

Exploring the Critical Minerals Landscape in Sub-Saharan Africa:

Insights for Development Policy and Practice • October 2025



Contents

2	Background
4	What are critical minerals and why are they in demand?
6	The geopolitics of critical minerals
8	Critical minerals in Sub-Saharan Africa
10	African Mining and the ‘Resource Curse’
12	Africa Responds to the ‘critical minerals rush’
14	The environmental impacts of critical minerals on Sub-Saharan Africa
16	The socio-economic impacts of critical minerals on Sub-Saharan Africa
20	Reimagining mineral development in Africa: The challenges
24	The limits of Extractivist logic
25	Quo Vadis the Just transition?
26	Reimagining mineral development in Africa – potential solutions
26	Global system change
28	A moral accounting - who will pay?
29	Democracy in Africa
32	What can be done?
32	Recommendations at international level
39	Conclusion
40	References

Glossary

AFCFTA	African Continental Free Trade Area
AGMS	Africa’s Green Minerals Strategy
AMSG	Africa Minerals Strategy Group
AMV	Africa Mining Vision
ARMSI	Africa Responsible Mineral Sourcing Initiative
ASM	Artisanal and Small-Scale Mining
AU	African Union
CETMS	Critical Energy Transition Minerals
CM	Critical Minerals
CSOS	Civil Society Organisations
DRC	Democratic Republic of the Congo
EITI	Extractive Industries Transparency Initiative
ESG	Environmental, Social and Governance (Frameworks)
ETMS	Energy Transition Minerals
FPIC	Free, Prior and Informed Consent
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GPAF	Greenpeace Africa
IEA	International Energy Agency
IFF	Illicit Financial Flows
IMF	International Monetary Fund
NGOS	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
SADC	Southern African Development Community
SSA	Sub-Saharan Africa
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
USD	United States Dollar
USGS	United States Geological Survey
WB	World Bank
GBA	Global Battery Alliance
AFDB	African Development Bank
ADF	African Development Fund
QERY	Human Development Index Data Tracker

Background

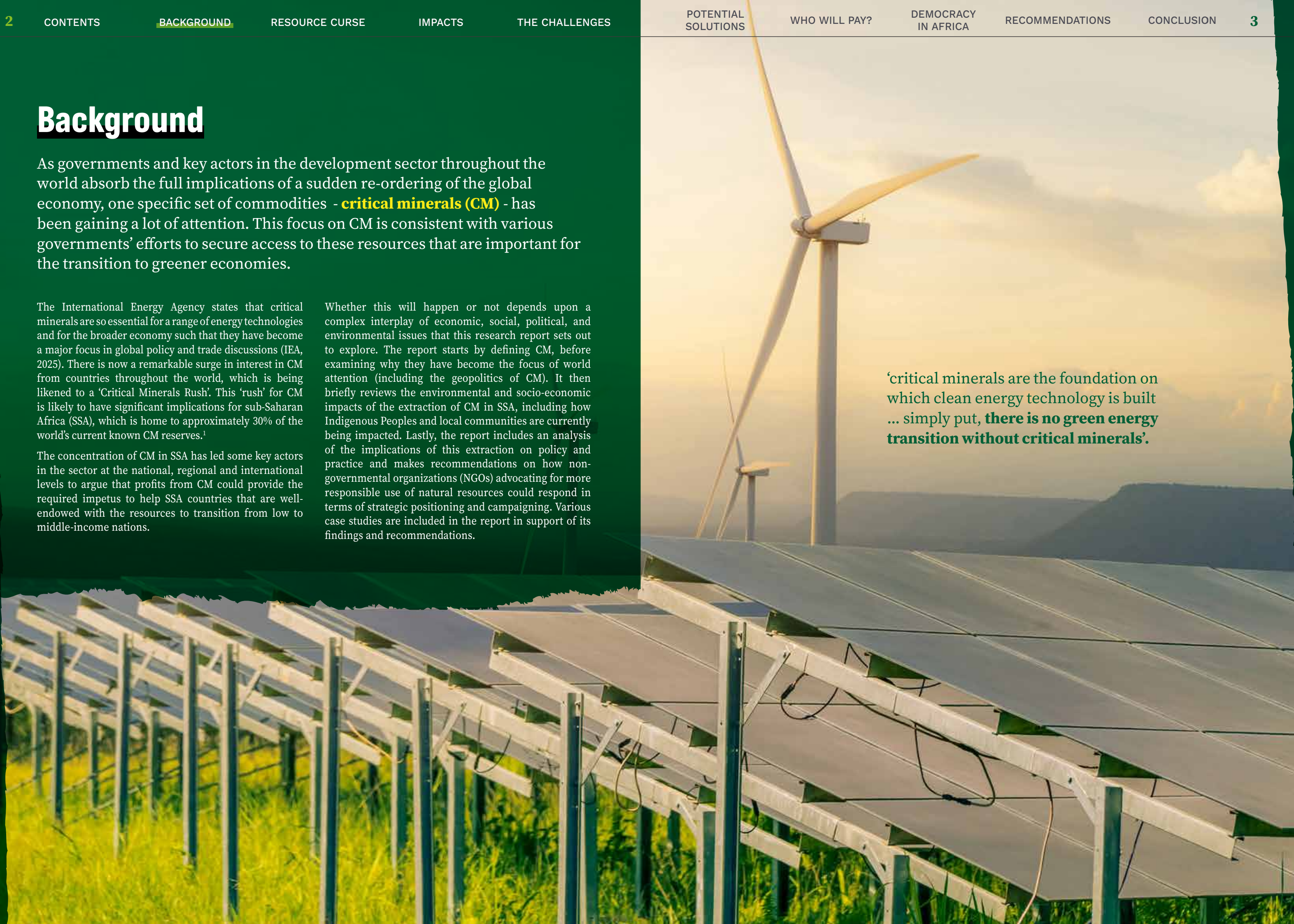
As governments and key actors in the development sector throughout the world absorb the full implications of a sudden re-ordering of the global economy, one specific set of commodities - **critical minerals (CM)** - has been gaining a lot of attention. This focus on CM is consistent with various governments' efforts to secure access to these resources that are important for the transition to greener economies.

The International Energy Agency states that critical minerals are so essential for a range of energy technologies and for the broader economy such that they have become a major focus in global policy and trade discussions (IEA, 2025). There is now a remarkable surge in interest in CM from countries throughout the world, which is being likened to a 'Critical Minerals Rush'. This 'rush' for CM is likely to have significant implications for sub-Saharan Africa (SSA), which is home to approximately 30% of the world's current known CM reserves.¹

The concentration of CM in SSA has led some key actors in the sector at the national, regional and international levels to argue that profits from CM could provide the required impetus to help SSA countries that are well-endowed with the resources to transition from low to middle-income nations.

Whether this will happen or not depends upon a complex interplay of economic, social, political, and environmental issues that this research report sets out to explore. The report starts by defining CM, before examining why they have become the focus of world attention (including the geopolitics of CM). It then briefly reviews the environmental and socio-economic impacts of the extraction of CM in SSA, including how Indigenous Peoples and local communities are currently being impacted. Lastly, the report includes an analysis of the implications of this extraction on policy and practice and makes recommendations on how non-governmental organizations (NGOs) advocating for more responsible use of natural resources could respond in terms of strategic positioning and campaigning. Various case studies are included in the report in support of its findings and recommendations.

'critical minerals are the foundation on which clean energy technology is built ... simply put, **there is no green energy transition without critical minerals**'.



What are critical minerals and why are they in demand?

While there is no fixed definition of CM (sometimes called critical materials, transition minerals or green minerals) because new technological developments can change which minerals are considered critical, they are often referred to as those minerals (between 30 and 50 different minerals) "that are considered critical for different reasons including 'economic and national security' but are also required to enable the world to transition from fossil fuels to renewable energy and avert the worst impacts of climate change."² As some analysts note, 'critical minerals are the foundation on which clean energy technology is built ... simply put, there is no green energy transition without critical minerals'.

Other terms often used include "energy transition minerals" (ETMs) or "critical energy transition minerals" (CETMs). Governments, industry and organisations such as the International Energy Agency tend to use "critical" or "strategic" minerals. In some cases, 'Critical Minerals' could imply that other resources (e.g., water) are not critical. The term also feeds a narrative that justifies trade-offs when there is opposition to "critical" development. In using the term, it is important to question who, exactly, minerals are 'critical' for and why. In this document, we use "critical minerals" in contexts that may extend beyond transition purposes.

