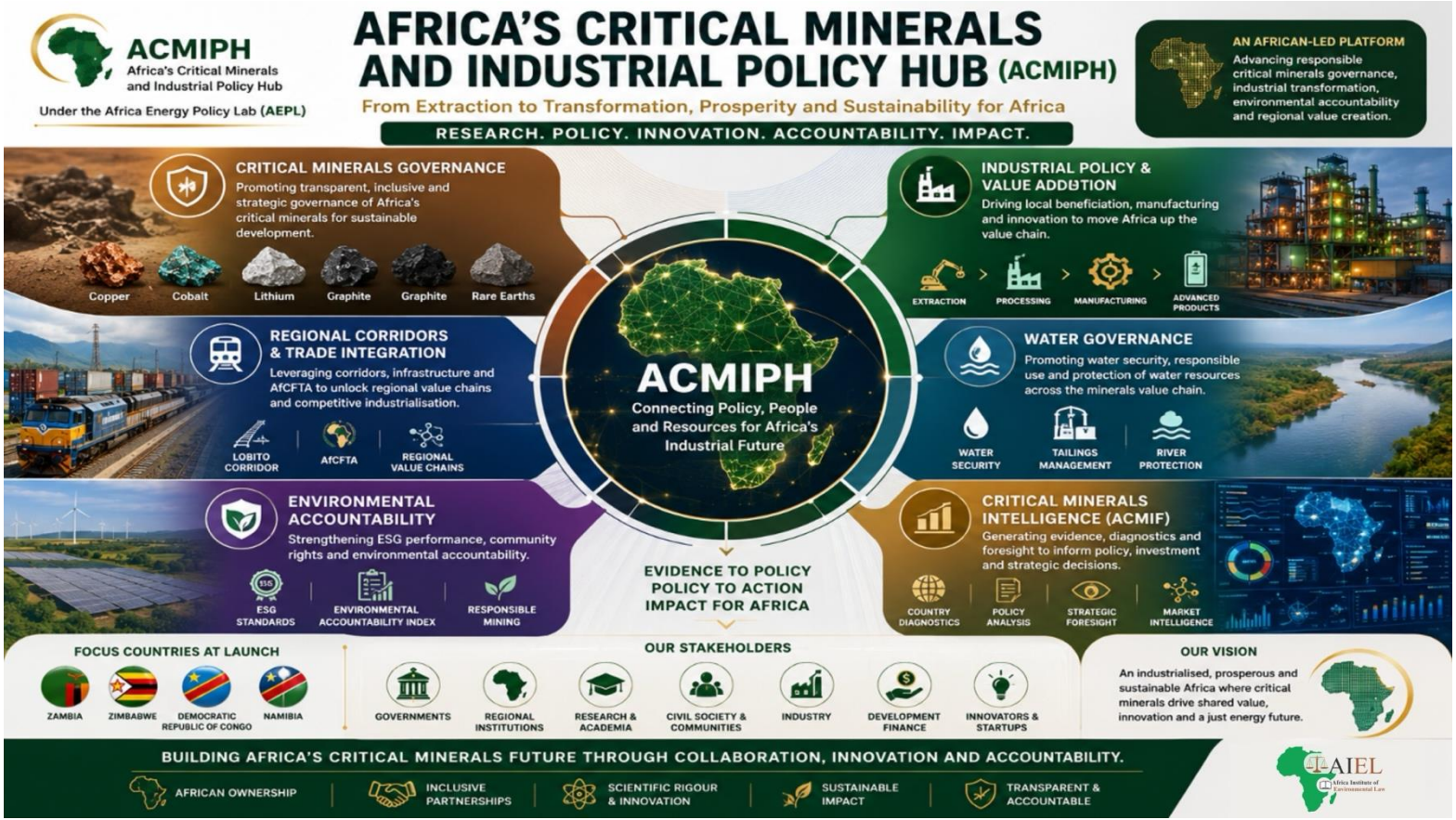

ACMIPH
Africa's Critical Minerals and Industrial Policy Hub
Under the Africa Energy Policy Lab (AEPL)
AFRICA'S CRITICAL MINERALS AND INDUSTRIAL POLICY HUB (ACMIPH)
From Extraction to Transformation, Prosperity and Sustainability for Africa
RESEARCH. POLICY. INNOVATION. ACCOUNTABILITY. IMPACT.
AN AFRICAN-LED PLATFORM
Advancing responsible critical minerals governance, industrial transformation, environmental accountability and regional value creation.
CRITICAL MINERALS GOVERNANCE
Promoting transparent, inclusive and strategic governance of Africa's critical minerals for sustainable development.
Copper
Cobalt
Lithium
Graphite
Graphite
Rare Earths
INDUSTRIAL POLICY & VALUE ADDITION
Driving local beneficiation, manufacturing and innovation to move Africa up the value chain.
EXTRACTION
PROCESSING
MANUFACTURING
ADVANCED PRODUCTS
REGIONAL CORRIDORS & TRADE INTEGRATION
Leveraging corridors, infrastructure and AfCFTA to unlock regional value chains and competitive industrialisation.
LOBITO CORRIDOR
AfCFTA
REGIONAL VALUE CHAINS
ACMIPH
Connecting Policy, People and Resources for Africa's Industrial Future
WATER GOVERNANCE
Promoting water security, responsible use and protection of water resources across the minerals value chain.
WATER SECURITY
TAILINGS MANAGEMENT
RIVER PROTECTION
ENVIRONMENTAL ACCOUNTABILITY
Strengthening ESG performance, community rights and environmental accountability.
ESG STANDARDS
ENVIRONMENTAL ACCOUNTABILITY INDEX
RESPONSIBLE MINING
CRITICAL MINERALS INTELLIGENCE (ACMIF)
Generating evidence, diagnostics and foresight to inform policy, investment and strategic decisions.
COUNTRY DIAGNOSTICS
POLICY ANALYSIS
STRATEGIC FORESIGHT
MARKET INTELLIGENCE
EVIDENCE TO POLICY
POLICY TO ACTION
IMPACT FOR AFRICA
FOCUS COUNTRIES AT LAUNCH
ZAMBIA
ZIMBABWE
DEMOCRATIC REPUBLIC OF CONGO
NAMIBIA
OUR STAKEHOLDERS
GOVERNMENTS
REGIONAL INSTITUTIONS
RESEARCH & ACADEMIA
CIVIL SOCIETY & COMMUNITIES
INDUSTRY
DEVELOPMENT FINANCE
INNOVATORS & STARTUPS
OUR VISION
An industrialised, prosperous and sustainable Africa where critical minerals drive shared value, innovation and a just energy future.
