POSITIONING AFRICA IN THE GLOBAL ENERGY TRANSITION MINERALS WINDFALL

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Acknowledgement

@Oxfam in Africa, March 2026.

This report was written by Claude Kabemba (PhD) as consultant, with support from Gerald Byarugaba and Francis Agbere, Oxfam in Africa.

The report was commissioned and managed by Gerald Byarugaba, with support from Naomi Majale. Overall publication management was led by Victor Oluoch, Senghor Mame Diarra and Simon Trepanier.

Special thanks are extended to Richard Hato-Kuevor, Mohamadou Fadel Diop, Siragi Magara Luyima, Hannah Wang'ombe, Machinda Marongwe, Henry Ushie, John Ahere, Liveson Manguwo, Nkateko Chauke, Veronica Zano, Elise Nalbandian, Jacqueline Persson, Jeffrey Maganya and Fatoumata Dembele for their valuable ideas and inputs into the process of developing this report. Across the Oxfam confederation and country offices, many team experts and thematic leads provided data assurance, references, and contextual information to ensure the technical integrity of the report.

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Cover photo is a graphic inspired by the report.

Published by Oxfam in Africa in March 2026.
Oxfam International, ACS Plaza, Lenana Road, Nairobi, Kenya.

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Contents

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Abbreviations

AGMS	Africa Green Minerals Strategy
AfCFTA	African Continental Free Trade Area
AMDC	African Minerals Development Centre
AMV	Africa Mining Vision
ARECOMS	Regulatory and Control Authority for Strategic Minerals (Democratic Republic of the Congo)
ASM	Artisanal and Small-Scale Mining
AU	African Union
BCE	Before Common Era
BEE	Black Economic Empowerment
BRICS	Brazil, Russia, India, China and South Africa
BSAC	British South Africa Company
CAGR	Compound Annual Growth Rate
CAEB	African Center of Excellence for Research and Innovation on Batteries (Democratic Republic of the Congo)
CBB	Congolese Council of Batteries (Democratic Republic of the Congo)
CDA	Community Development Agreement
CETA	Community Energy Transition Agreement
CETMs	Critical Energy Transition Minerals / Critical Energy and Technology Minerals
CMVs	Country Mining Visions
COP27	27th Conference of the Parties to the United Nations Framework Convention on Climate Change
CFR	Council on Foreign Relations
CRMA	Critical Raw Materials Act (European Union)
CSO	Civil Society Organization
CTEMs	Critical and Transitional Energy Minerals
DRC	Democratic Republic of the Congo
EAC	East African Community
ECOWAS	Economic Community of West African States
ECDPM	European Centre for Development Policy Management
ESG	Environmental, Social and Governance
ESIA	Environmental and Social Impact Assessment
ETMs	Energy Transition Minerals
EU	European Union
EV	Electric Vehicle
FPIC	Free, Prior and Informed Consent
FTA	Free Trade Agreement
FOCAC	Forum on China–Africa Cooperation

GDP	Gross Domestic Product
ICWA	Indian Council of World Affairs
IEA	International Energy Agency
IFFs	Illicit Financial Flows
IGC	International Growth Centre
IMF	International Monetary Fund
IRA	Inflation Reduction Act (United States)
LCE	Lithium Carbonate Equivalent
MSP	Minerals Security Partnership (United States)
NAMICO	National Mining Corporation (Kenya)
NEPAD	New Partnership for Africa's Development
NTBs	Non-Tariff Barriers
NATO	North Atlantic Treaty Organization
OAU	Organization of African Unity
OECD	Organization for Economic Co-operation and Development
PGMs	Platinum Group Metals
PIDA	Programme for Infrastructure Development in Africa Priority Action Plan
R&D	Research and Development
RDI	Research, Development and Innovation
RECs	Regional Economic Communities
REEs	Rare Earth Elements
RMCs	Resource Mineral Countries
RVCs	Regional Value Chains
SAPs	Structural Adjustment Programmes
SADC	Southern African Development Community
SCO	Shanghai Cooperation Organization
SRG	Sinomine Resource Group (Zimbabwe)
SSI	Strategic Studies Institute
STEMS	Science, Technology, Engineering and Mineral-Specific Skills
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNODC	United Nations Office on Drugs and Crime
USA	United States of America
US	United States
USGS	United States Geological Survey
VCF	Venture Capital Fund
WEF	World Economic Forum
WTO	World Trade Organization
ZAMEFA	Metal Fabricators of Zambia Plc

Executive Summary

Africa stands at a pivotal moment in the global green energy transition. Its vast reserves of critical energy transition minerals (CETMs) – including cobalt, lithium, copper and rare earth elements – present both an unprecedented opportunity and significant risks. Historically, Africa's mineral wealth has been shaped by extractive colonial legacies, serving external industrialization while generating limited local development. The current global surge in demand for minerals critical to renewable energy and technological innovation offers Africa a narrow but transformative opportunity: to convert extractive industries into engines of industrialization, structural transformation and inclusive growth. African-led frameworks provide a roadmap for this transformation.

The Africa Mining Vision (AMV) and the Africa Green Minerals Strategy (AGMS) articulate continental ambitions that link mining to industrialization, regional integration and sustainable beneficiation. Regional Economic Communities (RECs), including Southern African Development Community (SADC), East African Community (EAC) and Economic Community of West African States (ECOWAS), seek to harmonize mineral policies, while the AFCFTA Protocol on Trade in Goods aims to progressively eliminate tariffs on mining-related goods to facilitate intra-African trade. Together, these frameworks envision a continent where mineral resources drive broad-based development rather than perpetuate extraction for foreign benefit. However, weak institutional capacity, divergent regulatory regimes, limited financing and corporate dominance risk diluting their impact if not addressed.

External actors – most prominently the US, China and the EU – are actively competing for Africa's critical minerals. US-led initiatives such as the Minerals Security Partnership (MSP) and strategic infrastructure projects e.g. Lobito Corridor Initiative aim to secure supply chains and Environmental, Social and Governance (ESG) compliance but often prioritize Western interests over African industrial sovereignty. China, through FOCAC and the Belt and Road Initiative (BRI), provides infrastructure, market access and technology transfer, yet engagement carries risks of dependency, environmental harm and weak ESG enforcement. The EU emphasizes rules-based engagement through the Critical Raw Materials Act and Global Gateway initiatives, promoting ESG standards, knowledge transfer and local value addition, though critics highlight potential asymmetries and limited financing for transformative industrialization. Beyond these, countries like India, post-Brexit UK, BRICS partners and sovereign wealth funds are shaping Africa's mineral landscape, further emphasising the need for strategic, sovereign engagement by African states.

The civil society is a crucial actor in ensuring that Africa's mineral wealth benefits its people. Chapters three and four emphasize a human-centred mineral economy, which integrates human rights, environmental protection, gender equity and community empowerment. Women, youth and indigenous populations – especially those in artisanal and small-scale mining (ASM) – must be included in governance, revenue sharing and industrial participation. Civil society organizations (CSOs) are essential in advocating for Free, Prior and Informed Consent (FPIC), monitoring ESG compliance, supporting community oversight and defending human rights defenders to prevent abuses and promote accountability. They also play a strategic role in advancing circular economy practices, recycling mining waste, rehabilitating polluted environments and creating green jobs that link environmental sustainability with social prosperity.

The overarching challenge and opportunity for Africa lie in sovereignty and strategic governance. Governments must strengthen legal, institutional and fiscal frameworks to ensure that mineral extraction drives local industrialization, employment, technology transfer and wealth creation.

Regional coordination through RECs and AfCFTA mechanisms can harmonize standards, pool technical expertise and prevent a 'race to the bottom' that undermines collective bargaining. The private sector must align with African policy frameworks, prioritising local suppliers, community engagement and transparent operations. International partners should support accountability, fair value sharing and environmental and social justice, including financing restoration, health and livelihoods in mining-affected communities.

By embedding industrialization, circular economy principles, ESG standards, gender equity and community empowerment into mineral governance, Africa can convert CETMs into engines of structural transformation and inclusive prosperity. The green energy transition offers a historic chance to break with extractive dependency, foster a continent-wide green industrial revolution and ensure that mineral wealth delivers social, economic and environmental benefits for current and future generations. Africa's mineral future will ultimately depend less on external actors than on its own governance capacity, institutional strength and continental coordination – turning a global scramble for minerals into a pathway for sustainable, just and transformative development.

Introduction

'We are much more firmly the prisoners of our national histories than we imagine.'[1]For Africa, this warning feels particularly urgent. The continent once again stands at a crossroads, confronted by a new scramble for its CETMs. What lessons, if any, have been learned from the past? Will today's choices reproduce the same extractive patterns that defined colonial and postcolonial dependency, or will they chart a new path toward self-determined development?

The global demand for Africa's minerals is surging. The International Energy Agency projects that global needs for these materials will triple by 2030, while the World Bank anticipates a fourfold increase in extraction by 2050 under a 2°C scenario. One key feature of this scenario is the massive transformation of the energy system supported by CETMs. The scenario informs energy transition modelling, investment decisions and climate-related financial disclosures. Yet amid this rising demand, whose development will these minerals fuel? Would the energy transition be just and fair to poor and marginalized African communities? Can Africa translate its mineral endowments into local value, or will they once again be shipped abroad to power other nations' industries and green transitions?