If the world is to meet the Paris Agreement goal to limit the global temperature increase to 1.5°C above pre-industrial levels, some studies predict there will have to be a massive increase in the demand for CM, with global demand for copper and rare earth elements (also known as rare earth metals) potentially increasing by 40%, nickel and cobalt by at least 60%, and lithium by as much as 90% over the next 20 years. To match the Paris Agreements goals for 2040, these figures suggest the CM supply for renewable energy sources alone may need to quadruple, with at least \$800 billion needing to be invested in sources of CM.⁴

One of the reasons why studies project that demand could be so significant is because investments in renewable energy sources require components that are made from critical minerals.

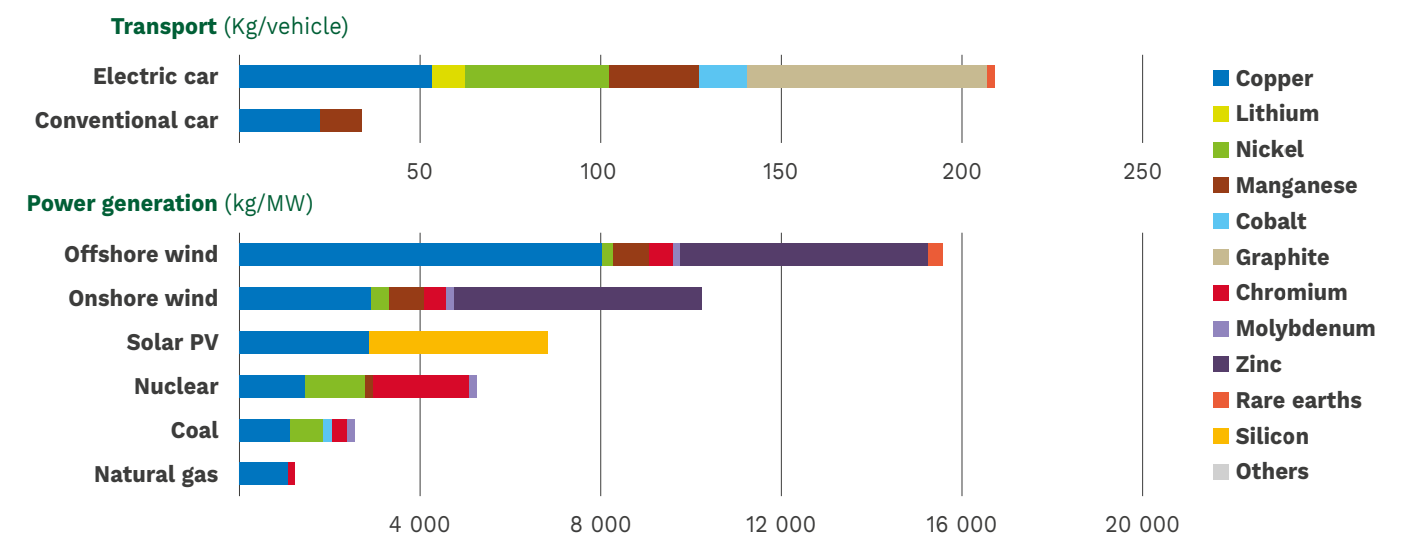
For example, since 2010, the average amount of minerals needed per unit of power generation capacity has grown by over 50% as the share of renewables in power generation has risen.⁵ It is estimated that by 2050, some 3 billion tonnes of minerals and metals could be needed for wind, solar and geothermal energy alone.⁶ Fortunately, the quantities of raw materials needed in a renewable energy system (minerals) are much smaller than in a fossil fuel-based energy system (gas, oil, and coal). And unlike fossil fuels, transition minerals can be reused and recycled repeatedly in a circular economy (Nijens et al., 2023). Sustainable energy transitions require enhanced resource governance (Watari et al., 2021).

The current state of technological development in renewables means that some CMs are more in demand than others. For instance, wind turbines require significant quantities of copper, zinc and rare earths; solar panels require copper, and silicon, while batteries require lithium, nickel, cobalt, graphite and manganese in significant quantities.

Thus, while many CM are in demand, several key minerals are essential to renewables. In addition, CM are required for all sorts of information and communication technologies (ICT), such as computers, mobile phones, and computer networks. What this means is that there was already considerable demand for CM before the rise of renewables, resulting in increasingly intense competition for them. Such is the need for CM in renewables, however, that by 2040 it will totally dominate the demand for key CM.

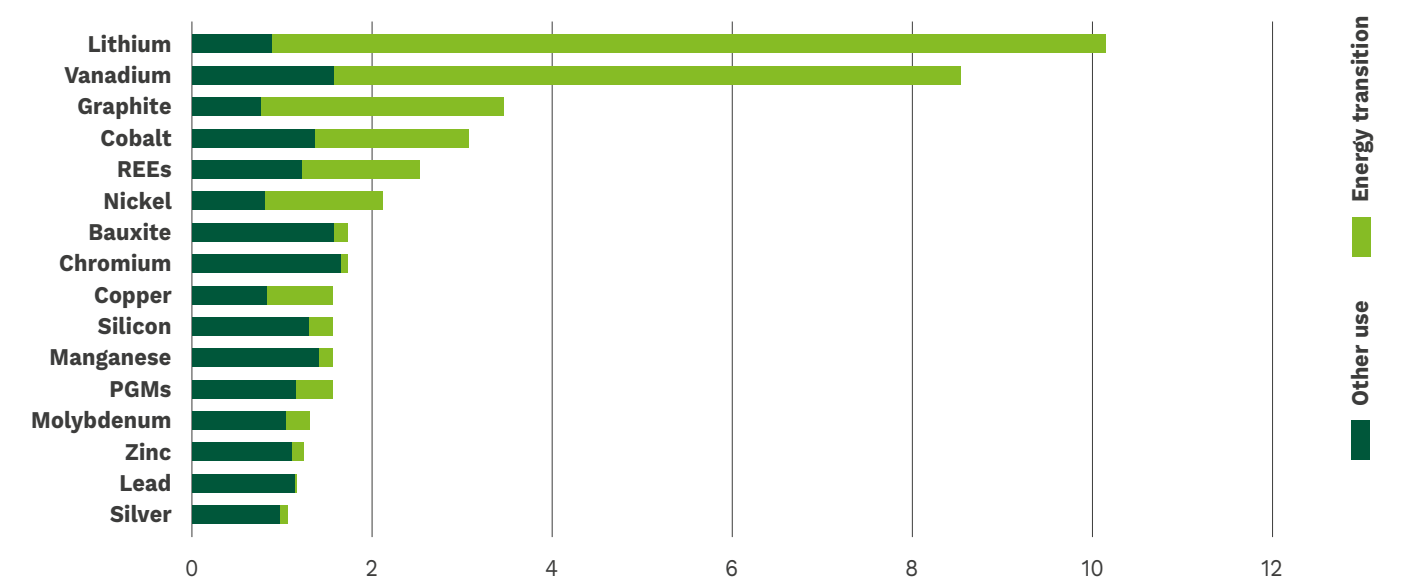
For example, to align with the Paris Agreement by 2040, **90% of lithium, 70% of cobalt, 60% of nickel, 45% of copper and 40% of rare earths** will be needed exclusively for the global energy transition.⁸

Figure 1: Minerals used in Selected Clean Energy Technologies.⁷
Minerals used in selected clean energy technologies



Critical Minerals and Arms - It should also be noted that it is not only renewables and ICT that require CM as many are also required by arms manufacturers. For example, in December 2024 NATO released a list of '12 defence-critical raw materials essential for the Allied defence industry'.⁹ **These CM are essential for aerospace, electronics, missiles/ weapons and armour plating among other things.** Thus, access to CM is a national security issue for many states.¹⁰ Therefore, it should not be assumed that the demand for CM is only associated with the moral imperative to respond to the climate crisis.¹¹

Figure 2: Predicted Increase in Global Demand for Key Critical Minerals.¹²
(Ratio of 2050 to 2022 demand under a net zero emissions scenario)