BUILDING AFRICA'S CRITICAL MINERALS FUTURE THROUGH COLLABORATION, INNOVATION AND ACCOUNTABILITY.
AFRICAN OWNERSHIP
INCLUSIVE PARTNERSHIPS
SCIENTIFIC RIGOUR & INNOVATION
SUSTAINABLE IMPACT
TRANSPARENT & ACCOUNTABLE
AIEL
Africa Institute of Environmental Law

Think Tanks and Minerals Value Addition in Africa

From Extraction to Transformation

How African countries are turning minerals into industry, jobs, and strategic power — framed around policy choices, institutions, and value capture.

01

The Resource Question

Will Africa's minerals drive industrial transformation or continue to leak value through raw exports?

02

The Policy Lens

Value addition is a governance choice — shaped by institutions, regulation, and industrial strategy.

03

The Think-Tank Role

Bridging research and policy to shape the debate from extraction to transformation.

Why Value Addition Matters

Minerals alone do not create development. The critical distinction is between exporting raw ore and building the processing, manufacturing, skills, and fiscal infrastructure that generate lasting national wealth. Africa's mineral endowment is vast — but endowment is not destiny.

The Value Leakage Problem

Raw material exports consistently leave producing countries with low returns, high price volatility, and minimal employment multipliers. The bulk of value is captured downstream — in refining, manufacturing, and technology — by importing economies.

What Value Addition Actually Means

Processing and refining minerals domestically. Manufacturing intermediate and finished goods. Building skills, technical capacity, and industrial linkages. Capturing greater fiscal revenues through higher-value exports.

The Central Question

Will Africa's minerals drive industrial transformation — or continue to leak value through raw exports to foreign processors and manufacturers?

The Think-Tank Contribution

Think tanks are uniquely positioned to explain where value is lost, identify policy gaps, and propose evidence-based strategies for retaining more value in-country.

Value addition is not merely an economic aspiration — it is a governance and institutional challenge that requires deliberate policy design.