Africa's mining landscape remains deeply marked by its history. Colonial extraction built infrastructure that served export routes, not communities; wealth flowed outward while degradation and dispossession took root. Have post-independence policies truly broken from that legacy? Why do so many mining regions still bear the same burdens of pollution, displacement and poverty despite decades of resource wealth?

Initiatives such as the AMV and the emerging Africa Green Minerals Strategy promise to reimagine mineral governance for industrialization, value addition and structural transformation. But can such frameworks overcome entrenched political economies, elite capture and fragmented implementation? And in a world where global powers – the United States, China, the European Union and emerging blocs like BRICS – compete fiercely for access through their own partnerships and strategies, how much room remains for African agency?

Even as foreign interests multiply under banners such as the US Minerals Security Partnership, China's FOCAC and Belt and Road and the EU's Critical Raw Materials Act, critical questions persist: who defines Africa's transition and on whose terms? Can regional cooperation through the AfCFTA and continental policy coherence shield Africa from becoming once again a source of raw materials for others' prosperity?

Civil society, too, faces profound challenges. How can communities assert their rights to participate meaningfully in decisions about extraction? How can CSOs do their work without political repression? Can transparency, accountability and human rights standards such as FPIC and Environmental, Social and Governance (ESG) principles be effectively enforced in contexts where political and corporate interests often dominate? And what role should civic voices play in shaping a 'just' transition that is both green and equitable?

Ultimately, the energy transition exposes a deeper dilemma: will Africa's mineral wealth enable a genuine transformation of its economies and societies, or will it deepen existing inequalities under a new guise of sustainability? Can sovereignty, justice and environmental stewardship coexist within a mineral-led development model? The answers to these questions will determine not only the future of Africa's mining sector, but the trajectory of the continent's broader struggle for self-determination in a rapidly changing world.

Chapter 1:
The context for CETMs in Africa and key governance challenges

The very CETMs that are essential in the global shift to a zero-carbon economy, powering electric vehicles, batteries, wind turbines and solar panels, are found in an Africa that is still mired in poverty, inequality and energy scarcity. This is a result of structural conditions, not natural fate. The challenge lies not in extraction itself but in the political choices governing resources and whose interests they serve.

1.1 Historical context of Africa's minerals and industrialization

Contrary to colonial myths portraying Africa as technologically backward, the continent's mineral wealth and metallurgical knowledge predated European conquest. Archaeological and historical evidence show that African societies mined and processed iron, copper, gold and tin for domestic use and regional trade. Iron smelting and steel production in parts of West, Central and Southern Africa date back to around 1000 BCE, producing durable high-carbon steel superior to early European imports.[2] In Eswatini, during the pre-colonial period, iron ore was used for the production of tools and weapons.[3] African metallurgists mastered charcoal production, furnace design and temperature control, achieving precision in metalworking centuries before the Industrial Revolution. Portuguese colonists in 18th-century Angola relied on African blacksmiths, acknowledging indigenous technical expertise. Localized mining economies combined extraction with craftsmanship, agriculture and trade, reflecting technological innovation and social responsibility.[4] In Madagascar, there was a pre-colonial attempt at state-led industrialization, which included efforts to develop manufacturing.[5]

There is evidence that precolonial mining balanced human and environmental needs, offering a model of sustainable resource use. For example, iron metasystems in Zimbabwe were embedded in agrarian societies and political systems prior to colonial disruption.[6]

Colonization halted Africa's resource-based industrialization. The Berlin Conference of 1884–85 erased indigenous mineral governance and subordinated local economies to European interests. Colonialism locked African economies into primary commodity production, preventing industrial diversification.[7] Colonial infrastructure such as railways, ports and banks served extraction, not African development.[8] This extraction was accompanied by labour violations, displacement and social marginalization, entrenching poverty, disease and racial hierarchy.[9]

From the first industrial revolution to today, Africa has supplied raw materials for Western industrial and social development, often at great social and ecological cost. Critical minerals have long been a focus of military planning for Western countries and continued control over these mineral resources was paramount. In 1944, the US Army and Navy Munitions Board developed a combined definition of 'strategic and critical minerals' as 'those materials required for essential uses in a war emergency…the procurement of which [is] sufficiently uncertain for any reason to require prior provision for the supply thereof'. [10]Today, minerals like copper, nickel, cobalt, lithium and the rare earth elements (REEs) are essential for the low-carbon technologies (battery storage, magnets, power distribution) that underpin the energy transition.[11]

Political independence did not dismantle the colonial extractive architecture. For the departing colonialists, political independence was not equal to economic independence. It was that

realization which led Kwame Nkrumah to declare that 'political independence was meaningless without economic independence'.[12] This is why leaders like Patrice Lumumba, who sought mineral sovereignty, faced violent suppression.[13] In post-independence Africa, mechanisms are developed to continue controlling the continent's mineral resources. For example, the Structural Adjustment Programmes (SAPs) of the 1980s–1990s deepened dependency, privatizing state assets, deregulating mining and weakening oversight. In Ghana, Tanzania, Zambia and the DRC, liberalization favoured transnational corporations while communities lost jobs and resources.[14] In the process, Africa remains a price taker in global mineral markets, with limited control over production technology or trade terms.[15]

Today, across the continent, the sentiment that prevailed at independence continues, reflected in the ever-increasing resource nationalism, part of what is called 'reactive nationalism' – a need to express sovereignty and autonomy forcefully, a response to centuries of exploitation.[16]

1.2 Africa's resource-based industrialization ambitions: Harnessing opportunities and overcoming challenges

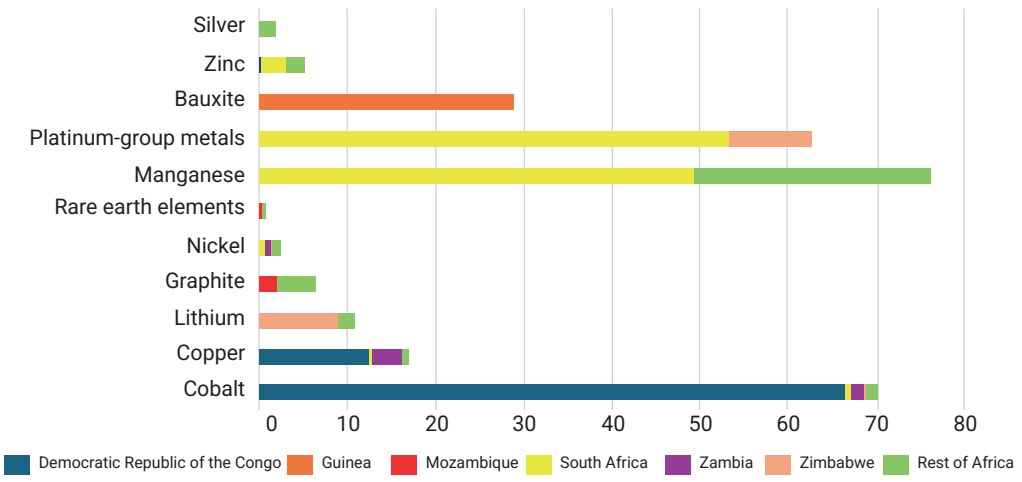
Today, across Africa – from villages to cities, from national governments to intergovernmental bodies and from civil society to the private sector – the call for a mineral-based industrialization pathway has never been louder.[17]Africa possesses a unique set of factors that can either strengthen or constrain its ability to participate effectively in the global green energy technology manufacturing value chain. While significant opportunities exist, the continent also faces internal and external vulnerabilities that could undermine its ambition for inclusive, resource-based industrialization and a just energy transition.

1.2.1 Opportunities: Turning minerals into growth and development

a. Abundant CETMs

Africa's greatest comparative advantage lies in its mineral endowment. The continent holds over 30% of global reserves, including 55% of cobalt, nearly half of manganese and more than one-fifth of natural graphite.[18] Across the continent, countries possess latent producer power in key CETMs.

Africa's share of global mined production, 2024(in %)



Source: (IEA) Africa's share of global mined production and reserves, 2024.

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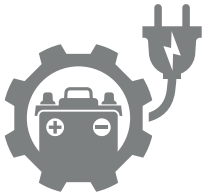


16%

Africa's lithium production is projected to grow at a compound annual growth rate (CAGR) of 16% between 2024 and 2030.

The top exporters of CETMs share a common trait: they lack a large industrial base.[19]

Beyond its dominance in cobalt, PGMs (Platinum Group Metals, manganese and bauxite, the continent also leads in a wider range of strategic minerals essential to clean technologies and advanced manufacturing.