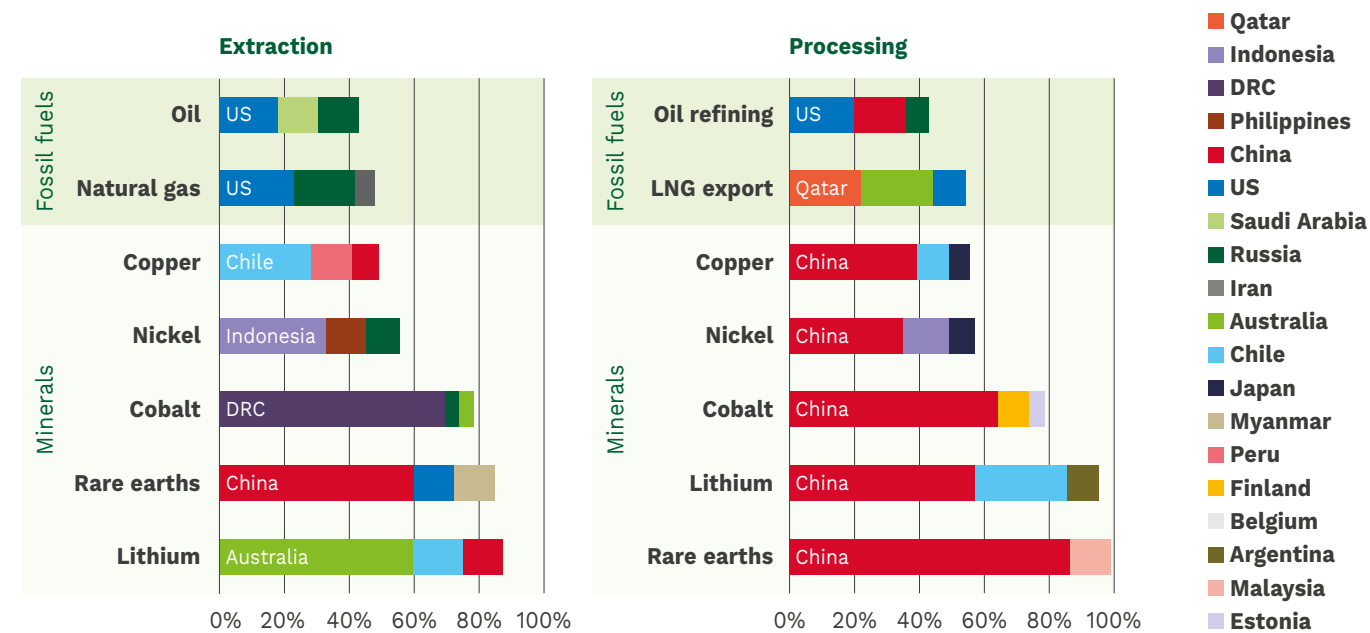
The predicted demand for CM explains why they have been labelled as 'critical'. In short, it is because they are 'essential for the functioning of modern technologies, economies, or national security' as well being the primary means by which the global economy decarbonises.¹³

The geopolitics of critical minerals

The demand for CM has created what some are calling another 'Great Game' by major world powers trying to secure reliable access to CM.¹⁴

Figure 3: Share of top three producing countries in production of selected minerals and fossil fuels, 2019.¹⁵

Share of top three producing countries in production of selected minerals and fossil fuels, 2019

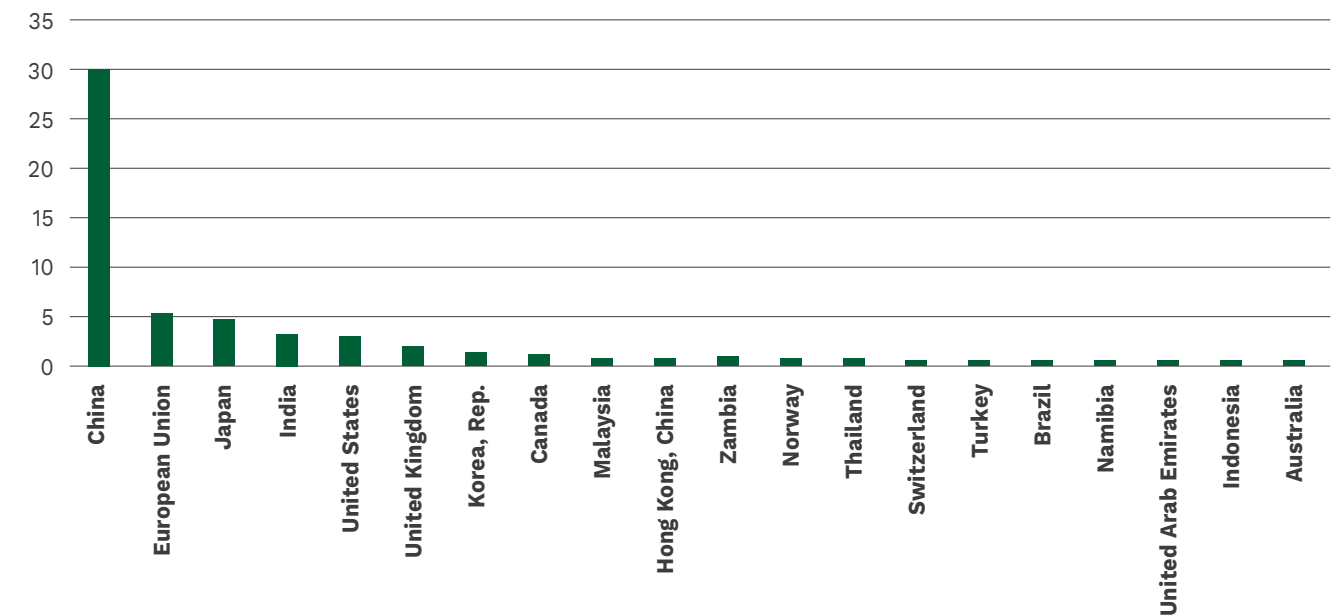


In terms of the extraction of CM, China's overall mining ownership footprint is comparable to other countries (for example, China presently only controls about 8% of mining output in Africa). However, it completely dominates the extraction of certain key CM – notably rare earths and cobalt. For example, the Democratic Republic of the Congo (DRC) produces roughly 70% of the world's cobalt from 19 mines, 15 of which are owned by Chinese interests.¹⁶ This means that while other countries, such as the US or those in the European Union, have been involved in the extraction of CM, the vast majority of extracted CM is currently being processed in mainland China which 'has become the global centre of smelting and refining'.¹⁷ As the necessity to transition has become more urgent, many countries have begun to try and diversify their supply chains of CM and CM processing to improve their global competitiveness and economic influence.

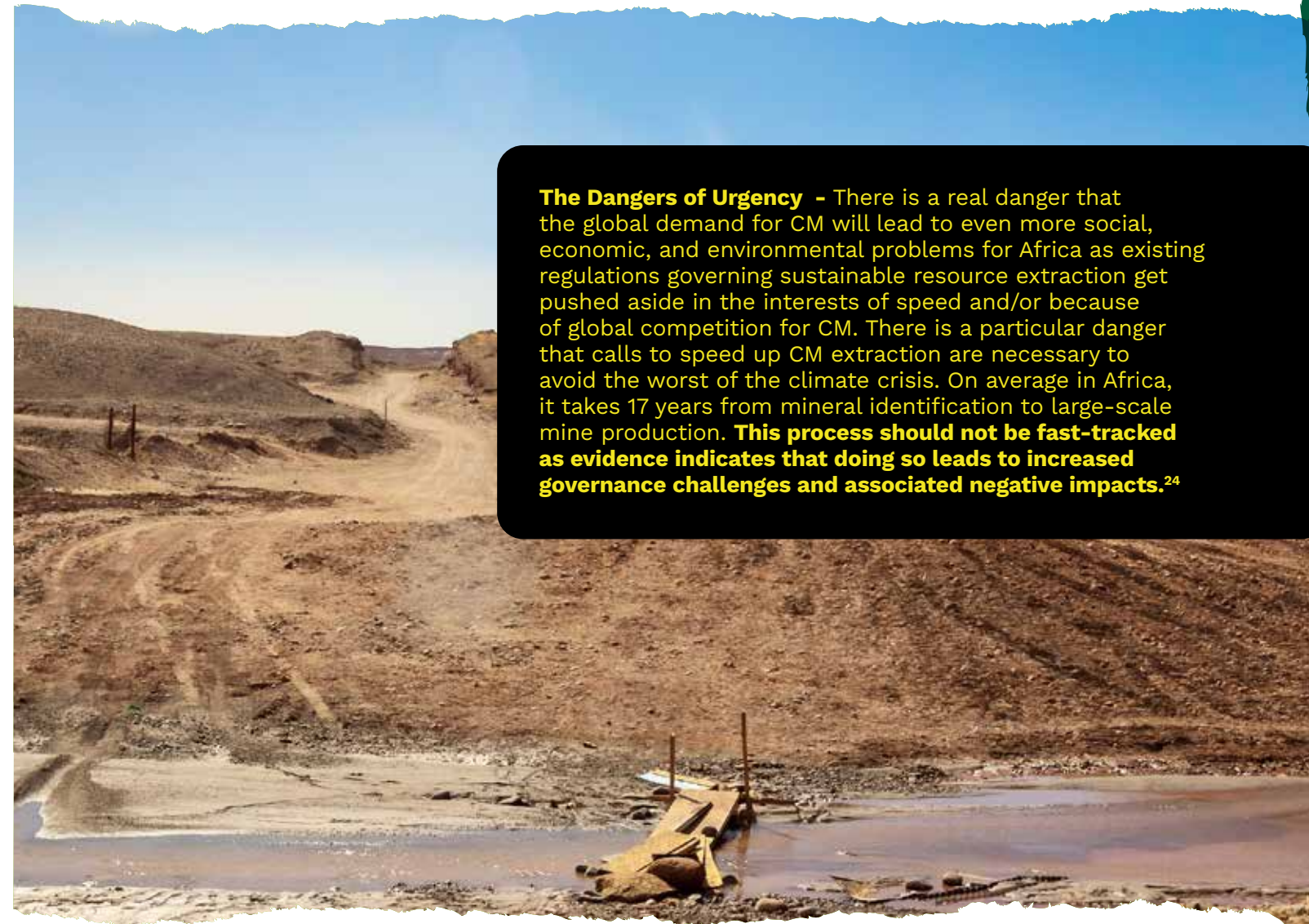
It is this 'criticality' that in 2022, led the US, the EU, Great Britain and eleven other Global North states to create a 'Minerals Security Partnership' to catalyse global investment in CM to diversify supply and processing.¹⁸ In the same year, the US government passed the Inflation Reduction Act, part of which is designed to increase uninhibited access to raw and processed CM.¹⁹ This was followed in 2023 by the passing of the Critical Raw Materials Act in the EU which sets out to diversify CM supply chains.²⁰ Similar legislation has been passed in other countries, such as South Korea (2021) and Japan (2023). In fact, between 2019 – 2023, 43 national CM strategies were adopted.²¹ Commentators argue that these developments signal 'a shift away from a narrow focus on securing raw materials to a broader geopolitical perspective on supply chains is already apparent, with the aim of reducing dependencies'.²²