The African Policy Shift

A discernible regional shift is underway. More African governments are embedding beneficiation and local refining as explicit industrial policy objectives — moving beyond passive resource extraction toward active value-chain management.

1

Extraction-First Era

Raw mineral exports dominate. Value captured abroad. Limited domestic processing. Fiscal returns tied to commodity prices.

2

Policy Transition

Export controls tightened. Beneficiation mandates introduced. Industrial policy linked to mineral governance. Regional coordination emerging.

3

Industrial Transformation

Domestic refining and processing. Manufacturing linkages. Skills and technology transfer. Greater fiscal and strategic sovereignty.

Zimbabwe

Has tightened export controls on raw minerals and lithium concentrates to encourage local processing — a direct policy lever to shift value retention in-country.

Namibia

Has restricted exports of unprocessed critical minerals, signalling a deliberate strategy to keep more value within the domestic economy and build industrial capacity.

Regional Signal

These moves are not isolated — they reflect a broader continental shift from passive extraction to active industrial policy, with minerals as the strategic anchor.

DRC: Strategic Control of Cobalt

The Democratic Republic of Congo holds the world's largest cobalt reserves — a mineral now central to electric vehicle batteries and the global energy transition. The DRC is increasingly leveraging this position not merely as a supplier, but as a strategic actor in global supply chains.

1

Export Quota Mechanism

The DRC is deploying export quotas to tighten control over cobalt flows — a regulatory tool that shifts bargaining power toward the producing country and creates leverage for demanding more processing in-country.

2

Value Addition Beyond Processing

Value addition is not only about building refineries. It is also about market power, strategic regulation, and the ability to shape global supply-chain terms. The DRC's cobalt strategy illustrates this broader conception.

3

Geopolitical Dimension

Mineral governance is increasingly inseparable from geopolitics. Cobalt sits at the intersection of US-China competition, European supply-chain diversification, and African industrial ambitions.

The Think-Tank Analytical Role

Quota systems are blunt instruments. Think tanks can provide rigorous analysis of whether export quota regimes:

- Improve national benefit and fiscal capture
- Create new inefficiencies or investment deterrents
- Strengthen or weaken long-term industrial positioning
- Interact with bilateral investment treaties and trade agreements

Evidence-based assessment is essential to distinguish effective strategic regulation from policy that merely signals intent without delivering results.

Zambia: Copper, Fabrication and Industrial Linkages

Zambia is one of Africa's most significant copper producers, yet the country continues to export the majority of its copper in raw or semi-processed form. The value addition frontier lies in domestic fabrication and the development of downstream manufacturing industries.

Current Position

Zambia remains central to global copper production. However, most value still leaves the country through raw exports — processed and fabricated elsewhere, with the associated jobs and fiscal gains accruing to importing economies.

