascar, South Africa
Tellurium	Solar	3%	South Africa
Rare Earth Elements	Wind	1%	Tanzania, S. Africa, Madagascar, Burundi

Sources: UNCTAD, [Critical Minerals and Routes to Diversification in Africa](#), 2023; USGS, [Mineral Commodity Summaries](#), 2023; UNEP, [Environmental aspects of critical minerals in Africa in the clean energy transition](#), 2023; IRENA, [Geopolitics of the Energy Transition: Critical Materials](#), 2023.

How can Africa increase participation in the Global BEV Market?

..... ROBUST GREEN MINERALS STRATEGY ANCHORED BY THE
AMV, ACS ETC.

ASCENDING THE VALUE CHAIN LADDER: CONSTRAINTS

Absence of robust strategy to harness opportunities presented by the energy transition.

Investment Environment:

- Institutional and governance issues (predictability: Policy & regulatory provisions)
- Inadequate infrastructure (rail, road, energy, port facilities); Huge capital cost; low geoscientific data
- Dealing with ASM issues
- Inadequate Skills

Low market control:

- China controls about 78% of the refinery production of battery minerals with the rest shared by Finland (9%), Japan (4%) and Canada (3%) with the rest of the world representing 6%.

Inadequate Demand for EVs in Africa

- This is being fixed through development of automotive policies, leveraging low hanging fruits [2&3 wheelers etc.]

WHAT IS AFRICA'S STRATEGY?

Vision: Guide Africa to strategically harness the continent's green mineral resources for industrialization and to create an African presence in emerging green technologies.

Five inter-connected factors unfolding across Africa:

- Growth and demand for green minerals for future low carbon pathways and green energy;
- Africa's strength in mineral resources - basis for green energy demand and transition;
- Imperative of reorienting economic growth to a low carbon future;
- Drive industrialization and economic diversification taking advantage of the emergence of new industries: **BEV value chains**; and
- Leveraging **AfCFTA** to deepen market integration: Thus, provide scale economies for investment projects along the BEV value-chains.

STRATEGY PILLARS

Four Pillars support the strategy to deliver the **VISION**:

Pillar I: Advancing mineral development

Governance of mineral resources (coherent policies, laws, institutions- synergy with industry and the energy sector)

Strengthening earth sciences institutions, geophysical mapping up to PFS

Infrastructure development and finance to close gaps – Derisking investment

Attracting scarce Minerals Exploration Capital



Pillar II: Skills Devt. and technological capability

Institutions to develop the required skills base (upscaling into CoEs)

Skills identification and skills development strategies (Present & future skills – Chemistry/Eng-Mech & Elect. Etc.)