Figure 4: Imports of energy transition minerals from Africa (US\$ bn), 2028.²³

Imports of transition minerals from Africa (US\$ bn), 2022



The Dangers of Urgency - There is a real danger that the global demand for CM will lead to even more social, economic, and environmental problems for Africa as existing regulations governing sustainable resource extraction get pushed aside in the interests of speed and/or because of global competition for CM. There is a particular danger that calls to speed up CM extraction are necessary to avoid the worst of the climate crisis. On average in Africa, it takes 17 years from mineral identification to large-scale mine production. **This process should not be fast-tracked as evidence indicates that doing so leads to increased governance challenges and associated negative impacts.**²⁴



Critical minerals in Sub-Saharan Africa

The pressure to diversify and secure CM supply chains has inevitably focussed the world’s attention on where critical minerals are located, and where they are processed. As has already been noted, 30% of known CM reserves are located in SSA countries which are blessed with an abundance of CM which are essential to most green transition technologies, as the table below illustrates.²⁵

Table 1. Minerals and global share in respective SSA countries.²⁶

Mineral	Clean energy technology	Share of global reserves in Africa	African countries with reserves
PGMs	Green hydrogen	92%	South Africa, Zimbabwe
Cobalt	EVs	56%	DRC, South Africa, Zambia, Madagascar
Manganese	EVs, wind	54%	Gabon, South Africa, Cot d'Ivoire, Ghana
Chromium	Geothermal, solar, wind	36%	South Africa
Bauxite	Wind, solar	24%	Guinea
Graphite	Ev's	22%	Madagascar, Mozambique, Tanzania
Zirconium (ores and concentrates)	Green Hydrogen	15%	South Africa, Senegal, Mozambique
Vanadium	Steel, batteries	13%	South Africa
Copper	EV,s wind, solar	6%	DRC, Zambia
Lithium	Batteries	4%	DRC, Zimbabwe, Mali
Nickel	EV's wind	4%	Madagascar, South Africa
Tellurium	Solar	3%	South Africa
Rare earths	Wind	1%	Tanzania, South Africa, Madagascar, Burundi

These known resources are likely to be only part of the region’s overall mineral wealth. While data on mineral wealth in SSA remains limited compared to the rest of the world, many countries in the region are thought to be rich in as yet unexploited CM. For example, Zimbabwe, the DRC and Mali are thought to be far richer in lithium than current estimates suggest.²⁷ At the most recent African Mining Indaba in Cape Town in 2024 it was stated that, ‘the African continent remains a treasure chest of green metals and minerals ... Africa’s vast unexplored mineral wealth makes the continent all the more critical in the race to secure the supplies needed to achieve decarbonisation and to meet the global demand for critical minerals’.²⁸

Given this abundance of CM, it is no surprise that much attention has been paid to CM in SSA. Evidence indicates that states keen to increase their influence in the region have engaged in various activities such as ‘friendshoring’ (the development and consolidation of economic relationships with trusted suppliers from friendly countries) strategic partnerships, and bilateral deal-making to secure access to CM.²⁹ For example, in 2022, Great Britain and South Africa ‘agreed to partner on minerals for future clean energy technologies’ whereby ‘both countries aim to deepen their minerals mining and energy collaborations’.³⁰ Since 2022, the ‘Minerals Security Partnership’ has established ‘friendly relationships’ with several SSA countries including Angola, Botswana, DRC, Mozambique, Namibia, South Africa, Tanzania, Uganda and Zambia.³¹

‘the African continent remains a treasure chest of green metals and minerals ... Africa’s vast unexplored mineral wealth makes the continent all the more critical in the race to secure the supplies needed to achieve decarbonisation and to meet the global demand for critical minerals’.



African Mining and the ‘Resource Curse’

The potential economic implications of this mineral rush on SSA are clearly significant. For example, the International Monetary Fund (IMF) has estimated that under a Net Zero Emissions by 2050 scenario the exploitation of CM could boost SSA GDP by over 12% by 2050, estimating that CM could inject \$2 trillion into the region over the next 25 years.³² Other research has indicated that Africa’s GDP could be boosted by \$24 billion a year. However, for this to happen, Africa needs to overcome what is known as the ‘resource curse’.

In general, African countries which have substantial mineral resources have failed to properly benefit from these resources. On the contrary, evidence indicates that African countries with an abundance of natural resources tend to have lower levels of inclusive economic development and growth than those without such resources. They also tend to have higher levels of inequality and poor governance.³⁴ **This phenomenon is known as the ‘resource curse’ or the ‘paradox of plenty’.**³⁵

The ‘resource curse’ occurs because of a number of complex and highly related issues. Firstly, resource rich countries generally fail to diversify their economies, prioritising the gains that come from extraction over more long-term inclusive economic planning. This leads to ‘enclave economies’ whereby an economy becomes dependent on resource-based exports which are extracted, exported, and sold to foreign entities (transnational corporations) largely in their interests alone. Income, therefore, is not based on diverse productive sectors but simply on rents extracted from the sale of basic resources.

Secondly, resource booms can increase the value of a country’s currency making exports expensive and imports more attractive, which slows economic growth and further works against economic diversification. Thirdly, wealth gained from resources tends to be redirected towards corrupt political elites rather than to the state, meaning that wealth is not reinvested, nor is it spent on essential public goods such as education or healthcare.

Corrupt political elites are able to redirect funds in this way because of weak political institutions and weak financial management regimes, the weakness of which is often deliberately fostered by political elites.

Political opposition is often ‘bought off’ via patronage networks created through the disbursement of redirected revenues. These issues are further complicated by volatility in resource prices which causes revenue streams to be unpredictable which encourages short-term planning.³⁶ Institutional weakness extends into sectors such as mining, where oversight of mining practices is largely ineffective resulting in serious social, economic and environmental problems in resource rich countries. These problems include, among other negative consequences: the loss of land and livelihoods by indigenous communities (dispossession); environmental health crisis; poor and dangerous working conditions (including child labour); the ongoing marginalisation of women; the pollution of water sources and agricultural lands, and the wholesale loss of biodiversity.

While the ‘resource curse’ is a common feature of resource rich countries in SSA it should not be assumed that all countries have been impacted by the phenomenon to the same degree. While some countries have exhibited all of the classic features of the phenomenon (such as the DRC) some, like Botswana and South Africa, have avoided its worst impacts. Why countries like Botswana have done so will be explored later in a Case Study in this report.



Case Study 1: The DRC and the ‘Resource Curse’

The DRC presents a classic example of the ‘resource curse’. Despite the country having an abundance of mineral resources, especially copper, zinc, gold and cobalt, and significant amounts of rich arable land, it is ranked 180th out of 193 countries by the Human Development Index.³⁷ In 2024, its GDP per capita was \$744, compared to \$6 500 for South Africa, \$10 800 for Brazil, and \$13 300 for China.³⁸ Educational outcomes are very poor, the provision of healthcare extremely limited, and both gender based violence and food insecurity are commonplace.

Governance is also extremely weak in many parts of the country, with ongoing conflict between the government and rebel forces devastating infrastructure in the east of the country. In terms of overall political governance, the country ranks 48th out of 54 countries ranked by the Mo Ibrahim Foundation, **while it ranks 48th out of 54 in Africa nations in terms of corruption.**³⁹ The government’s ability to raise taxes is limited and tax evasion is commonplace.