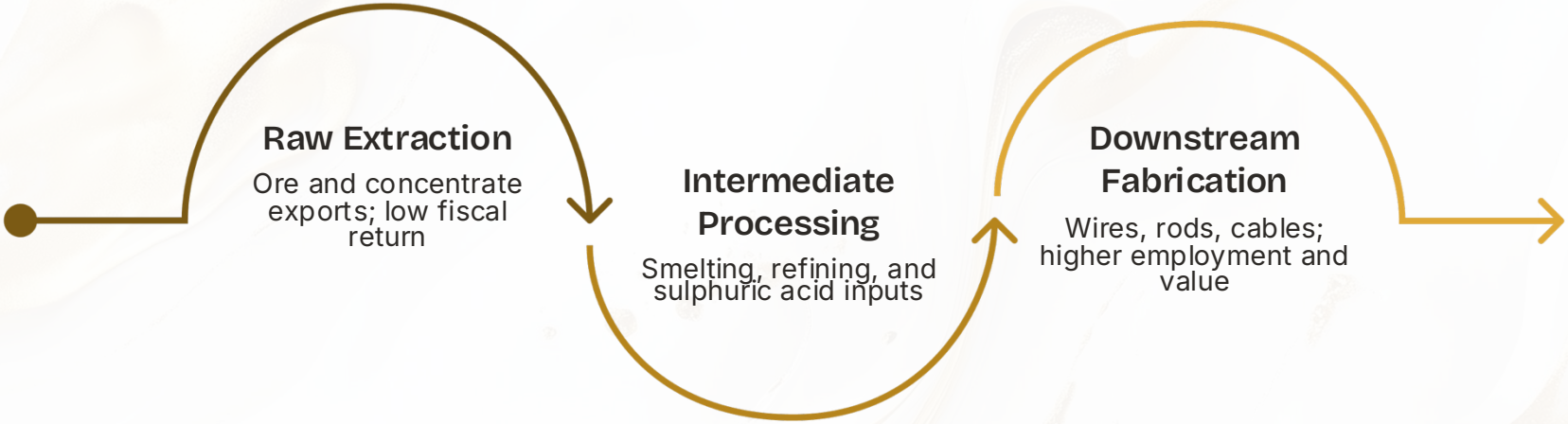
The Fabrication Frontier

The next industrial step is domestic fabrication: wires, cables, rods, and downstream copper-based manufacturing. These products command significantly higher prices and generate skilled employment multipliers.

Full Production Chain Logic

Sulphuric acid and other industrial inputs are critical. Value addition depends on the entire production chain — not just mining. Input industries, logistics, and energy supply are equally decisive.

> Zambia's copper story makes a strong case for integrating mineral policy with energy planning, transport infrastructure, and broader industrial strategy — treating the mine as the start of a value chain, not the end of one.



South Africa: Manganese Beneficiation

South Africa holds some of the world's largest manganese reserves and is a major global exporter. The strategic question is no longer whether beneficiation is desirable — that debate has been settled — but how to make it competitive, energy-secure, and financeable in practice.

The Opportunity

Moving beyond raw manganese exports into higher-value industrial products — including manganese alloys, electrolytic manganese, and battery-grade manganese for the energy transition — represents a significant industrial and fiscal opportunity for South Africa.

The Constraints

- **Energy insecurity:** Beneficiation is energy-intensive; load-shedding undermines competitiveness
- **Policy inconsistency:** Investor confidence requires stable, long-term regulatory frameworks
- **Financing gaps:** Capital-intensive processing requires patient, risk-tolerant finance
- **Market development:** Downstream products require new market relationships and logistics

Infrastructure is Non-Negotiable

Value addition requires reliable energy, transport, and industrial infrastructure. Mineral endowment alone is insufficient — the enabling environment determines whether beneficiation is viable or merely aspirational.

Policy Consistency Drives Investment

Beneficiation investments are long-horizon commitments. Inconsistent policy signals deter the private capital needed to build processing capacity. Regulatory stability is itself a form of industrial policy.

Think Tanks as Realism Filters

Think tanks can assess which beneficiation pathways are genuinely competitive and financeable — and which are symbolic commitments that will not survive contact with market realities.

Morocco: Phosphates and Fertiliser Value Chains

Morocco's phosphate sector offers one of the most instructive models on the continent for how strategic mineral control, combined with deliberate downstream investment, can generate industrial depth, regional influence, and geopolitical leverage.

Strategic Mineral Control

Morocco controls an estimated 70% of the world's known phosphate reserves through OCP Group — a state-owned enterprise that has become a global fertiliser powerhouse. Control of the resource is the foundation, but it is the downstream strategy that generates transformative value.

Beyond Mining: A Fertiliser Story

Phosphate is not only a mining story. It is a fertiliser, food security, and geopolitical story. Morocco has invested heavily in converting phosphate rock into phosphoric acid, diammonium phosphate (DAP), and other fertiliser products — capturing far greater value per tonne exported.

Agriculture and Regional Markets

Morocco's model demonstrates how mineral value addition can directly support African agricultural productivity and food security — supplying fertilisers to sub-Saharan markets and building regional supply-chain relationships.

Key Lessons for the Continent

Pricing Strategy

Controlling pricing across the value chain — from rock to finished fertiliser — is as important as controlling the resource itself.

Logistics Infrastructure

Port infrastructure, rail, and logistics networks are decisive enablers of competitive downstream exports.

Industrial Coordination

State-led coordination between mining, processing, and export operations — through OCP — has been central to Morocco's success.

Geopolitical Positioning

Fertiliser supply is a food security issue. Morocco has leveraged this to build diplomatic and commercial relationships across Africa and beyond.