Africa could even claim a key global position in lithium reserves. Zimbabwe ranks among the world top 10 producers,[20] while the Manono Lithium Mine in the DRC is one of the world's largest undeveloped lithium deposits, containing a total resource of 401 million tonnes of ore grading 1.63 % lithium oxide, which corresponds to approximately 16.32 million tonnes of lithium carbonate-equivalent (LCE).[21] Africa's lithium production is projected to grow at a compound annual growth rate (CAGR) of 16% between 2024 and 2030.[22] The same could be true of copper. The DRC is the second-largest producer globally, with 3.3 million tonnes.[23] With the inclusion of other African producers such as Zambia, with 820,670 mt[24] , along with South Africa, Botswana and others, Africa could emerge as the largest producer, surpassing Chile, which produces 4,000 tonnes annually. While coltan is not yet classified as a CETM, it will soon be when the DRC finalizes its CETM Strategy. The DRC is currently the world's leading producer of coltan, which is essential for tantalum used in electronics.[25] Mozambique and Madagascar are the world's third and fourth largest graphite producers, with estimated 2024 outputs of 77,000 mt and 75,000 mt, respectively .[26] The continent is bound to discover new reserves as African countries undertake new geological surveys to unlock the full potential of their mineral endowments. For example, Zambia has set an ambitious target of producing three million tonnes of copper by 2031 and has already completed 45% of its high-resolution geological mapping.[27] Just as China's rare earth policy and Indonesia's nickel strategy have underpinned their industrial rise, Africa too can use its producer power in key minerals to catalyse transformation.

Therefore, the importance of Africa's CETMs to the industrialized world should not be assessed through the lens of individual national outputs, but rather through the combined productive capacity of the continent. When viewed collectively, Africa emerges not as a marginal supplier, but as a strategic powerhouse in the global energy transition. This aggregation underscores Africa's potential to reshape global value chains if its mineral wealth is governed and harnessed through collective, continental strategies, rather than fragmented national approaches.

6TH

Zimbabwe ranks as the world's 6th largest lithium producer

b. Local value addition

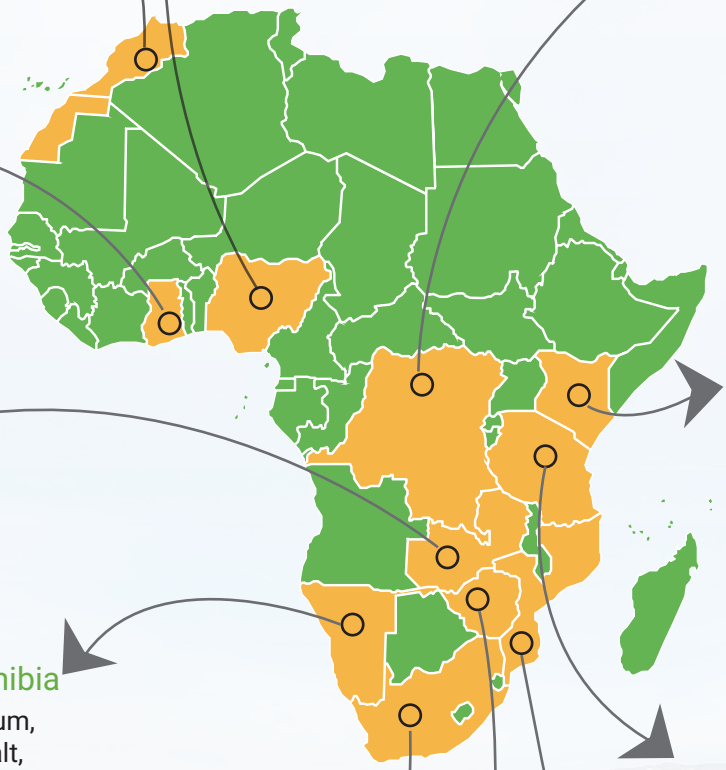
No country or region in the world has achieved prosperity and a decent socio-economic life for its citizens without the development of a robust industrial sector.[28] The movement for value addition is advancing at both national and regional levels, focusing on backward and forward linkages – using Africa's locational advantage in raw resources to develop processing industries that provide feedstock for manufacturing and industrialization. Many of the success stories of economic development during the last century, for instance in East Asia, coincided with growth in exports and trade surpluses.[29]

Increasingly, African countries are adopting new mining codes and regulations to reduce the export of raw materials and promote local processing, beneficiation and manufacturing.

Selected country policies and strategies on critical minerals

Countries	Key Minerals Identified	Policy/Strategy	Key Features
South Africa	**High-criticality:** Platinum, Manganese, Iron Ore, Coal, Chrome. **Moderate-high:** Gold, Vanadium, Palladium, Rhodium, Rare Earths. **Moderate:** Copper, Cobalt, Lithium, Graphite, Nickel, Titanium, Phosphate, Fluorspar, Zirconium, Uranium, Aluminium.	Critical Minerals and Metals Strategy (2025); Mineral Resources Development Bill.	Focus on beneficiation (local processing), job creation, geoscience investment, regulatory certainty. Mining Charter encourages domestic processing. Policy focus on developmental pricing, infrastructure expansion, R&D support, tax incentives and differentiated royalties for processed versus raw.
Kenya	Cobalt, Copper, Lithium, Niobium, Coltan, Tantalum, Tin, Tsavorite, Nickel, Graphite, Chromite, Thorium, Uranium, Rare Earths (14 minerals).	Strategic Minerals Regulations (2023) under Mining Act.	Declares minerals 'strategic'; requires involvement of state mining company NAMICO; strict controls on illegal trading. Promotion of local processing clusters and value chain development in the 2023-2027 Strategic Plan.
Namibia	Lithium, Cobalt, Manganese, Graphite, Rare Earths (also uranium, tin, tantalum, zinc, copper).	Mineral Beneficiation Strategy (2021); export restrictions.	Export bans on unprocessed critical minerals; goal is to build local refining/ processing capacity.
Zimbabwe	Lithium (focus), plus platinum group metals (PGMs), chrome, diamonds.	Export bans on unprocessed lithium (2022); broader beneficiation push.	Seeks to force local processing/value addition; aligns with resource nationalism agenda.
Ghana	Lithium (focus), bauxite, manganese, iron ore, gold.	Green Minerals Policy (2023).	Ensures local benefit from lithium & other minerals; promotes value addition and environmental safeguards.
Zambia	Cobalt, Copper, Lithium, Nickel, Manganese, Graphite, Rare Earths, Coltan, Tin, Uranium, Sugilite (11 critical minerals).	National Critical Minerals Strategy / Guide (2024–2028).	Aim to triple copper output by 2031; cobalt sulphate refinery planned; 30% state stake in new projects; strong focus on exploration & mapping.
Morocco	Phosphates, Cobalt, Fluorspar, Barite, Manganese, Copper, Nickel, Lithium, Rare Earths, Niobium, Aluminium, Borates, Germanium, Magnesite, Tungsten, Titanium, Potash, Sulphur (24 proposed critical/ strategic minerals).	Mining Plan 2021–2030, Geology Plan 2021–2030, CESE report on critical minerals.	Diversifying beyond phosphates; exploration for REEs, lithium, niobium; domestic transformation push; ESG and traceability frameworks emerging. Tailored incentives for domestic beneficiation of key minerals, including tax relief and reduced duties.

Key transitional minerals identified in selected African countries



Morocco

Phosphates, Cobalt, Fluorspar, Barite, Manganese, Copper, Nickel, Lithium, Rare Earths, Niobium, Aluminium, Borates, Germanium, Magnesite, Tungsten, Titanium, Potash, Sulphur (24 proposed critical/strategic minerals).

Nigeria

Strategic minerals (officially designated): Coal, Iron Ore, Bitumen, Gold, Limestone, Lead-Zinc, Barite.

Other critical/potential/ emerging minerals: Lithium, Nickel, Cobalt, Rare Earth Elements (REEs), Manganese, Chromium, etc.

DRC (Democratic Republic of the Congo)

Copper, Cobalt, Tin, Tungsten, Tantalum (3T-minerals), Germanium, Zinc, Manganese, Gold and possibly others in the exploration of rare earths, etc.

Ghana

Lithium (focus), bauxite, manganese, iron ore, gold.

Kenya

Cobalt, Copper, Lithium, Niobium, Coltan, Tantalum, Tin, Tsavorite, Nickel, Graphite, Chromite, Thorium, Uranium, Rare Earths (14 minerals).

Zambia

Cobalt, Copper, Lithium, Nickel, Manganese, Graphite, Rare Earths, Coltan, Tin, Uranium, Sugilite (11 critical minerals).

Namibia

Lithium, Cobalt, Manganese, Graphite, Rare Earths (also uranium, tin, tantalum, zinc, copper).

Tanzania

25 critical and 18 strategic minerals for targeted beneficiation. These include minerals essential for EVs, batteries, renewable energy and industrial inputs—e.g., graphite, REEs, nickel, cobalt, iron and copper.

South Africa

High-criticality: Platinum, Manganese, Iron Ore, Coal, Chrome.

Moderate-high: Gold, Vanadium, Palladium, Rhodium, Rare Earths.

Moderate: Copper, Cobalt, Lithium, Graphite, Nickel, Titanium, Phosphate, Fluorspar, Zirconium, Uranium, Aluminium.

Zimbabwe

Lithium (focus), plus platinum group metals (PGMs), chrome, diamonds.

Mozambique

Graphite and heavy sand.