Its mining sector is characterised by extremely weak oversight from government which explains why the National Resource Governance Institute gave the DRC a score of 36 out of 100.⁴⁰ Resource governance failures have facilitated severe human rights abuses, including child labour, forced removals, the destruction of cultural heritage, and appalling working and living conditions for miners and those living around mines. Corruption and tax evasion are common in the sector, while the environmental damage caused by mining goes largely unchecked.⁴¹

This environmental damage includes air and water pollution (including acid mine drainage); regular spills of toxic materials; poor waste management; deforestation; biodiversity loss; severe soil erosion (which negatively impacts farming), and the failure to rehabilitate closed mines.⁴²

It is quite clear that revenues from the mining sector, which currently accounts for nearly half of all government revenue, have created economic and political distortions in the DRC which are typical of the ‘resource curse’ hypothesis.⁴³ It is within this fragile context that an estimated \$24 trillion worth of minerals still exist in the DRC, a number of which, especially copper and cobalt, are key CM.⁴⁴

While the DRC is a particularly bad example of an African country that endures the worst excesses of the ‘resource curse’ its developmental trajectory is not dissimilar to many African countries that are rich in mineral resources. If Africa is to reap the benefits of the CM boom it is obvious that the conditions which produce and re-produce the ‘resource curse’ have to be addressed both by African countries themselves and by the wider international community.



Africa Responds to the ‘critical minerals rush’

Africa’s holistic response to the boom in CM has been mediated by the African Union (AU) via its 2009 Africa Mining Vision (AMV) which envisages ‘a mining sector that has become a key component of a diversified, vibrant and globally competitive industrialising African economy’. The core message of the AMV is that African countries need to stop exporting raw materials and rather focus on moving up (mining capital goods and services) and down (mineral processing and manufacturing) mineral value chains to position mining at the centre of Continent-wide, broad-based economic growth. Thus, the vision promotes resource-based African industrialisation and development by building economic and political linkages between African countries and the rest of the world along mineral value chains.⁴⁵

In December 2024, the AU, in partnership with the African Development Bank and African Development Fund, published ‘Africa’s Green Minerals Strategy’ (AGMS) stating that its publication was a ‘defining moment in the continent’s journey toward sustainable industrialization, energy security, and inclusive growth and sustainable development’.⁴⁶ At its heart, the strategy calls for ‘Equitable Resource-based industrialisation’ in Africa via four key developments:

- **Advancing Mineral Development** by increasing geological knowledge, conducting feasibility studies to attract investment, building infrastructure for an enabling environment, establishing a Mineral Value Chain Investment Fund and aligning mineral resource management with the aspirations of the African Mining Vision.
- **Developing People and Technological Capability** by identifying skills and technologies needed to capitalise on green minerals opportunities and the building the institutions to develop the skills and to anchor the required research development and innovation.
- **Developing Mineral Value-Chains** to achieve equitable resource-based industrialisation through supply-chain development beneficiation and value addition and access wider regional and continental markets through the African Continental Free Trade Area (AfCFTA).
- **Mineral Stewardship** to responsibly guide the environmental, social and governance aspects of green minerals exploitation and utilisation together with material reuse and recycling.

Crucially, the vision expands the objectives of the AMV by calling for a massive deepening of inter-African cooperation and trade alongside the development of local mineral beneficiation and processing, and upstream and downstream developmental linkages. The strategy notes that mineral development alone is not enough, because Africa also needs to provide electricity to the 600 million people on the Continent that currently lack access. To enable this electrification, the strategy states that while many CM will still be exported, they should also be used domestically to enable the local manufacturing and construction of embedded generation renewable energy sources to complement existing energy sources. Overall, the strategy envisions ‘an Africa that harnesses green mineral value-chains for equitable resource-based industrialisation and electrification, creating green technologies and sustainable development to enhance the quality of life of its people’.⁴⁷

As the AGMS notes:

Recommendations made in the AGMS on mineral development, skilling people and enhancing technological capabilities as well as proper stewardship to protect people and the environment cover familiar ground because making the most out of mineral development needs resolute effort. **What is new are the opportunities flowing from the energy transition that foresees energising and industrialising Africa at a big picture level.**⁴⁸

Both the AMV and the AGMS provide a bold and optimistic vision of how Africa can benefit from the ‘Critical Minerals Rush’. It should be noted that the AGMS strategy is squarely located within the context of the African Continental Free Trade Area (AfCFTA) which entered into its first operational phase in 2021.

AfCFTA is designed to create a single market for goods and services, facilitate free movement of people and capital, and promote industrial development and economic integration on the Continent.

While little progress has been made to date, observers note that it took the EU 25 years to become a single economic market.⁴⁹

In 2024, the Africa Minerals Strategy Group (AMSG) was created by 17 founding African nations. Its primary objective is to ‘foster collaboration among member nations to collectively address the challenges and opportunities associated with critical minerals, including but not limited to sourcing, production, local beneficiation (value addition), supply chain security, technology innovation and common legal framework’. In early 2025, the AMSG launched the Africa Responsible Mineral Sourcing Initiative (ARMSI) which aims to promote ‘responsible sourcing of Africa’s minerals in a way that respects human rights, promotes environmental protection, and tackles critical issues such as forced labour, child labour, human trafficking, and slavery within the supply chain’.⁵¹ The AMSG has also launched a geological mapping initiative and an African minerals exchange.



The environmental impacts of critical minerals on Sub-Saharan Africa

The history of mining in Africa, and in SSA specifically, is essentially a history of environmental destruction. While this destruction varies in severity between different countries and different resources, there is an overwhelming amount of credible evidence that indicates beyond any doubt that mining has caused acute and long-lasting damage to the environments of resource rich countries in SSA.⁵²

Within the wider context of the rush to mine CM, there is a very real danger that environmental harms caused by mining are replicated and deepened. This danger is recognised by the AU’s AGMS which clearly articulates that for CM mining to be sustainable, ‘exemplary standards’ of environmental management must be in place at each and every mine.⁵³ These sentiments are shared by other global organisations. For example, the United Nations’s voluntary ‘Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice’ includes the principle that ‘the integrity of the planet, its environment and biodiversity must be safeguarded’, noting ‘we must redouble our efforts to safeguard the integrity of the environment and ensure the long-term health and resilience of people and the planet’.⁵⁴ The IEA concurs, going so far as to publish a separate guide for member countries titled, ‘Sustainable and Responsible Critical Mineral Supply Chains’.

This guide notes that critical mineral supply chains cannot be truly secure, reliable and resilient unless they are also sustainable and responsible ... The first and foremost reason to address the environmental, social and governance risks in the mineral supply chain is to protect people, communities and the environment.⁵⁵

Similar concerns are expressed by numerous other international institutions (such as the EU) which all agree that the extraction of CM throughout the world must be undertaken in an environmentally sustainable fashion.⁵⁶ Despite these assurances, there is to date very little evidence that CM are being extracted in SSA in ways which are environmentally sustainable. In fact, evidence would indicate that it is simply ‘business as usual’ as the following case study illustrates.

Falling Critical Mineral Ore Grades – Economic logic dictates that the best quality CM ore grades will be mined first. This means that as the energy transition progresses there may be increasing pressure to mine lower grade CM ores in Africa. The mining of lower grade CM can be problematic because experience shows that lower grade ores are more dangerous to extract, while their extraction uses more water and creates more environmental pollution. Another risk here is more tailings, which need to be safely stored with continuous oversight. These potential problems could be particularly acute in the DRC where cobalt grades are set to fall in the coming years, and in Zambia where copper grades are slowly falling.⁶⁴

Regulations need to ensure that the social and environmental costs associated with mining lower grade ores are avoided in Africa.

Case Study 2: The Environmental Impacts of Lithium Mining in Zimbabwe

In a few years, Zimbabwe has gone from producing negligible amounts of lithium, to being the world’s 6th largest producer, and 5th largest in terms of deposits. Zimbabwe is, in fact, leading the scramble for lithium in Africa with observers noting that ‘lithium fever’ has gripped the nation.⁵⁷

While large Chinese mining companies dominate the formal mining sector via mines such as the Arcadia mine outside Harare and the Bikita mine in the east of the country, many thousands of artisanal and small-scale miners (ASM) seek their fortunes by ‘illegally’ mining ‘white gold’ alongside formal mines, or in informal and abandoned mines.