Center of Excellence for Batteries

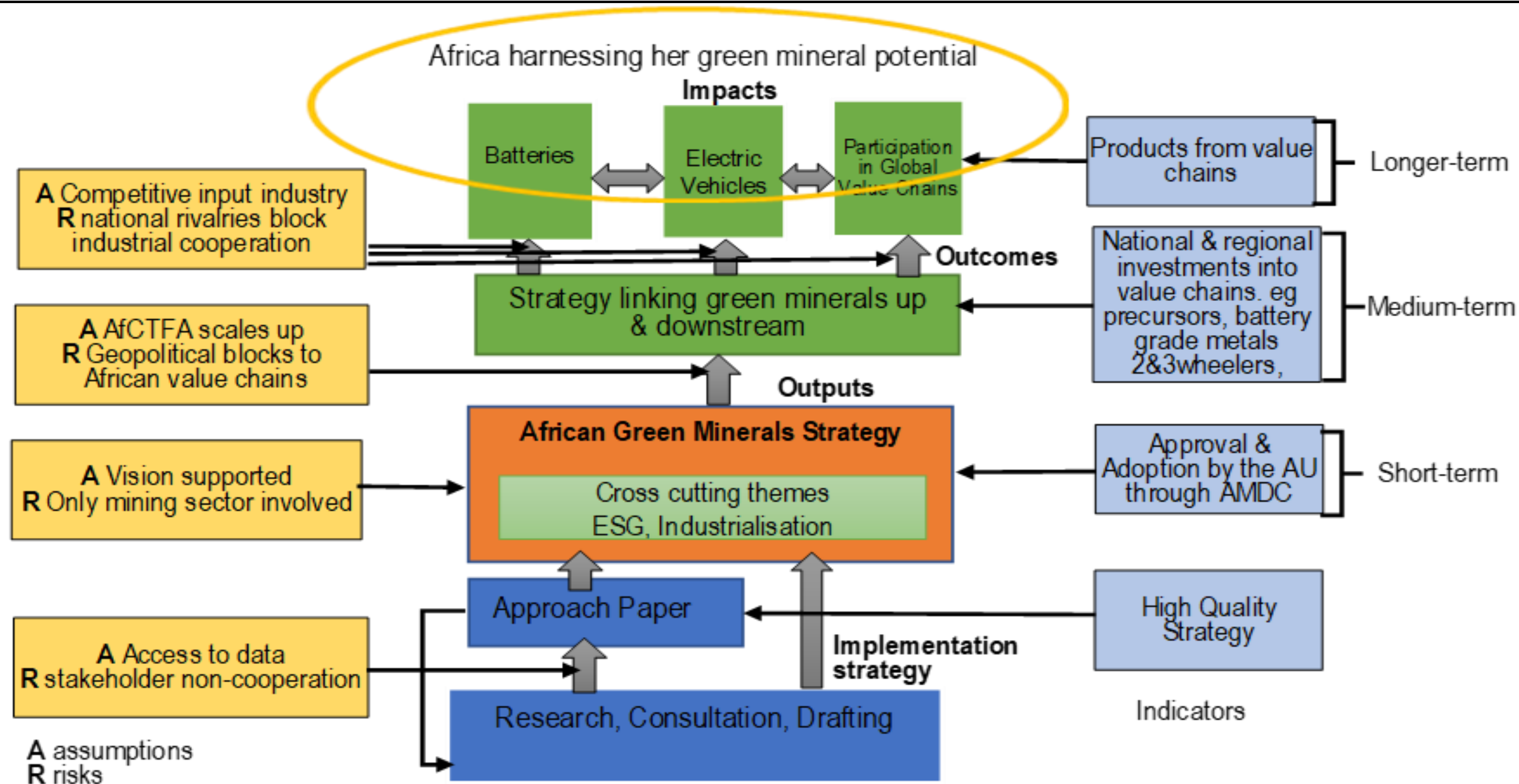
Pillar III Building Key Value-Chains towards RBI & access wider regional and continental markets through AfCFTA

- Upstream linkages to optimize mining inputs opportunities
- Green mineral value chains
- Addressing Regional Industrialisation and Trade Constraints (Economics of Scale, NTB, RoO etc.)
- Priority Value Chains to Industrialise (Manufacturing LiBs, PVs, 2 & 3 Wheelers, participation in global value chains etc.)