Countries	Key Minerals Identified	Policy/Strategy	Key Features
DRC (Democratic Republic of the Congo)	Copper, Cobalt, Tin, Tungsten, Tantalum (3T-minerals), Germanium, Zinc, Manganese, Gold and possibly others in the exploration of rare earths, etc.	Revised Mining Code (2018). Regulatory and Control Authority for strategic minerals (ARECOMS). The African Center of Excellence for Research and Innovation on Batteries (CAEB). the Congolese Council of Batteries (CBB). Economic special/ free zone in Kolwezi(Musompo).	Encourages in-country processing of cobalt, copper and 3T minerals. Increased royalties, requirements for local ownership, subcontracting. - Export control/quotas: e.g. ban on cobalt exports, later moved toward quotas. - Encouragement of domestic smelting/refining/ beneficiation.
Nigeria	Strategic minerals (officially designated): Coal, Iron Ore, Bitumen, Gold, Limestone, Lead-Zinc, Barite. Other critical/potential/ emerging minerals: Lithium, Nickel, Cobalt, Rare Earth Elements (REEs), Manganese, Chromium, etc.	- Strategic Minerals List (2020) via Nigerian Mines & Steel Development Ministry: naming the seven strategic minerals. - National Policy on Solid Minerals (2019) etc.	Some effort to include critical minerals and the clean energy transition in policy discussions. - Some exploration/ mapping for minerals like lithium, cobalt, nickel. Fiscal incentives to expand domestic processing industries and reduce raw mineral exports in the Mining Roadmap.
Mozambique	Graphite and heavy sand.		Encourages processing of heavy mineral sands and coal. Recent reforms seek to attract investment in local processing plants. Political risk and infrastructure gaps.
Tanzania	25 critical and 18 strategic minerals for targeted beneficiation. These include minerals essential for EVs, batteries, renewable energy and industrial inputs—e.g., graphite, REEs, nickel, cobalt, iron and copper.	2017 Mining (Mineral Rights) Regulations & Mining Act amendments.	Resource Nationalism (not nationalization) and state control. The Mining (Value Addition) Regulations, 2020, issued under the Mining Act, CAP 123. 16 percent free carrier for the state. Strong local content. Ban on export of unprocessed minerals (gold, copper concentrates). Establishment of local refining and smelting facilities

Source: Information compiled from multiple online sources

Progress in local value addition remains uneven across Africa. Most countries do not require mineral rights holders to process products domestically, with exceptions like the DRC, Zambia and Zimbabwe, which levy export taxes on cobalt, copper and lithium to encourage smelting and refining. Zimbabwe's lithium sector illustrates this potential: Sinomine Resource Group (via Bikita Minerals) is investing US$400m to produce 300,000 mt of lithium concentrate and 480,000 mt of petalite annually at the Bikita Mine.[30] Dinson Mining, a subsidiary of Tsingshan Holdings Group, operates a 200,000 mt/year lithium processing plant in Gwanda, while Prospect Lithium Zimbabwe (Zhejiang Huayou Cobalt) runs a US$300m plant at the Arcadia Mine, processing 4.5 million mt of hard-rock lithium per year.[31]

Early signs of green technology manufacturing are emerging. Egypt, Tunisia, Morocco and South Africa host wind tower and EV assembly facilities,[32] Ethiopia is partnering with Battswap Automotive to establish an EV plant in Addis Ababa[33] and Zambia's ZAMEFA produces copper cables domestically.[34] Yet Africa contributes less than 0.5% of global clean energy technology manufacturing and under 0.1% of its value.[35] Manufacturing accounts for just over 1% of global value added from Africa, despite holding nearly one-fifth of the world's population, with chemicals, metals, machinery and motor vehicles comprising over 30% of African manufacturing value added.[36]

The central challenge is positioning Africa relative to industrialized nations, particularly China, which dominates mineral refining and processing, limiting others' value addition.[37] China's influence grows as renewable energy sales in Africa soar, with solar panel exports rising 60% in the year to June 2025. Reducing reliance on unprocessed CETMs requires stronger intra-African value chain integration.[38] Regional resource-based value chains (RVCs) aim to 'strengthen resilience against global supply shocks, coordinate investment in energy, transport and logistics and retain more value within the continent.' [39]

Key initiatives include the DRC–Zambia EV battery collaboration,[40] which has been off to a slow start, Tanzania's Kabanga Nickel Project [41] and emerging EV and battery industries in Morocco, Egypt and Tunisia. Sustaining momentum amid global competition requires harmonized strategies, yet Africa's 'variable geometry' – with some countries more advanced than others – risks uneven gains.[42] Complementary instruments such as a Regional Mining Inputs Venture Capital Fund and an Africa Mineral Value Chains and Logistics Equalization Scheme will help counter industrial polarization, enhance economies of scale and ensure Africa's mineral wealth drives continental development.

c. Fiscal regime adjustments

Governments are revising fiscal regimes to secure greater benefits from their mineral wealth. Unlike previous commodity booms that quickly faded, the current surge in demand – driven by the energy transition considering the amount of resources needed to a sustainable global energy transition – is likely to be more enduring, generating stable revenues for exporting countries. Properly managed, these windfalls can act as catalysts for national development if resource rents are channelled into productive investments.

Policy frameworks should therefore balance short- and long-term objectives: short-term measures to reduce volatility and capture immediate gains and long-term strategies to stabilize revenue flows, diversify economies and invest in education, health, clean water, energy and technological innovation.

However, many African countries continue to offer generous tax holidays and incentives to attract investors—an outdated practice that erodes public revenue and limits value capture, particularly given today's high demand for critical energy transition minerals (CETMs). For instance, South Africa allows beneficiation investments to offset equity obligations and offers discounted electricity to smelters; Zambia provides preferential tax treatment and 100% capital allowances for downstream processors; and Zimbabwe permits duty-free importation of capital equipment and reduced corporate taxes for special mining leaseholders.[43]

By contrast, the DRC under President Kabila raised cobalt royalties from 3.5% to 10% despite disinvestment threats from major mining firms – demonstrating that fiscal sovereignty, not concessions, is key to securing lasting benefits from CETMs.[44]

d. Local content

Local content is a strategic lever for mineral beneficiation, industrialization and socio-economic empowerment, encompassing backward, forward and horizontal linkages within extractive industries and related sectors.[45] Across the continent, governments are adjusting their local content policies. Ghana's Minerals and Mining (Local Content and Local Participation) Regulations, 2020 set minimum local equity and procurement thresholds; Namibia embeds at least 15% local ownership in new ventures and requires up to 80% local procurement; and South Africa enforces minimum procurement of 70% goods and 80% services from BEE-certified firms. Zambia has recently adopted a Local Content Policy prohibiting foreign fronting, with President Hakainde Hichilema affirming that local content must be 'local-local' – a direct challenge to tokenism and a call for genuine local ownership.[46]

Yet, most resource-rich African countries have small mining inputs markets, limiting upstream linkages and scale economies. This reality underscores the urgency of harmonized regional-local content strategies to leverage Africa's continental market – larger than the EU's.[47] The mining inputs sector – including capital goods, consumables and services – already represents over 70% of Africa's industrial market. Harmonized regional content policies, with credits discounted inversely by GDP per capita, could incentivise cross-border supply while elevating local participation targets to 80% for services, 70% for consumables and 60% for capital goods.[48] Recognising regional content within national mining license obligations will ensure that supplies from one country count toward local content targets in another – creating a truly integrated continental mineral value chain.

e. Advances in environmental and human rights protection in Africa

Across Africa, important progress has been made in embedding environmental protection within human-rights frameworks. At the national level, countries are increasingly recognising that the right to a healthy environment is inseparable from social justice and sustainable development. Nigeria is revising its National Environmental Standards and Regulations Enforcement Agency (NESREA) Act of 2007.[49] The NESREA was already an advanced and comprehensive statutory systems for environmental government which has a set of standards for air, water and hazardous waste. The revised NEDREA will include stricter penalties for violations, including public disclosure of offenders. Equally important, the Constitution of the Federal Republic of Nigeria (1999, as amended) obliges the state to 'protect and improve the environment and safeguard the water, air and land' (Section 20).

South Africa remains a continental leader in constitutional environmental rights. Section 24 of the Constitution (1996) guarantees everyone the right to an environment that is 'not harmful to health or well-being.' The Constitutional Court affirmed this in Fuel Retailers Association v. Director-General: Environmental Management, Mpumalanga Province (2007), which established the link between environmental protection and sustainable development. [50]

At the regional and continental levels, Africa's normative and policy frameworks continue to evolve. The African Charter on Human and Peoples' Rights (1981) explicitly recognizes the right of all peoples to 'a general satisfactory environment favourable to their development' (Article 24),[51] forming the legal foundation for linking environmental well-being to human dignity and collective rights. The Revised African Convention on the Conservation of Nature and Natural Resources

(Maputo Convention, 2003) modernizes environmental governance by requiring states to conserve, sustainably use and equitably share natural resources.[52] Meanwhile, the Africa Mining Vision (2009) provides a policy framework for 'transparent, equitable and optimal exploitation of mineral resources to underpin broad based sustainable growth and socio economic development.'[53] In the AMV, community and environment protection in mineral resource management, take special place. Beyond these instruments, the African Union is drafting a Declaration on the Recognition and Protection of Human Rights Defenders (HRDs), which will strengthen protections for activists working on environmental justice, land rights and natural-resource governance.

1.2.2 Barriers to a human-centred industrialization

a. State capacity

State capacity is essential for negotiating fair CETMs agreements that protect Africa's economic interests, especially now as a narrow window has opened to reclaim sovereignty over mineral resources and advance long-delayed industrialisation. Strengthening this capacity requires good governance—anchored in committed leadership, a rules-based mineral sector, and strong oversight from parliament, civil society, and communities. It also demands addressing information asymmetries in the mineral sector. Many countries lack reliable geological and cadastral data, as well as the skills and institutional tools needed to analyse information, manage revenues, design and enforce policies and agreements.