The environmental impacts of this rush for lithium in Zimbabwe have been profound. For example, in 2023 the Bikita mine discharged an unknown substance into the nearby Matezva dam, which services irrigation schemes as well as providing water and food for local communities. Local people claim that the ecosystem in the dam has changed since the spill, noting that fish can no longer be caught for food. In addition, farmers using the dam water for irrigation claim that their crops now regularly fail. Concerns have also been raised about the unsustainable amount of water that the mine draws from the dam during its operations.⁵⁸

Other observers have argued that local community members were largely excluded from the Environmental Impact Assessment (EIA) process at Bikita mine. Local residents have also recorded cracks in their homes caused by blasting and excessive noise and dust pollution.⁵⁹

Other reported environmental problems associated with lithium mining in Zimbabwe include poor waste management, the unsanctioned clearing of land, the creation and abandonment of open pits, and water shortages, the latter having a particularly onerous impact on women.⁶⁰ In a perfect illustration of how weak mineral governance impacts African countries,

... it emerged in 2023 that two lithium mines in Zimbabwe were operating without EIAs. Authorities were only alerted to this fact after receiving complaints about environmental damage from local residents.⁶¹

Evidence from the lithium boom in Zimbabwe appears to indicate that very little has changed in terms of how the environment is being disrupted by mineral extraction.

The above case study from Zimbabwe is sadly indicative of how CM are currently being exploited in SSA. For example, research illustrates that dust, sulphur and chemical pollution from the Ambatovy Nickel Mine in Madagascar has resulted in health problems for local residents, while local water has been polluted. This is in addition to the 2000 hectares of rainforest cleared to make way for the mine.⁶² In Guinea, home to the world largest reserves of bauxite, mining of the mineral has led to land coverage changes, river pollution, water shortages, biodiversity loss and respiratory and cardiovascular illnesses among people living and working near the mines.⁶³ The examples above are also merely a few among many as there are literally hundreds of research reports and academic articles which detail the ongoing environmental damage caused by mining within all resource-rich SSA countries. **While the boom for CM is still at a relatively early stage, there is sadly little to suggest that ‘exemplary’ environmental standards are being applied to the extraction of CM.**

The socio-economic impacts impacts of critical minerals on Sub-Saharan Africa

Both the AMV and the AGMS stress the need for mining to be carried out in Africa in a ‘socially responsible’ way. The AGMS notes that ‘Africa’s people’ need to be protected from the negative social impacts of mining, stating that the policy ‘aims to achieve normative agreements between affected stakeholders and mines that can hold parties to the agreement to account for collectively upholding a “sustainable development licence to operate”’.⁶⁵

This is a clear recognition that land dispossessions, poor working conditions, and other associated problems that usually accompany mining in Africa at the local level must not continue.

As already noted, both the AMV and the AGMS stress that Africa needs to extract more economic benefit from its mineral resources through downstream and upstream value chains, and that government revenues sourced from resource extraction must be used efficiently and effectively to diversify African economies. As the AGMS states, ‘Africa must move beyond raw mineral exports and build strong, integrated value chains that foster local beneficiation, job creation, and economic diversification’.⁶⁶

These specific goals are repeated in Principles 1 and 4 of the United Nations’s voluntary ‘Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice’. Principle 1 states, ‘Human rights must be at the core of all mineral value chains, while 4 notes, ‘Development must be fostered through benefit sharing, value addition and economic diversification’.⁶⁷

As with commitments to environmental stewardship, the need to respect the rights of local communities and diversify African economies during the CM boom feature extensively in position papers on CM from other institutions such as the IEA, the IMF and the International Renewable Energy Agency (IRENA).⁶⁸ Therefore, at least at a policy level, there are strong commitments to protect the rights of people who live and work in mining areas. **However, in terms of the negative social impacts of CM mining, evidence to date suggests that these commitments are far from being met.**



Case Study 3: Dispossession in South Africa’s Platinum Belt

It is important to recognise that while some studies project that new mines will be needed for a swift energy transition that meets the demand for CM, hundreds of mines already exist throughout SSA that produce CM. As experts confirm, ‘minerals and metals being promoted as necessary to steer the world off an inevitable collision course with nature are primarily mainstream and already subject to large-scale extraction’.⁶⁹ If a new ‘sustainable development licence to operate’ is to be inculcated, then this also needs to be operationalised at pre-existing mines like those within the Platinum Belt in northern parts of South Africa which continue to be sites of dispossession and conflict.

Various communities throughout the Platinum Belt have been involved in a prolonged conflict with mine owners and government for at least 20 years over land dispossession which has led to the loss of traditional livelihoods and food and water sources without proper or meaningful compensation. In addition, there are ongoing and repeated accusations of corrupt collusion between mine owners, unaccountable local chiefs, and the government. Community members state that they are excluded from decision-making processes, their cultural heritage and spiritual beliefs are being ignored, while job opportunities at mines are few, are of poor quality and are often temporary. Research indicates that community members who have opposed this dispossession, have been subject to violence, including murder.⁷⁰ Unless these and similar ongoing struggles, not just new struggles at new mines, are also addressed there can be no ‘sustainable development licence to operate’.

There is an overwhelming amount of evidence that indicates that stories of dispossession (loss of livelihoods and inadequate compensation) and disregard for cultural heritage and traditional beliefs as articulated in Case Study 3 are occurring throughout SSA at mines where CM are being exploited.⁷¹

Experts note that this is because many CM are located in ‘geographies with such high levels of situated risk’. That is, they are already being mined or are located in areas where conflict over resource extraction already occurs or is highly likely to occur (see section below on fragile states).⁷²

In terms of economic outcomes, it is difficult to assess at this stage what dividends the CM boom will bring to SSA economies. The signs are not good, as there are already examples of elite capture of CM resource revenues, while illicit financial flows (IFFs) from the mining sector, including CM, continue unabated.⁷³ There is, therefore, a strong likelihood that without wholesale systemic changes, economies will continue to follow the pattern articulated in the ‘resource curse’ hypothesis. This is because the ability of SSA countries to diversify their economies and take advantage of CM supply chains and to transition their economies to renewable energy sources is extremely limited, because of a complex set of reasons which will be explored on the next page.



Case Study 4: Zambia's and Sub-Saharan Africa's Missing Millions

Zambia has significant deposits of copper, cobalt, lithium, nickel, and manganese. Whether it can properly benefit from these resources during the CM boom will depend in part on its ability to stem illicit financial flows (IFF) from its mining sector. IFF 'are illegal movements of money or capital from one country to another'.⁷⁴ In the mining sector, IFF commonly occur via transfer pricing (paying excessively for services provided by a subsidiary company in a tax-haven) and trade mis-invoicing (the deliberate falsification of the value, volume, and/or type of commodity in an international transaction) to avoid paying taxes and duties.

The United Nations Commission on Africa estimates that Zambia loses at least 10% of its annual GDP to tax avoidance practises. It is estimated that in 2017 **multinational mining companies avoided paying approximately \$3 billion in taxes in Zambia via IFF.**⁷⁵

Shocking as these figures are, they are relatively small compared to South Africa and Nigeria, where research shows that in 2015 South Africa lost over \$10 billion in revenue from IFF, while Nigeria is estimated to lose upwards of \$17 billion every year.⁷⁶ The African Union's 'African Minerals Development Centre' notes that, 'Illicit financial flows from the mineral sector are increasingly widespread and complex'.⁷⁷

Overall, it has been calculated that \$1.3 trillion has left SSA since 1980 in the form of IFF, of which an estimated 60% comes from the resources sector.⁷⁸ Research has shown that these IFF directly erode the tax bases of SSA countries, a reality which 'continues to haunt and constrain the SSA economic regions from pursuing various development agendas'.⁷⁹

As analysts note, the extraction of CM for the energy transition is **'effectively implicated in toxic pollution, biodiversity loss, exacerbation of gender inequality, exploitation of child labour, and the subjugation of ethnic minorities'**.⁸⁰

This finding is confirmed by other researchers who note that, 'the rush for Africa's critical minerals is producing significant socio-ecological impacts, including driving loss of rich biodiversity, displacement of communities and breeding new forms of illegalities in the resource sector'.⁸¹

The Issue of Artisanal and Small-Scale Mining (ASM) and CM - ASM refers to small scale miners who generally work informally in mining areas. Because it is largely informal, and is often considered illegal in some African countries, it also tends to be precarious work that poses significant health, safety, and environmental challenges. In addition, many ASM miners tend to be price takers because they lack organised bargaining power, meaning that wages are very low.⁸² Lastly, ASM can also lead to conflict as clashes take place between traditional licensed large-scale mining operations and ASM over access to minerals.⁸³

While statistics on the actual number of ASM miners in SSA are hard to find, it is estimated that in the DRC alone there are between 200 000 – 250 000 ASM miners who are responsible for mining as much as 25% of the DRC's cobalt.⁸⁴ As many as 300 000 people are said to work directly as ASM in Guinea.⁸⁵

While attempts are being made throughout the region to formalise ASM, much more needs to be done to streamline processes to enable ASM miners to mine 'legally'. This means that less onerous restrictions and permitting processes need to be developed for ASM, training needs to be provided, and specific mineral allocations made. These developments need to take place as soon as possible, as increases in the price of CM can lead to rapid increases in ASM activity.⁸⁶



Reimagining mineral development in Africa: The challenges

While the AU, individual African countries, and global role-players like the United Nations may wish for the CM boom to be the game-changer that Africa needs to diversify its respective economies and break free from debt and poverty, this will only happen if major structural changes take place in the global economy, in the global political landscapes, and in how extractive industries operate.