Zimbabwe: Lithium and the Processing Imperative

Zimbabwe holds some of the world's most significant hard-rock lithium deposits — a mineral now central to battery technology and the global energy transition. The country illustrates both the opportunity and the acute policy tensions inherent in attempting rapid beneficiation under constrained conditions.

1 Raw Export Phase

Lithium concentrates exported with minimal processing. Value captured by foreign refiners. Limited domestic fiscal and industrial benefit.

2 Policy Intervention

Government moves to suspend raw lithium exports. Producers required to invest in local processing capacity. Export controls used as industrial policy lever.

3 Processing Transition

Openings created for domestic refining, battery-grade lithium production, and broader industrial linkages in the battery supply chain.

4 Industrial Integration

Potential to link lithium processing with energy, chemicals, and manufacturing sectors — building genuine industrial depth beyond the mine gate.

The Policy Tension

Mandating local processing before the enabling conditions exist — reliable energy, skilled labour, access to finance, and functioning infrastructure — risks deterring investment without delivering the intended industrial outcomes. The policy intent is sound; the sequencing and support conditions are critical.

What Think Tanks Can Identify

Think tanks can map the practical conditions required for Zimbabwe's lithium processing transition to succeed:

- **Finance:** Capital for processing plant construction and working capital
- **Energy:** Reliable, affordable power for energy-intensive refining
- **Skills:** Technical and engineering capacity for processing operations
- **Sequencing:** Realistic timelines that match policy ambition with industrial readiness

Namibia: Green Hydrogen and Emerging Value Chains

Namibia's green hydrogen agenda represents a forward-looking model of how mineral wealth and energy transition planning can be strategically aligned — positioning a resource-rich country at the frontier of emerging global value chains rather than at the bottom of established ones.

The Strategic Logic

Namibia combines abundant renewable energy potential (solar and wind) with critical mineral endowments to pursue green hydrogen production — a commodity that does not yet exist at scale but is central to global decarbonisation strategies.

Beyond Traditional Extraction

Value addition here is not limited to processing existing minerals. It includes building entirely new energy and industrial ecosystems — positioning Namibia as a future exporter of green energy products, not just raw materials.

Alignment of Mineral and Energy Strategy

Namibia's approach demonstrates that mineral policy and energy transition planning need not be separate agendas. Green hydrogen requires both renewable energy infrastructure and mineral inputs — creating natural synergies for an integrated industrial strategy.

Positioning in Emerging Value Chains

Rather than competing in mature, low-margin commodity markets, Namibia is seeking to establish early positions in emerging green value chains — where first-mover advantages and long-term offtake agreements can lock in durable industrial relationships.

The Critical Think-Tank Question

Think tanks must examine whether green hydrogen and similar projects create genuine local industrial depth — skills, supply chains, domestic energy access — or primarily serve export markets with limited domestic spillovers. The distinction between enclave investment and transformative industrialisation is analytically and politically decisive.

What Think Tanks Should Do

Think tanks occupy a distinctive institutional position — independent enough to challenge prevailing narratives, rigorous enough to be credible, and connected enough to influence policy. In the minerals value addition debate, this position carries specific responsibilities.

Produce Evidence

Generate rigorous analysis on value chain bottlenecks, policy gaps, and industrial feasibility. Move beyond advocacy to evidence — identifying what works, what does not, and under what conditions.

Support Governments

Provide practical, context-specific beneficiation strategies tailored to each country's mineral endowment, institutional capacity, and industrial readiness — not generic templates.

Track Implementation

Monitor policy outcomes and industrial results over time. Beneficiation commitments are easy to make; sustained implementation is hard. Independent tracking creates accountability.

Convene Actors

Bring together stakeholders across mining, energy, finance, trade, and infrastructure — sectors that must work in concert for value addition to succeed but rarely share a common analytical framework.

Translate Complexity

Turn technical debates about processing economics, trade policy, and industrial finance into accessible, actionable policy options that decision-makers can actually use.

The five functions above are mutually reinforcing. Evidence without convening lacks reach. Convening without evidence lacks credibility. Translation without tracking lacks accountability.

From Extraction to Transformation

Value Addition is a Governance Choice

Beneficiation does not happen automatically. It is the product of deliberate policy decisions, institutional capacity, and sustained political commitment — not a natural consequence of mineral endowment.

Africa is Moving Toward Strategic Control

Across the continent, governments are asserting stronger, more strategic control over their minerals — through export restrictions, processing mandates, and industrial policy frameworks that treat minerals as inputs to development, not just commodities for export.