Development depends on efficient, committed and honest public administration. Yet most CETM-rich countries face weak governance, with poorly equipped mining ministries lacking skilled personnel and resources. This leads to weak law enforcement, limited company oversight, poor revenue collection and inadequate ESG implementation. Mineral wealth alone offers no advantage without capable institutions.[54]

Given the high economic stakes of CETMs, governments must build 'world-class' administrations and modernize state-owned mining companies. With rapidly evolving technologies,[55] African countries need to reform recruitment, compensation and governance structures to attract and retain competent officials.[56] Measures such as professional training, international exposure, peer-learning and better working conditions can enhance capacity to manage revenues, enforce policy and align mining with long-term structural transformation goals.

b. Infrastructure deficits

i. Research and innovation (soft infrastructure)

Sustainable industrialization is impossible without strong education systems. Industrialization means much more than the development of manufacturing industry.[57] It also means the capacity to generate technical progress, to create national complexes of pure and applied physical sciences, engineering and specialized firms making component parts – fine steel, motors – to supply the suppliers of manufacturing enterprises.

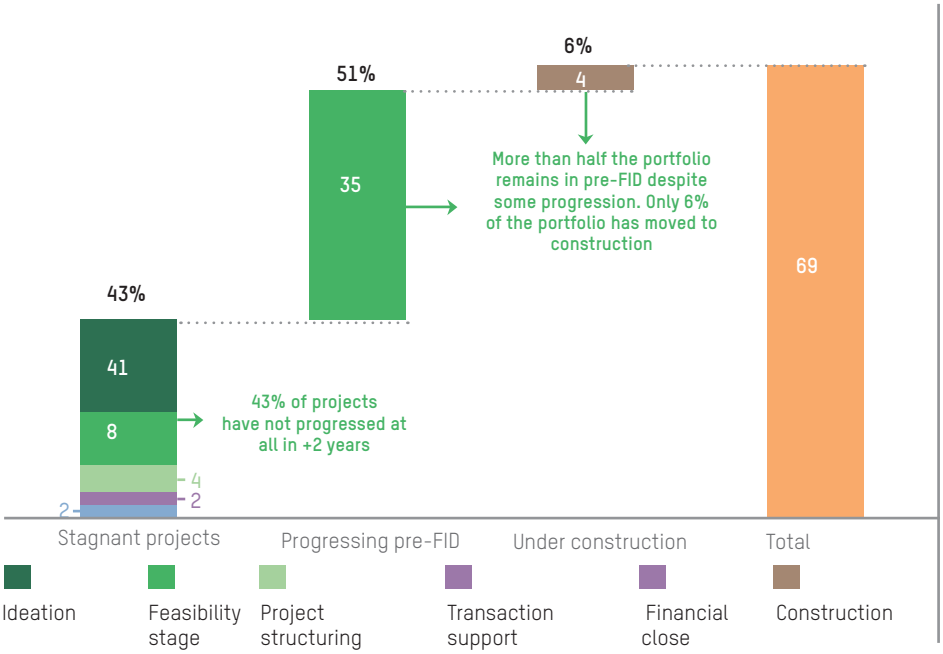
Poor investment in education continues to constrain Africa's progress. Limited research and development (R&D), technology and skilled labour restrict the continent's ability to move up mineral value chains. Skills shortages in large-scale mining and processing persist, while research, technology and innovation capacity – beyond South Africa and Morocco – remains minimal and is declining sharply.

ii. Physical infrastructure (hard infrastructure)

Physical infrastructure deficits further constrain value addition. Transport networks, including roads, ports and rail, remain underdeveloped, often reflecting colonial-era extraction routes.[58] High transport costs, ranging from 50–200% above comparable regions,[59] coupled with landlocked geographies, undermine competitiveness.[60] So far, despite the rhetoric surrounding the revitalization of the Lobito Corridor and the TAZARA railway, both projects were conceived by their funders primarily as export routes for raw materials – designed to move minerals out of Africa rather than to support local value addition. This orientation directly competes with and in some cases undermines, Africa's ambitions for a critical mineral–based industrialization, as the infrastructure prioritizes extraction over beneficiation, limiting opportunities for domestic processing and technology development.

Africa has a bold infrastructure plan which has identified 130 AU-backed cross-border projects. However, only 6% have reached construction, with nearly two-thirds stalled at early stages.[61]

Number of projects stagnant and progressing in PIDA PAP II (2022-2024)



Source: PIDA; BCG Analysis

1.2.3 Energy as key to industrialization

Energy is a fundamental prerequisite for Africa's sustainable industrialization. Persistent power shortages remain the biggest constraint on mineral processing and manufacturing, which are highly energy intensive. Without reliable energy and water infrastructure, newly built refineries and processing plants risk underutilization across the continent.

Africa's clean energy potential is vast. The AU's Africa Green Minerals Strategy (AGMS) highlights Inga Falls' hydropower potential of 40,000 MW and significant natural gas reserves in the Rovuma Basin.[62] Regional power generation and transmission could lower costs, enable mineral

beneficiation and reduce emissions. Examples like Rwanda's hydro-powered tin refinery, Namibia's solar-driven processing zones and Ethiopia's Grand Renaissance Dam demonstrate that local clean energy can drive industrialization. Yet energy access must extend beyond industry; affordable, reliable energy for households and small enterprises is critical for poverty reduction, job creation and inclusive growth. Sub-Saharan Africa still accounts for 85% of the global population lacking electricity.[63] The African Development Bank's New Energy Deal aims to provide energy access for over 645 million people and power businesses, investing US$5.1bn in renewable projects from 2021 to 2025, aligned with its 'High 5s': 'Light up and empower Africa', 'Feed Africa', 'Integrate Africa,' 'Industrialize Africa' and 'Improve quality of life'. [64]

1.2.4 Market size constraints

Industrialization of African countries is constrained by weak and small domestic markets. Most African countries have relatively small populations, with only three exceeding 100 million people, limiting the size of domestic markets for industrial goods. This constraint can only be mitigated through regional, continental and global markets. To be competitive on all these fronts, especially on the global market African countries must trade high-value and competitive products. CETMs present a significant opportunity, both individually and collectively, for African countries to develop heavy industries capable of competing globally. African countries could set up sovereign wealth management around CETMs revenue to fund industrial development sustainably.

The current model of exporting raw minerals while importing high-value products perpetuates Africa's dependency and leaves commodity prices externally determined. Increased industrialization could also boost intra-African trade, which remains minimal, accounting for only 14.9% of total trade compared to 59% in Asia and 67% in Europe.[65] Furthermore, 'On average, goods traded between African countries accrue a 292% ad valorem equivalent in non tariff trade costs'[66] further undermining competitiveness.

Policy fragmentation further limits Africa's ability to leverage its resources for industrial transformation. Development challenges are as political as they are economic.[67] While initiatives such as the AfCFTA, the AMV and the AGMS provide frameworks for market integration, progress remains limited without strong political will, coordinated industrial policies, protective trade measures and mechanisms for technology transfer. Intra-regional tariffs on metals, intermediates and mining inputs further inhibit industrial linkages and value addition.

1.2.5 Debt and financing hurdles

Financing is critical for mining projects and downstream value addition, but Africa faces two major challenges: high debt burdens and limited capacity to capture mining revenues. Across Africa, many CETMs rich countries face debt burdens that limit their ability to transform resource wealth into industrial capacity. Zambia has seen its public debt-to-GDP ratio decline from over 110% to an estimated 91.1% by December 2025 following external debt restructuring under the IMF's Extended Credit Facility and fiscal consolidation.[68] Zimbabwe continues to carry substantial and opaque debt, with total public sector debt estimated at US$23.3bn (72.9% of GDP) and external arrears of US$7.4bn (23% of GDP), leaving fiscal space for industrial investment severely constrained.[69] In Ghana, public debt stood at 72.3% of GDP in December 2023, following domestic debt exchanges and external debt restructuring, with efforts ongoing to reduce the net present value of debt to 55% of GDP by 2028. [70] Ghana's debt was at 48.9% of GDP in the third quarter of 2025.

South Africa carries high public and external debt, estimated at 76% and 42% of GDP respectively, compounded by underperforming state-owned enterprises and infrastructure bottlenecks, which

constrain investment in critical mineral processing and green-energy industries.[71] By contrast, the DRC maintains low public debt (projected at 6% of GDP by 2025), providing some fiscal space for investment, but faces challenges in attracting sustainable capital to support downstream processing rather than mere raw exports.[72] Collectively, these debt dynamics underscore the need for strategic borrowing, concessional financing and coordinated industrial policy to enable African countries to move up the value chain in CETMs sectors.

The situation is worsened by Africa's position in the global financial architecture. While international financing is essential for industrialization, Africa engages on unequal terms, often characterized by limited access to capital and costly borrowing. This challenge is compounded by opaque contracts, tax holidays, export mispricing and poor data transparency, which facilitate illicit financial flows (IFFs) estimated at US$89bn annually, largely from the extractive sector—resources that could otherwise fund industrial infrastructure.[73] For many countries, scarce resources are stretched across urgent priorities such as poverty reduction, healthcare, education, infrastructure development, youth unemployment and conflict mitigation, leaving little room for investment in green transitions or mineral value addition industries.[74] Dependence on foreign investment and international financial institutions further constrains African firms from moving into higher-value segments of mineral value chains, highlighting the urgency of domestic resource mobilization and strategic debt restructuring to advance industrialization ambitions.