The first observation to make when considering the challenges that Africa faces in terms of meaningfully developing its CM is that they are not new challenges, they are the very same ones that Africa has faced for decades, and yet they remain.⁸⁷

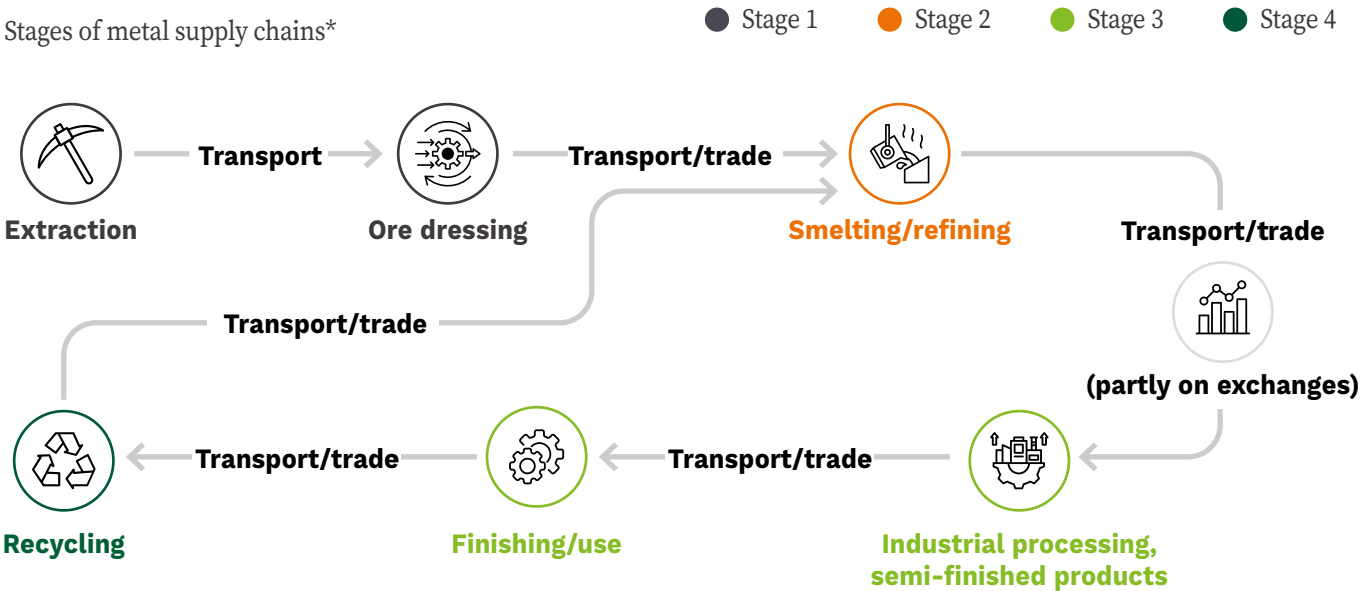
That certain minerals are now considered ‘critical’ does not change the nature of these pre-existing challenges which is precisely why some commentators are now referring to the ‘green resource curse’.⁸⁸ One research report states that for Africa ‘to seize the opportunity and fully capitalise on the surge in demand for critical minerals’ it needs to ‘overcome several obstacles including lack of infrastructure, limited domestic resource mobilisation, and relatively low skills and poor institutions’.⁸⁹ This comment is typical of numerous similar ones that appear in various research reports that explore the issue of CM in Africa. It is worth briefly unpacking this comment to fully understand its true meaning in terms of Africa’s potential response to CM.

Lack of Infrastructure – Africa has a chronic and debilitating lack of critical foundational infrastructure which is largely a legacy of colonial ‘maldevelopment’.⁹⁰ Colonial regimes were entirely disinterested in trade within African countries or between African countries as the priority was to extract and export materials. This means that Africa, and especially SSA, lacks the transport infrastructure (railways, roads, ports, airports, etc.) to enable intra-African trade which is necessary to move beyond the export of materials and facilitate industrial development. This lack of transport infrastructure results in uneconomic transport and logistics costs, seriously hindering the ability of African countries and companies to either trade with each other (intra-African trade makes up only 14% of all African trade) or compete globally.⁹¹

Only 2% of CM sourced in Africa are destined for African countries.⁹²

Secondly, Africa experiences severe energy shortages meaning that the Continent’s ability to process CM is limited. While mining consumes relatively little energy, processing CM is highly energy intensive which is why ‘most of the world’s largest mineral refineries are in places with abundant and low-cost energy’.

Figure 5: The Supply Chain of Minerals/Metals⁹³



Because of this lack of infrastructure, most African CM leave the Continent at Stage 1 (see Figure 5) of their respective supply chains. **For example, to enable Guinea to move along the value chain and process bauxite into aluminium, domestic electricity generation would need to increase by a factor of ten, and this would still leave the majority of citizens without access to electricity.**⁹⁴ There is, of course, no incentive for foreign countries or companies to process CM in Africa when profits can be derived from processing them in home countries for export back to Africa and elsewhere.

Fossil Fuels and CM in Africa – Increased demand for energy to extract and process CM could lead to accelerated fossil fuel use on the Continent. For example, Ghana has made it clear that it intends using natural gas to power its proposed bauxite-to-aluminium industry.⁹⁵ There is a clear danger here that African countries may turn to more readily accessible fossil fuel sources such as natural gas to provide energy for CM processing, and in doing so bypass the opportunity to provide the necessary energy from renewables. Hopefully the irony of this potential development will not be lost on African leaders. .

Relatively Low Skills – Skills shortages, also partly a legacy of colonialism and IMF policies in the 1980s, severely weaken Africa’s ability to take advantage of its CM and use them as a springboard for ‘resource-based industrialisation’. These skills shortages are prevalent throughout the mining sector. For example, there is a pressing need for more geological and geoscience data at the state level to enable African countries to take full advantage of their mineral riches; there is a chronic

shortage of skilled negotiators necessary to manage mining contracts with transnational mining corporations; there is a lack of environmental monitoring to inform EIA’s and monitor environmental compliance; there are too few financial and accounting experts to address issues such as tax evasion; mining research and development skills are limited, while African citizens often lack the skills to occupy skilled jobs in the mining sector.⁹⁶



Critical Minerals and Jobs in Africa – Given the relatively recent emergence of the rush for CM there is little research looking at the number of jobs that could be created in Africa from CM specifically. That said, one report estimates that 2.3 million new jobs could be created as a direct result of CM.⁹⁷ The IEA estimates that 400 000 people work in the CM sector in Africa (790 000 globally), noting that global employment in CM grew by 7% in 2023. The IEA indicates that to meet Net Zero by 2050 the growth of employment in the sector will have to average 7% every year by 2030, to reach 1.3 million jobs, with 52% of this growth being in Africa. This implies an additional 265 000 jobs in CM will need to be created in Africa by 2030 to begin meeting Net Zero by 2050.⁹⁸

While this increase is to be welcomed, the key question is whether current employment patterns in mining will be replicated. How many of these workers will be informal and ‘lack adequate safety training and equipment, endure substandard working conditions and receive low salaries’?⁹⁹ Thus, it is not just about quantity, because the quality of jobs matters.