Pillar IV Mineral stewardship and Circular Economy

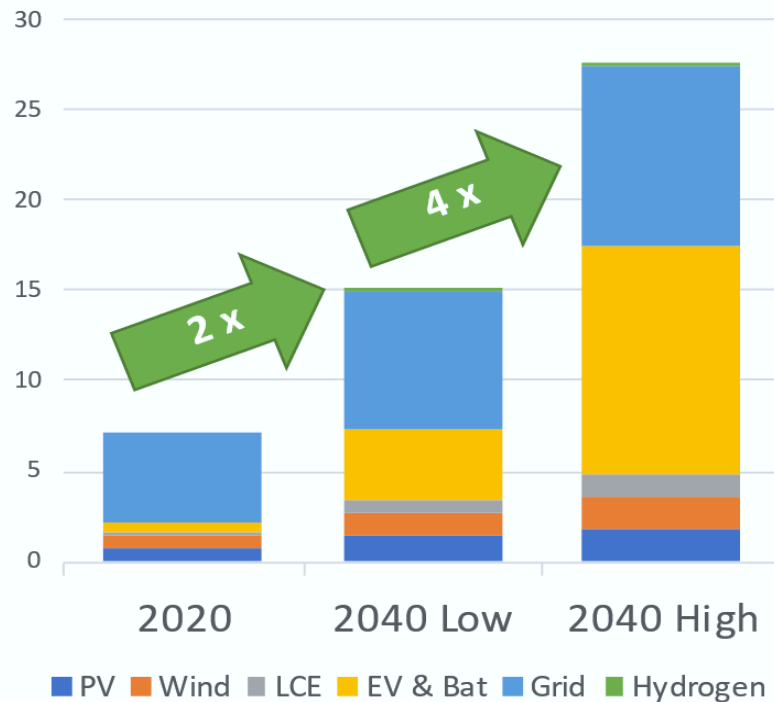
- Economic and Social Contributions of Minerals to Sustainable Development
- ESG of Green Minerals (Risk based framework for identifying and managing the impacts of projects, Integrated Safeguard System of AfDB, **AMREC-PARC** etc.)
- Regional environmental management approaches (Harmonised regulations, Regional Recycling facilities etc.)
- Aiming for a circular economy [3Rs, material efficiency, planning from the onset, EOI Re-purposing & Recycling, exploring MaaS concept etc.]

SIMPLIFIED THEORY OF CHANGE

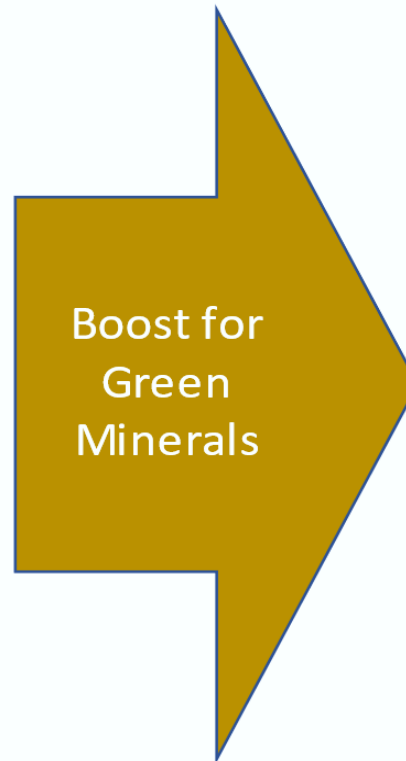


GREEN MINERALS BOOM OPPORTUNITIES

Projected mineral demand for clean energy technologies (Mt)



Rate of increase in mineral demand depends on speed of energy transition to goal of net zero by 2050



Fresh policy focus on implementing African Mining Vision

Raise mineral exploration activity

Expanded market for regional production of mining inputs and capital goods

Stronger investment case for beneficiating minerals locally

Stimulate R&D, Innovation and Skills development for youth entering min. sector

Strengthen mineral stewardship in new era of heightened environmental responsibility

Opportunities: Africa can Move up the Battery and EV Value Chain: *Estimated at US\$56.7 trillion by 2050*