Success Requires Convergence

Successful beneficiation requires energy, finance, infrastructure, and policy stability working together. No single condition is sufficient. Think tanks can map these interdependencies and identify the binding constraints in each context.

Think Tanks as Bridge Builders

Think tanks are uniquely placed to bridge research and policy — translating evidence into strategy, connecting actors across sectors, and shaping the continental debate from extraction to industrial transformation.

> *"The real mineral wealth is not underground; it is in what a country can do with the mineral above ground."*

The Analytical Agenda

The countries examined in this presentation — DRC, Zambia, South Africa, Morocco, Zimbabwe, Namibia — each illustrate a different dimension of the value addition challenge. Together, they define the policy frontier:

- Strategic regulation and market power (DRC)
- Fabrication and industrial linkages (Zambia)
- Competitive beneficiation under constraint (South Africa)
- Downstream integration and regional markets (Morocco)
- Processing mandates and enabling conditions (Zimbabwe)
- Emerging green value chains (Namibia)

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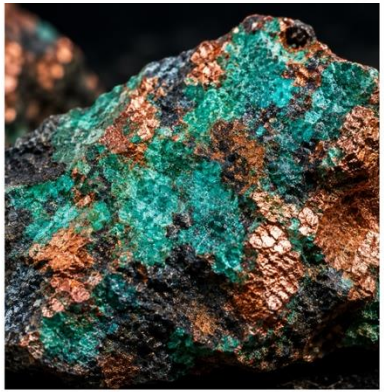
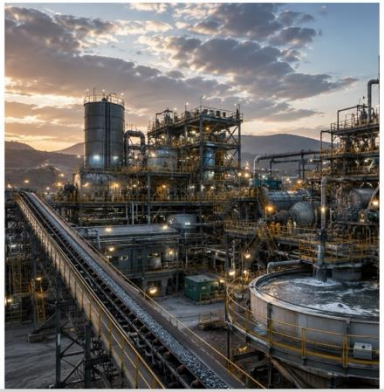
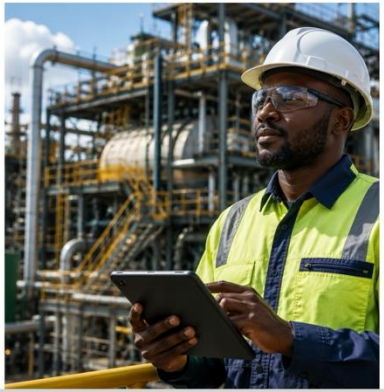

WHY AFRICA NEEDS A CRITICAL MINERALS AND INDUSTRIAL POLICY HUB

CRITICAL MINERALS

Central to the global energy transition but not automatically a development dividend for resource-rich nations

INDUSTRIAL POLICY

Mission-oriented strategies that connect mineral wealth to diversification, capability building and structural transformation

ECONOMIC SOVEREIGNTY

African-led governance frameworks that protect against extractive dependency and ensure strategic value capture

Why the Hub Matters

The global energy transition is reshaping resource geopolitics — but without strategic governance, it risks reproducing the same extractive dependencies that have long constrained African development.

The Policy Problem

Not an automatic dividend

Critical minerals are central to the energy transition, but resource wealth does not automatically translate into development gains for producing countries.

Reshaping, not ending, dependency

The current transition is reconfiguring resource geopolitics rather than dismantling extractive structures — new minerals, same vulnerabilities.

Uneven starting positions

African countries vary significantly in industrial capacity, institutional strength, access to finance and bargaining power in global negotiations.

The Strategic Opportunity

Risk: Deepening Dependency

Without strategic governance, mineral wealth can deepen dependency, weaken value capture and increase vulnerability to commodity cycles and geopolitical pressures.

Opportunity: Structural Transformation

With mission-oriented industrial policy, African countries can leverage critical minerals as a platform for economic diversification, capability building and long-term structural transformation.

The difference between risk and opportunity is determined by the quality of governance, policy design and institutional capacity — precisely what the Hub is built to strengthen.

The Existing Landscape of African Critical Minerals Platforms

A growing ecosystem of platforms has emerged to address Africa's minerals governance challenge — but significant gaps remain in African-led, integrated, intelligence-driven policy support.