1.3 Critical minerals and conflict dynamics in Africa

Critical energy transition minerals (CETMs) are increasingly intertwined with both soft and hard conflict dynamics across Africa. Soft conflicts often arise between industrial mining operations and local communities due to forced or uncompensated displacement, inadequate corporate social investment and lack of meaningful consultation. In the artisanal and small-scale mining (ASM) sector, violence and militarization have been reported in several countries, including the DRC and Zimbabwe, where security for illegal or informal extraction is sometimes provided by military units, including presidential guards, particularly in the cobalt and lithium sectors.[75] Hard conflicts – military engagements – occur in areas such as the DRC, Mozambique and parts of the Sahel, where armed groups and state forces fight to control access to CETMs such as coltan (DRC) and graphite (Mozambique). These conflicts have caused internal displacement, deepened local grievances and divided societies.

Most of these tensions stem from weak governance, opaque resource management, corruption, exclusion of communities and the involvement of military and non-state actors in mineral supply chains. The geopolitics of CETMs further exacerbates these risks, with global powers using a range of instruments, including military support, as seen in the US security arrangements in the DRC, to secure access to strategic minerals. Such dynamics reinforce historical patterns in which mineral wealth attracts predation rather than sustainable development.[76] Recognizing these risks is essential for a just energy transition. Effective CETM governance must therefore integrate strong conflict-sensitivity measures, including inclusive decision-making, meaningful community consent (FPIC), transparent revenue management and early-warning systems, to ensure that mineral extraction does not exacerbate fragility or instability.

Chapter two: Key initiatives relevant to the governance of energy transition minerals in Africa

This chapter synthesizes African-led initiatives, policies and frameworks aimed at shifting from raw mineral exports toward value addition and mineral-based industrialization. It examines the interplay between continental strategies and global policy shifts, analysing their implications for Africa's quest to break with extractive colonial legacies.

2.1 African initiatives

Africa's efforts to govern its natural resources and embed them within broader structural transformation are not new. The Lagos Plan of Action (1980) was Africa's first major blueprint for self-reliant development, emphasizing industrialization, regional integration and reduced dependence on commodity exports. Its failure exposed persistent structural and financial weaknesses. Later, NEPAD (2001) sought to combine growth, governance and partnerships but remained dependent on external funding and failed to link extractives to industrial transformation. Together, these efforts reveal Africa's ongoing struggle to finance and govern its own development.

Today, Africa has a reformed agenda that could support value addition and beneficiation.

2.1.1 Africa mining vision and green mineral strategy

The AMV, adopted in 2009 by the African Union with support from UNECA and the African Development Bank, marked a pivotal shift in Africa's mineral governance. It sought the 'transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development,[77] positioning mining as a catalyst for structural transformation, industrialization and regional integration. To implement the AMV, the AU established the African Minerals Development Centre (AMDC).

Implementation has faced persistent challenges, including weak institutional capacity, donor dependency, limited policy coherence and corporate dominance, which have constrained progress and diluted impact.[78] At the time of the AMV's formulation, energy transition minerals were not yet central, prompting the development of the Africa Green Minerals Strategy (AGMS) to address today's priorities. While the AMV provides the normative and institutional framework for mineral-based transformation, the AGMS operationalizes these principles for the green economy era. Its success will

The AGMS operationalizes these principles for the green economy era. Its success will depend on overcoming the same constraints that have limited the full implementation of the AMV and the AMDC.

OXFAM

depend on overcoming the same constraints that have limited the full implementation of the AMV and the AMDC.

2.1.2 Regional Economic Communities (RECs)

At the national level, instead of pushing for regional integration around CETMs, several countries are prioritising bilateral agreements with external partners. The SADC AMV and Protocol on Mining and the ECOWAS Mineral Development Policy aim to harmonize mining regimes and foster cooperation. While these frameworks have created some alignment, enforcement remains weak and member states often pursue divergent national interests.

Current regional harmonization efforts align partially with the AMV and Country Mining Visions (CMVs) but focus mainly on regulatory alignment rather than driving transformative, regionally integrated industrialization. Key upstream opportunities such as mining inputs production, harmonized STEM skills development, regional RDI capacities and unified approaches to resource rents and taxation remain underdeveloped. At the national level, several countries have policies and frameworks, with many revising them to capitalize on CETMs, as noted in the TOR.

2.1.3 Africa Continental Free Trade Agreement mining protocol

The AfCFTA Protocol on Trade in Goods aims to gradually remove tariffs on all goods, including mining products, while harmonizing mineral investment and export policies to promote intra-African trade in processed minerals. If implemented effectively, they could enhance scale, leverage and bargaining power in global markets, while promoting beneficiation and regional value chains. A single continental coordination mechanism could harmonize standards, pool technical expertise and prevent the 'race to the bottom' created by fragmented bilateral agreements with external partners.

Regional collaboration and alignment of policies are crucial. However, challenges remain. Regulatory divergence, limited financing and political fragmentation risk constraining the protocol's impact.

2.2 External initiatives and impact of value addition ambitions

External actors are actively strategizing to secure and control Africa's minerals, often with limited regard for the continent's development ambitions. The competition is intense, especially between the US and China, while the EU and other actors add further layers of influence.

2.2.1 The United Nations CETM Framework

In April 2024, the UN Secretary-General commissioned a panel on critical energy transition minerals, highlighting a transformative opportunity for Africa and the need for socially and environmentally sustainable mineral exploitation (UN, 2024). This produced the report *Resourcing the Energy*

Transition: Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice,[79] which outlined seven principles, with the principles on human rights, environmental integrity and equity which 'signal a paradigm shift towards justice, equity and sustainability in mineral value chains.'

Although these principles are normative rather than legally binding, they illustrate how multilateral governance can strengthen African agency. By prioritizing justice, equitable benefit-sharing and accountability, the panel's guidance contrasts with bilateral deals that often marginalize communities, pointing to a more sustainable pathway for Africa's mineral development. The panel also creates space for multi-stakeholder engagement, allowing civil society and indigenous groups to influence the governance of critical minerals. More importantly, it allows the south in general and Africa in particular to demand for a just, fair and transparent CETMs global framework.

US$1.4 BILLION

China's influence is strong in cobalt refining, with stakes in Tenke Fungurume and Sicomines in the DRC and it recently signed a US$1.4 billion deal to revamp the TAZARA railway linking Zambia's Copperbelt to Tanzania's Dar es Salaam port.

2.2.2 The US Minerals Security Partnership (MSP)

The US MSP, launched in 2022 with allies including the EU, Japan, Canada, South Korea and Australia, targets Africa due to the DRC, Zambia, Namibia and South Africa holding critical mineral reserves.[80] The MSP aims to diversify supply chains away from China, strengthen infrastructure and promote ESG compliance. Key projects include the Lobito Corridor, linking the Zambia–DRC Copperbelt to Atlantic ports and the Kasomeno–Mwenda toll road, supported by regional financiers.[81] While these projects could support local processing and strengthen Africa's bargaining power, they are largely driven by US strategic interests to secure upstream minerals and reduce dependence on China.[82]

Other initiatives, such as the US–DRC/Zambia battery cooperation, have remained largely dormant. Meanwhile, the US-brokered 'peace deal' between Rwanda and the DRC prioritizes locking Congolese cobalt, copper and coltan into Western supply chains, ensuring profits flow out of Africa.[83] Similarly, the US Inflation Reduction Act (IRA) offers subsidies for clean energy and EV production but only for minerals sourced from the US or FTA partners – excluding African CETMs. While the US provides finance and ESG leverage, its approach remains inconsistent.

2.2.3 China FOCAC and the Belt and Road Initiative

At the just-ended G20 in South Africa, China took full advantage of the absence of the United States to make far-reaching recommendations, including the establishment of a G20 Critical Minerals Framework and the launch of China's International Economic and Trade Cooperation Initiative

on Green Minerals. Through the Forum on China–Africa Cooperation (FOCAC) and the Belt and Road Initiative, Chinese firms are securing positions in cobalt, lithium and graphite, particularly in the DRC, Zimbabwe and Madagascar.[84] Investments are often bundled with infrastructure projects – roads, hospitals, schools and energy – linking resource access to development[85] and China maintains bilateral mining agreements with eleven African countries.[86]

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At the 2024 FOCAC, China pledged support for Africa's mineral value chain development, SME growth and industrial zones, while its commitment to halt coal financing and invest in clean energy – hydropower, solar, wind, geothermal – offers opportunities to scale renewables and address energy access for Africa's 600 million without reliable electricity. To realize these benefits, Chinese-funded projects must be implemented sustainably and investment activities, especially by private firms, must comply with African regulatory frameworks.

2.2.4 The EU and Africa's CETMs

The EU has pursued a more rules-based approach to critical minerals through its Critical Raw Materials Act (CRMA)[89] and Strategic Partnerships with mineral-rich African states, including Angola, DRC, Namibia, Rwanda, Guinea and South Africa.[90] The EU also has other initiatives such as the Global Gateway which privilege access to Africa's CETMs. These partnerships emphasize ESG standards, local value addition, transparent supply chains, knowledge transfer and joint research, supported under the Global Gateway initiative.