UNDERSTANDING BATTERY AND THE EV SUPPLY CHAIN

CURRENT AFRICA'S FOCUS

AFRICA'S FOCUS IN THE MEDIUM TERM

VALUE IN
THE BATTERY
SUPPLY CHAIN

MINING



METALS



PRECURSOR PRODUCTION



CELL PRODUCTION



CELL ASSEMBLING



ELECTRIC VEHICLES



MARKET VALUE
BY 2025

\$11b

\$44b

\$271b

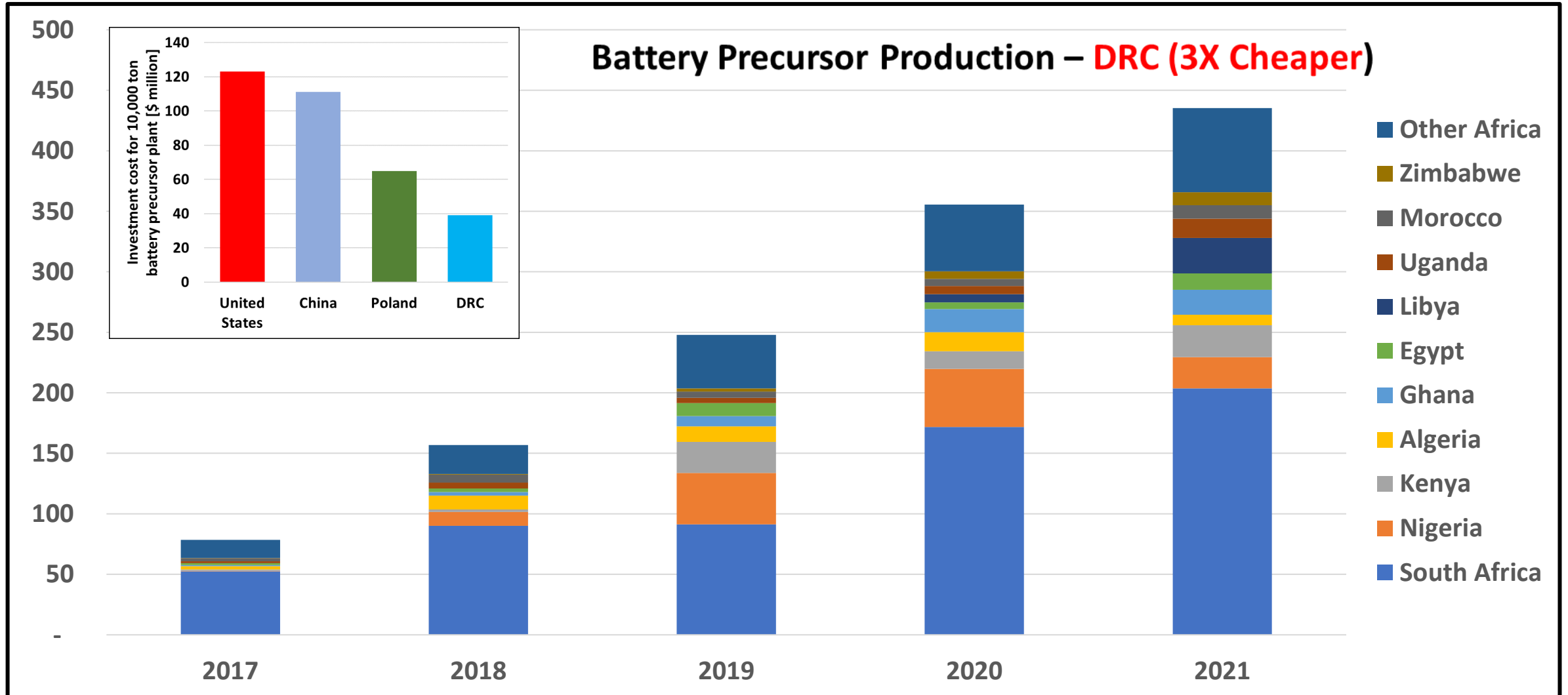
\$387b

\$1.18t

\$7t+

COMPETITIVENESS & SOME OPPORTUNITIES

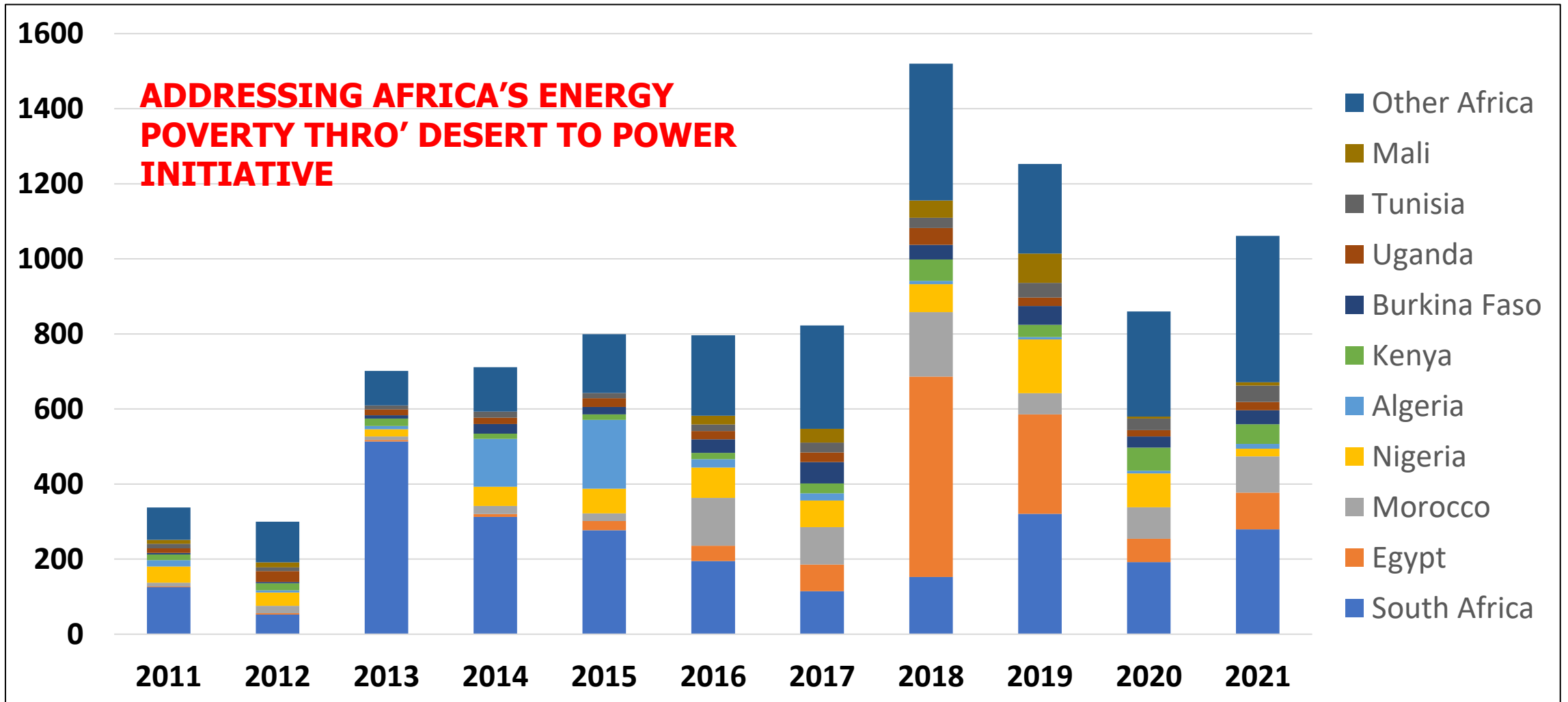
OPPORTUNITIES: Imports of lithium-ion batteries by country 2017-2021 (MUS\$)



Prefeasibility studies: Identification of Project Pipelines for the SEZ etc.

COMPETITIVENESS & SOME OPPORTUNITIES

OPPORTUNITIES: Top 10 import countries of Solar PV Panels 2011-2021 (MUS\$)



OPPORTUNITY: About US\$1 billion opportunity to be displaced annually

It is win-win Partnerships



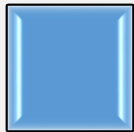
Enabling Environment: Development Banks like AfDB will continue to support Governments on the availability of critical infrastructure for the growth of the battery and EV value chain. **Special Economic Zones will be established.**



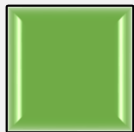
Technology: Partner Technology Providers to establish the battery and EV value chain, starting with precursor production.