Name	Type	Gap It Leaves
AMSG (Africa Minerals Strategy Group, est. January 2024)	Intergovernmental / diplomatic coordination	No research or diagnostics function; focused on state-level cooperation, not policy intelligence
C-MINK (UNU-INRA + ECA, 2025)	UN-led knowledge brokering	Anchored in multilateral institutions, not African civil society or national policy labs
CAMVaC (Center for African Minerals Value Chains)	Research & sovereign strategy	SADC-focused; limited pan-African reach and advocacy function
SAIIA Futures Project	Anticipatory governance research	Southern Africa only; academic orientation without operational policy support
APRI (Africa Policy Research Institute)	Policy research & analysis	EU-Africa lens; not sovereignty-first or energy-transition-integrated

Sources: africamineralsgroup.org, uneca.org/eca-events/critical-minerals-information-and-knowledge-hub-c-mink, camvac.co.za, saiia.org.za, afripoli.org

The Africa Critical Minerals and Industrial Policy Hub

Operationalised by AIEL under the Africa Energy Policy Lab, the Hub is an African-led platform designed to connect mineral governance to industrial transformation, environmental protection and economic sovereignty.

Platform Architecture

01

Research & Policy Dialogue

An African-led platform integrating research, policy dialogue, innovation and advocacy across the critical minerals value chain.

02

Africa Critical Minerals Intelligence Framework

Hosted within the Hub to generate country diagnostics and strategic intelligence, equipping governments and institutions with evidence for negotiation and policy design.

03

Ideas Testing & Innovation

A space to test and develop ideas on beneficiation, corridor governance, ESG standards, trade policy, energy systems and regional value chains.

Core Focus Areas

Critical Minerals Governance
Strategic frameworks for resource management and value capture

Industrial Policy
Mission-oriented policy for diversification and capability building

Water Governance
Integrated resource governance linking minerals and water systems

Environmental Accountability
ESG standards and environmental protection frameworks

Mineral Governance

Country diagnostics, strategic intelligence, policy frameworks

Industrial Transformation

Beneficiation, regional value chains, corridor governance

Economic Sovereignty

Diversification, capability building, structural transformation

Case Studies: Why Governance Gaps Are Costly

Live cases from across Africa illustrate the precise governance failures the Hub is designed to address — from policy ambition without institutional capacity, to value chain exclusion and missed industrialisation windows.

DRC — Cobalt Export Suspension (February 2025)

The DRC — the world's leading cobalt producer — suspended cobalt exports in February 2025 to recalibrate prices and assert mineral sovereignty. While strategically motivated, the move exposed the absence of a domestic refining and processing infrastructure needed to sustain the strategy. Local transformation, institutional reform and bilateral cooperation were identified as urgent prerequisites for success.

Source: Pinshi, C.P. (2025). "Cobalt Governance and Strategic Power." MPRA Paper No. 124253. University of Kinshasa. **https://mpra.ub.uni-muenchen.de/124253/**

DRC — Lithium: A Missed Industrialisation Window

Despite the DRC's rapid rise as a lithium producer, the country failed to embed meaningful local processing requirements in early licensing agreements. A 2025 Resource Matters white paper found a persistent "gulf between battery factory ambitions and low local processing requirements" — a structural failure of industrial policy design at the point of contract.

Source: Resource Matters (December 2025). "From Raw Ore to Local Transformation: Pathways for Increased Value Addition." Funded by Swedish Embassy in DRC. **https://www.resourcematters.org/en/ressources/from-raw-ore-to-local-transformation/**

DRC — Copper: Twenty Years of Deferred Beneficiation

Since 2005, the DRC government has repeatedly legislated export bans on raw copper concentrates — and repeatedly postponed them. Despite being the world's second-largest copper exporter in 2024, the country continues to export largely unprocessed ore. The case illustrates how policy intent without institutional capacity, financing and strategic intelligence leads to chronic value leakage.

Source: Resource Matters (December 2025). "From Raw Ore to Local Transformation." **https://www.resourcematters.org/en/ressources/from-ore-to-local-transformation/**

Why This Hub, Not the Others?

The Hub is not a duplication of existing efforts — it occupies a distinct and necessary position in the African minerals governance ecosystem.

The Hub fills the gap between policy ambition and institutional capacity — the precise gap that has cost African countries decades of value leakage.