However, critics caution that the EU's approach risks becoming a form of 'green colonialism'. The EU promotes ESG norms yet risks asymmetry and limited financing. Current priorities still focus on securing raw material access for European green and digital industries, while local beneficiation in Africa remains limited. Enforcement often favours European interests; for example, the EU has filed WTO complaints when producer countries introduced local content requirements. Additionally, Global Gateway funding often repurposes existing resources rather than mobilizing new investments, raising questions about its transformative potential.

2.2.5 Other external initiatives

Beyond the three major actors, several initiatives influence Africa's mineral landscape. India has pursued the India–Africa Strategic Minerals Dialogue, engaging countries such as Zimbabwe and Mozambique through MoUs and joint venture proposals for processing plants.[91]

Similarly, BRICS+ countries are exploring alternative supply chains for critical minerals. South Africa's proposed BRICS-backed certification scheme and Ethiopia's engagement in rare earth infrastructure illustrate the group's intent to standardize practices, promote transparency and encourage regional industrialization.[92]

Post-Brexit, the United Kingdom has engaged African partners in the UK–Africa Green Minerals Trade Negotiations, focusing on copper, lithium and cobalt, aiming to secure raw materials for clean technologies while supporting African industrial growth.[93] Meanwhile, sovereign wealth funds, particularly from Gulf States, add another dimension. Qatar Investment Authority's US$500m investment in Ivanhoe Mines exemplifies how long-term capital can enable infrastructure development and local value addition.[94]

Multilateral and bilateral frameworks are rapidly reshaping Africa's CETMs landscape, yet together they perpetuate a highly uneven playing field. The global scramble for minerals has become a contested geopolitical ecosystem, where external actors often present themselves as Africa's 'partners' or 'saviours' but rarely advance African industrial sovereignty or equitable value capture. It has been noted that the strategic competition between the United States and China for control over critical minerals is set to intensify.[95] This contest is unlikely to take a military form; it will unfold through strategic, economic and proxy struggles over access, influence and control of mineral value chains.

In a global landscape where the United States and China assert dominance, the European Union seeks to avoid industrialisation, and new players attempt to enter Africa's value chains, all are competing for the continent's critical energy transition minerals (CETMs). The central question is whether Africa has the capacity to advance its resource sovereignty. Africa must own the competition by engaging these initiatives strategically rather than remaining a passive participant. By doing so, African nations can turn global rivalry into opportunity—ensuring that every deal builds industry, creates jobs, fosters sustainable growth, and strengthens both continental integration and collective bargaining power.

This will not be easy. Africa needs a continental industrial policy and must be prepared to take bold moves, even if they challenge the ambitions of powerful external actors. The continent must remain resilient, drawing lessons from examples such as Indonesia, which successfully asserted its resource sovereignty in the face of global pressures.

Chapter three:
Civil society and critical minerals: Advancing economic justice, human rights and environmental protection

Expanding CERTM extraction also demands that civil society and communities strengthen their capacity to monitor and expose violations.

1%

Global inequalities are widening, with the richest 1% capturing 41% of new wealth since 2000.

3.1. Minerals that serve people, not just profit

Critical energy transition minerals (CETMs) are essential components for clean energy technologies — from wind turbines to batteries — to enable the global energy transition.[96] Yet, as the Transition Integrity Platform observes, 'a just energy transition is a chance for economies to start again with a clean slate and do things differently' (TIPs, 2021). Mining across Africa continues to entrench deep social, environmental and economic inequalities because the sector extracts immense value while returning very little to the people closest to it. Capital-intensive operations create small enclaves of wealth, leaving surrounding communities with pollution, social disruption, weakened livelihoods and eroded cultural identity. Global inequalities are widening, with the richest 1% capturing 41% of new wealth since 2000.[97] While EVs lower lifecycle emissions, mineral extraction often deepens human rights abuses, ecological harm and community displacement.[98] Africa's extractive sector has historically prioritized GDP growth over human development, generating wealth for elites while failing to drive structural transformation, reduce poverty, or strengthen industrial linkages.[99] A human-centred mineral economy must therefore shift focus from mere GDP expansion to equity, sustainability and justice, ensuring that mineral wealth benefits people, not just economic statistics. For this to materialize, community participation becomes key. Communities should be treated not as passive recipients of company goodwill, but as active partners — co-designing projects, co-managing impacts and benefiting from local procurement and employment.

Civil society organizations (CSOs) are critical to realizing this vision. Their role is to ensure that CETM extraction and utilization have a human face. CSOs must push for fiscal and social protection mechanisms that channel mineral wealth into health, education and infrastructure to reduce poverty and inequality, rather than only inflating GDP. This has the potential to achieve structural economic transformation—ensuring that the continent's mineral wealth drives inclusive development and a just, human-centred energy transition.

3.2. Women and equity in mineral economies

To achieve a truly human-centred and equitable CETM economy, gender justice is a prerequisite. Women in mining communities, particularly in ASM, bear disproportionate environmental, social and economic burdens, including exposure to hazardous conditions, income precarity and exclusion from decision-making processes .[100] Despite their central role in mineral economies, national mining policies rarely integrate gender-responsive frameworks that enable women to participate as entrepreneurs, skilled workers, or leaders.[101] The absence of inclusive governance perpetuates structural inequities, marginalizing women from revenue-sharing mechanisms, industrial value chains and oversight authority while reinforcing symbolic participation rather than meaningful empowerment.[102] Special Economic Zones (SEZs) and industrial programs designed to mobilize women-led initiatives require financial, technical and institutional support to overcome these systemic barriers. [103]

CSOs will play a critical role in operationalizing gender justice in CETM governance. They should advocate for embedding gender-responsive standards into local content policies, revenue-sharing frameworks and industrial strategies, ensuring that women's participation translates into real decision-making power and economic agency.[104] CSOs will need innovative ways to support women's entrepreneurship and skills development in ASM and industrial sectors, linking gender justice with youth empowerment to foster innovation, accountability and inclusive growth. The monitoring of gender protocols by CSOs creates an important link between policy commitments and tangible community results. This process is essential for moving beyond the consultation of women to their active empowerment in shaping Africa's mineral-based industrial transformation.

3.3 Safeguarding defenders for just mining

Vibrant civic space and the protection of human rights defenders are indispensable to transparency, accountability and community protection in extractive governance. Oxfam emphasizes this pillar, yet across Africa, civic space continues to shrink under state repression, corporate capture and weak judicial independence. Activists, journalists and community leaders face harassment, criminalization and violence, while Strategic Lawsuits Against Public Participation (SLAPPs) are often deployed to intimidate civil society, although South African courts have begun recognising them as abusive (UN Guiding Principles, Principle 25). Weak enforcement and political pressures exacerbate the risks, undermining the ability of civil society to monitor governments and corporations, enforce environmental, social and governance (ESG) standards and ensure that communities benefit from extractive activities.[105]

CSOs are vital to the protection of human rights defenders and guardians of the civic space. They are actively building continental and national watchdog networks, advocating for strong legal protection frameworks and strengthening early-warning systems to detect human rights and ESG violations. Philanthropy is increasingly putting human rights and ESGs at the centre of their funding model. This work directly links civic empowerment with industrial and mineral governance, ensuring advocacy leads to enforceable outcomes instead of rhetorical commitments. By convening defenders, facilitating data exchange and coordinating advocacy, CSOs help build resilient civic ecosystems. Protecting human rights defenders is thus essential to upholding the democratic foundation upon which just, accountable and sustainable extractive governance depends.

3.4 Building environmental accountability and conflict-free mining

The rapid CETM extraction demands that civil society tussle with its increasing ESG risks. Beyond environmental and social harms, CETM extraction also has clear conflict implications. In contexts of weak governance, e.g. the copper–cobalt belt of the DRC, competition over high-value deposits has historically fuelled armed mobilization, elite capture and violent enforcement of resource access. Civil society therefore plays a critical role in monitoring early signs of resource-related tensions, documenting abuses linked to militarized mining zones and ensuring that grievance mechanisms address not only ESG violations but also emerging conflict risks in mineral supply chains. In the DRC, cobalt mining is linked to child labour, water (underground and rivers) pollution, corruption and conflict, while lithium extraction in high water-stress regions in Zimbabwe threatens environmental sustainability and livelihoods. These overlapping risks reveal the potential social and ecological costs of green technologies to African communities. Rapid global demand pressures governments to prioritize revenue over rights, making voluntary ESG frameworks insufficient in contexts of weak governance. Mandatory human rights and environmental due diligence, supported by grievance mechanisms and enforcement across the entire value chain, is essential to prevent gaps where abuses can occur and civil society has a critical role in monitoring, advocacy and community empowerment.

One strategic area for civil society investment is the promotion of recycling and reprocessing of mining waste from both active mineral processing and legacy sites. This approach supports responsible resource recovery – extracting valuable minerals from waste streams – while generating sustainable employment for local communities. Recycling contaminated water and rehabilitating polluted environments can further reduce the ecological footprint of mining. By advancing circular economy practices in the extractive sector, civil society can turn environmental liabilities into opportunities for green jobs, cleaner production and community resilience. Africa's pursuit of green growth must avoid reproducing ecological injustices under a 'climate-friendly' banner.