Incentives: Countries can consider incentives to attract investment in the battery and EV sector. **China's success in the BEV value chain is largely based on State support through incentives and offtake agreements.**

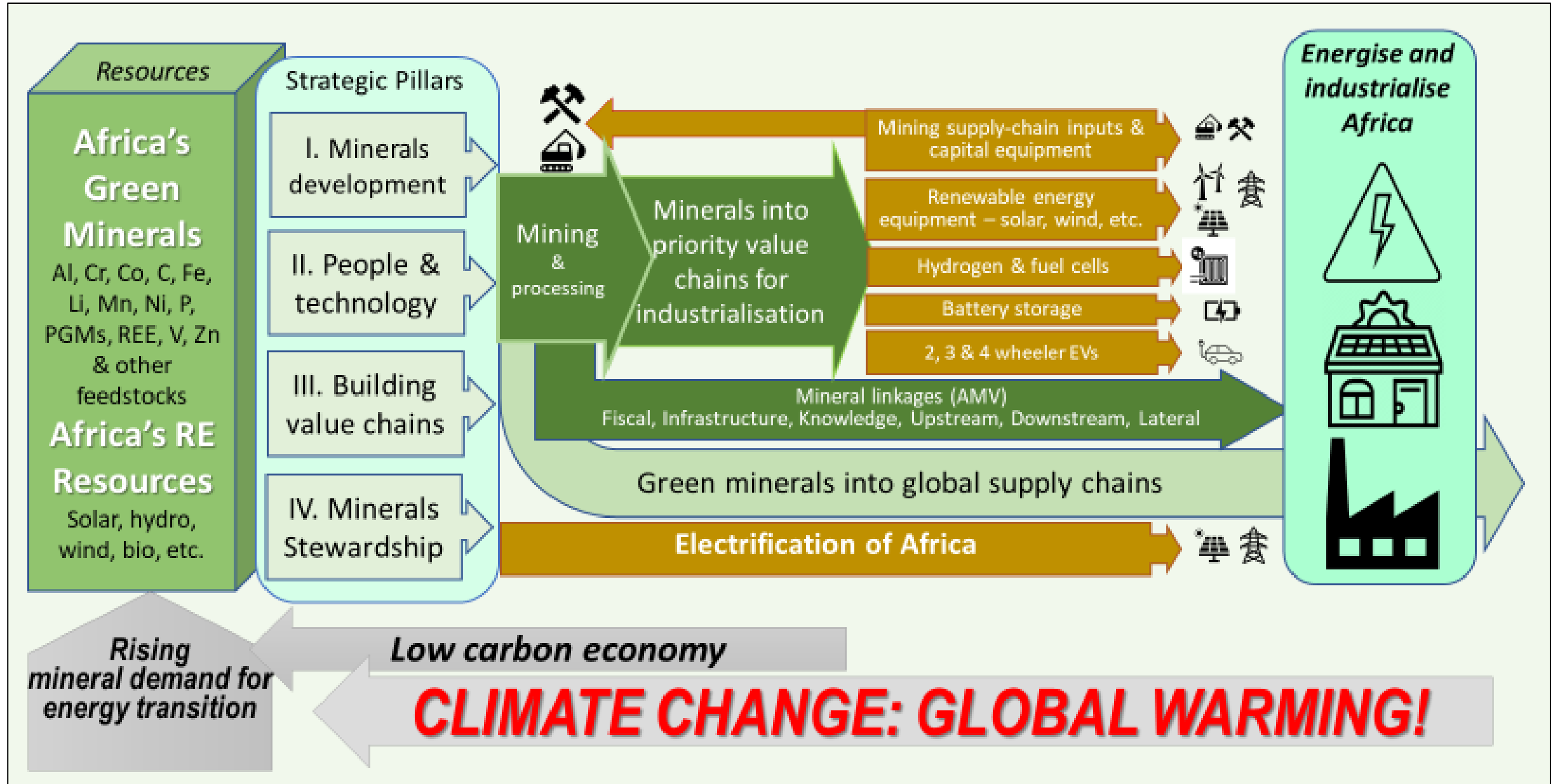


Regional Cooperation: Foster regional integration and cooperation to leverage economies of scale, share knowledge, and pool resources.



Research and Development: Promote R&D activities to drive innovation and technology advancement in battery and EV manufacturing. **Skills of the future must also be developed.**

AFRICAN GREEN MINERALS STRATEGY



Thank you