The rapid expansion of CETMs extraction will further entrench already deep opacity that characterize mining on the continent. Communities are excluded from decisions that shape their future, with consent treated as a one-off formality rather than a continuous right. This leaves people uninformed about long-term risks, excluded from risk management and exposed to unmonitored security forces and human rights violations. With governments failing to enforce oversight, mistrust and unrest intensify as the sector operates without accountability.

3.5 Communities' participation as a prerequisite

Communities that try to organize or monitor mining activities often face intimidation, weakening their ability to defend their rights. Companies externalize social and environmental costs, while compensation for lost land, homes, grazing areas and ancestral sites is inconsistent or inadequate. Resettlement commonly occurs without proper assessment, leaving families worse off and disrupting cultural and social cohesion. Governments frequently side with companies over local needs and corporations exploit local divisions, ignore cultural norms and dismiss individual rights under the façade of 'community approval.' Meanwhile, jobs bypass local people and training remains minimal, ensuring that mining's benefits do not reach the communities whose land sustains the industry.

These failures are intensified by weak transparency, poor access to information and fragmented governance at both local and national levels. Communities seldom receive timely information on contracts, licensing, or revenue flows, limiting their ability to participate or hold decision-makers accountable. Civil society plays a crucial role in ensuring that these intertwined governance, human rights and transparency gaps are addressed.

Chapter Four:
Conclusion and recommendations: Toward a harmonized, just and transformative minerals-based industrialization in Africa

4.1 Conclusion

Africa's pivotal role in the green energy transition presents a profound paradox: vast mineral wealth exists alongside deep-seated poverty and under-industrialization. To break from a history of extraction that benefited external powers, the continent must harness a narrow window of opportunity. Continental frameworks like the AMV and the AfCFTA provide the blueprint, guiding a shift from mere extraction to local beneficiation, regional value chains and the synergistic development of renewable energy. This is the path to converting mineral endowment into genuine, broad-based prosperity.

Ultimately, the future of Africa's minerals will be determined by its governance. Without proactive conflict-sensitive governance, Africa's critical minerals risk perpetuating violence and instability, undermining the very development and justice objectives the green transition seeks to achieve. A transformative outcome requires a human-centred approach that is both inclusive and accountable. This means mandating and enforcing community consent i.e., FPIC, robust ESG standards and gender justice to ensure mining benefits people rather than harming them. By embedding these justice-centred principles into industrial policy, Africa can ensure the green transition fuels a sustainable, inclusive industrial revolution, ending extractive dependency and building a resilient, self-determined economy.

4.2 Recommendations

This paper has highlighted the opportunities and challenges Africa faces in pursuing a just and inclusive energy transition, driven by CETMs extracted from the lands of its people. Achieving the ambition of a resource-based industrialization with a human face, however, will depend critically on the roles played by multiple stakeholders.

4.2.1 Responsibility of national governments

a. Strengthen governance, legal and institutional frameworks

Governments must ensure a transparent, accountable and development-oriented mining sector that advances peace, stability and community prosperity. This requires harmonizing mining, land and environmental laws across the sector; embedding FPIC and community participation in all decision-making processes; and establishing empowered National and Regional Minerals Administrations to coordinate reforms and prevent policy fragmentation.

b. Establish a harmonized regional mineral value chain strategy

Governments should pursue a coordinated regional strategy to unlock the continent's mineral potential while ensuring inclusive participation across all Resource Mineral Countries (RMCs). Recognizing differences in national development ('variable geometry'), this strategy should combine five interdependent and harmonized approaches to drive transformation in key areas: STEMS skills and RDI, local content, tariffs, Venture Capital Fund (VCF) and logistics compensation scheme. Governments should adopt and implement a Regional Mining Harmonization and Transformation Framework that aligns policies, standards and institutional capacities. The framework should:

- Coordinate policy and regulatory reforms, fostering coherent, transparent and predictable governance across regions.
- Strengthen geological and mining information systems to attract responsible and sustainable investment.
- Enhance human and institutional capacities to enable the free movement of skilled labour and technical expertise.
- Establish common safety, health and environmental standards grounded in international best practices.
- Institutionalize regional investment promotion platforms and prioritize infrastructure corridors that support mineral value chains.
- Foster research, innovation and value addition through regional centres of excellence.
- Integrate ASM into formal economies through targeted training, financing and access to technology.

Together, these harmonized mechanisms will create a coherent, competitive and socially just regional mining ecosystem – one that strengthens collective bargaining power, promotes sustainable industrialization and drives Africa's structural transformation through shared mineral wealth.

c. Maximize wealth creation and promote industrialization

African countries should integrate mining policy with industrialization, wealth creation and climate strategies to ensure that mineral resources drive a just, inclusive and sustainable energy transition. This requires moving beyond raw material exports through investment in value addition, beneficiation and regional processing industries that strengthen Africa's manufacturing base and retain value within the continent. Governments should develop strategic infrastructure corridors, including transport, energy, water, Artificial Intelligence and storage systems, to support regional value chains and remove logistical bottlenecks. Mineral revenues must be managed transparently through sovereign wealth and stabilization funds to finance health, education, renewable energy and industrial diversification. At the same time, countries should deepen trade and partnership frameworks under the AfCFTA to expand markets for processed minerals, while introducing transparent fiscal regimes and strong transfer pricing controls to curb illicit financial flows and enhance fiscal sovereignty.

d. Promote sustainability, circular economy and climate justice

African governments should adopt a sustainable and socially responsible continental mining framework that integrates circular economy principles, minimizes waste and supports low-carbon growth. This framework must enforce robust environmental and social impact assessments (ESIAs) with ongoing monitoring, public disclosure and community oversight, alongside strict ESG compliance covering safety, clean energy, water security, biodiversity and community welfare. The Framework should be supported by grievance-redress mechanisms and risk funds to mitigate environmental harm and social displacement, while embedding climate-smart mining and ecological restoration into national just transition strategies. Such measures will ensure that Africa's CETMs contribute to sustainable development without replicating historical patterns of extractive injustice.

e. Advance gender equality, inclusion and human development

Governments should promote inclusive, gender-responsive and youth-focused mining governance that ensures equitable participation and benefits for women, men and young people. This includes enforcing gender action plans and gender-responsive budgeting, conducting regular gender audits and guaranteeing women's involvement in decision-making, ownership and benefit-sharing. Support for ASM should be strengthened through formalization, access to finance and targeted training programs that foster sustainable livelihoods. In parallel, youth empowerment and skills development should be advanced by updating mining curricula, linking universities with industry, supporting community-based training and fostering university-industry partnerships to drive research, innovation and industrial skills aligned with Africa's green and just transition.

4.2.2 Responsibility of RECs and continental initiatives

RECs and continental initiatives (AU, AMDC and AfCFTA) should drive regional and continental harmonization of mining, industrial, trade and ESG policies to prevent regulatory fragmentation and a 'race to the bottom.' An African policy framework should promote local processing and manufacturing while integrating ESG, local content and human rights standards.

This must be supported by cross-border infrastructure and energy corridors that enable beneficiation and industrial clustering, alongside peer-learning, monitoring and accountability platforms to track reforms and share best practices. The AMDC should evolve into a continental mining institute, coordinating a network of centres of excellence in skills, technology, governance and research, to foster integrated, sustainable and knowledge-driven mineral development across Africa.

4.2.3 Responsibilities of the private sector

The private sector, particularly mining companies, must align corporate strategies with the African Policy Framework, ensuring full transparency across the value chain. This alignment should go beyond compliance to an active partnership with local communities through Community Mining Grievance Redress Mechanisms and Host Community Scorecards that track social and environmental performance. Mining houses must prioritize local suppliers, SMEs and employment opportunities for women and youth, embedding inclusion and shared prosperity at the core of their operations.

Furthermore, co-developing Community Development Agreements (CDAs) and Community Energy Transition Agreements (CETAs) can anchor value retention, processing and employment within host regions, transforming extractive zones into development corridors. Strategic partnerships with universities and centres of excellence are essential to build technical capacity, governance standards and accountability systems – driving mining practices that are socially inclusive, economically transformative and environmentally sustainable.

4.2.4 Responsibility of civil society

Civil society should strengthen community empowerment and social accountability in mining by establishing advocacy and legal support clinics to defend rights, support the negotiation of fair contracts and facilitate access to justice. This should be complemented by robust community oversight mechanisms, including mining observatories and participatory scorecards, alongside expanded rights education, leadership development and technical capacity-building for host communities. Alliances between CSOs, media and social movements should be reinforced to amplify voices, promote cross-border solidarity and champion social and environmental justice. This ensures equitable revenue distribution, ecological restoration and a people-centred just transition.

4.2.5 Responsibilities of international development partners

International partners should embrace and support accountability, fiscal transparency and equitable value sharing in the mining sector in Africa by supporting contract audits and renegotiations unfair contracts, strengthening tax systems and funding independent monitoring bodies. CETMs for the global clean energy transition must meet verifiable social and environmental justice standards, including FPIC and gender equity. A Global Extractives Justice Fund should be established to finance environmental restoration, health and livelihoods in mining-affected communities, while binding commitments at forums such as the G20, FOCAC and COP should ensure Africa benefits fairly from renewable energy development, industrialization and global mineral value chains.

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