As analysts argue, one of the ‘key characteristics’ of resource extraction in Africa ‘is the over-exploitation of labour in extractive economies by resource-extracting companies from industrialised countries, seeking to maximise their profits’.¹⁰⁰

If Africa is to process raw materials, questions also need to be asked about the impact of this processing on the quality of employment. Evidence from various countries indicates labour rights abuses in mineral processing as well as extensive environmental harms imposed on workers and local communities.^{101,102,103}

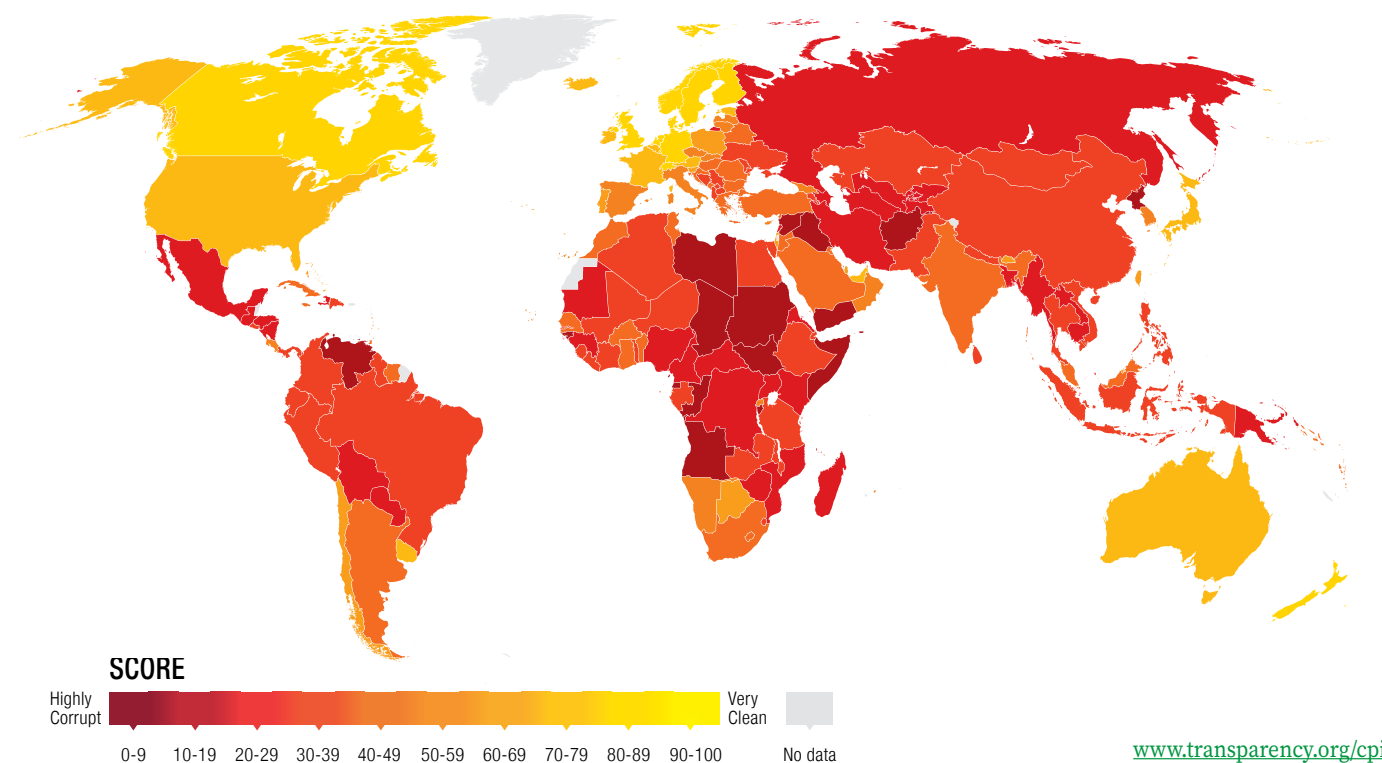
Jobs in the CM mining sector are also increasingly under threat from technology. For example, new nickel mines in Zambia are being highly mechanised, while digital technologies such as artificial intelligence (AI) threatens jobs in the mining sector.¹⁰⁴ It has been estimated that as much as 23% of mining jobs may be under threat from automation via AI (e.g. autonomous machinery).¹⁰⁵ Clearly, the rush for CM must do more than just replicate pre-existing poor working conditions.

Poor institutions – Due to skills shortages and political interference (often to hide corruption) the institutions needed to spur ‘resource-based industrialisation’ are often weak. Government fiscal, environmental, and social support institutions are often poorly staffed, under-resourced and subsequently unable to undertake their respective mandates. This is a classic symptom of the ‘resource curse’. This dysfunction leads to policy incoherence, a lack of transparency and poor regulatory controls – factors which often inhibit investment.¹⁰⁶

Several SSA countries that have CM are considered to be ‘fragile states’. The African Development Bank defines fragile states as ‘countries or situations with unique development challenges that have resulted from fragility and conflict including weak institutional capacities and poor governance, economic and geographic isolation, economic disruption, social disruption and insecurity’.¹⁰⁸ The fragility of some states, such as the DRC, already leads to conflicts over CM.¹⁰⁹

Evidence illustrates that even where good policies and institutions exist, **political will is often a limiting factor in institutional effectiveness and compliance in the mining sector in Africa.**¹⁰⁷

Figure 6: Fragility and corruption indicators.¹¹⁵



Limited domestic resource mobilisation – To observe that Africa has limited domestic resource mobilisation is to point out one of the consequences of an entire global system of trade and finance that works against Africa’s interests in terms of how it may be able to use its CM to facilitate ‘resource-based industrialisation’. Part of the reality of the ‘resource curse’ is that African countries are locked into a system whereby they are rewarded, at least temporarily and for the few, into a system that perpetuates the outflow of raw materials from Africa, and the associated importation of processed and manufactured materials back into Africa.

To break this cycle will need a reimagining of the global trade economy and the historically unequal terms of trade (often the result of tariffs as much as structural inequalities) that Africa faces. However, these unequal terms of trade are routinely perpetuated and deepened by undemocratic institutions such as the World Trade Organisation, the IMF, the General Agreement on Tariffs and Trade (GATT), the World Bank, and through instruments such as the Investor-State Dispute Settlements (ISDS) which ‘carry significant risks to policy space and policy tools necessary for industrialization and development’ in Africa.¹¹⁰

If Africa is to break free of the ‘resource curse’, it also very obviously needs access to capital to enable it to undo the legacies of colonialism which continue to shape its economies today.

However, Africa’s access to domestic capital is incredibly limited (another example of the vicious circle of the ‘resource curse’). This makes it reliant on capital raised internationally which is denominated in ‘hard’ currencies which make repayments difficult, especially when economies are reliant on the vagaries of international prices for primary commodities.

Even when capital is promised to Africa from countries of the Global North to invest in critical infrastructure, it predominantly appears in the form of loans, not grants. For example, less than 3% of R154 billion (2022 prices) allocated by various nations to South Africa to assist in the construction of transition infrastructure in 2022 was in the form of grants, with 97% being loans.¹¹¹ Similarly, of \$83 billion of climate finance provided in 2020 by Global North countries in terms of the Paris Agreement, less than 25% was in the form of grants, with the rest being loans.¹¹²

These difficulties need to be understood within the wider context of sovereign debt in Africa and in SSA in particular. SSA countries find it incredibly difficult to affordably raise capital because they are already heavily indebted, some of which in the form of ‘odious debt’. Such is the magnitude of this debt, that it is a form of neo-colonialism because it forces African countries to seek export earnings from unprocessed raw materials thus deepening already existing structural economic weaknesses (yet again, a manifestation of the ‘resource curse’).¹¹³

The limits of Extractivist logic

It is clear that despite changes to some aspects of the global economy, the concepts of 'dependency theory', 'unequal exchange' and 'core and periphery' developed by political economy theorists in the 1960s and 1970s are still highly relevant to Africa's current predicament, as a recent surge in interest in these concepts illustrates. What this means is that extractivism, 'the political-economic structure whereby African countries, which are primarily situated

at the periphery of the world economy are (re)moulded into providers of raw or minimally processed resources for industries in the core capitalist countries' remains the defining characteristic of the global mineral resources sector when it comes to Africa.¹¹⁵ In fact, it can be argued that they are especially relevant to SSA given its reliance on raw material exports and because 60% of the world's poorest people live in the region.¹¹⁶

Despite the development of regional blocks like BRICS and the growth of some Global South economies such as China's and India's, the basic structure of the global economy remains the same. As analysts note:

newly emerging economies are often thought to be more significant than they are ... changes in the relative positions of different countries on the economic and geopolitical ladder do not mean that the basic imperialistic tendencies that drive the global system have disappeared – indeed, they may even become more intense as the struggle for economic territory becomes more competitive.¹¹⁷

Economists note that one significant change that has taken place since the development of these theories is the emergence of global value chains (GVC) due to the growth and spread of multinational corporations. Global value chains which 'reproduce relationships of dependence' and have deepened the exploitation of labour as nations from the Global South feed raw materials into them.¹¹⁸ As analysts argue, 'appropriation occurs through global commodity chains, wherein Northern firms deploy monopsony and monopoly power to depress Southern suppliers' prices at every node, from extraction to manufacture'.¹¹⁹

It is worth briefly considering the scale of this appropriation. Recent research has estimated that in 2015, some \$10.8 trillion (in 2010 prices) in embodied resources (12 billion tons of embodied raw material equivalents, 822 million hectares of embodied land, 21 hexajoules of embodied energy, and 188 million person-years of embodied labour) drained from the Global South to the Global North.

Between 1995 – 2015, some \$242 trillion was drained from the Global South. These figures compare to estimates of resources flowing North during the colonial era, indicating how little has really changed.

This research concludes:

These results demonstrate that the general pattern of appropriation that characterized the colonial period has been maintained and indeed expanded into the postcolonial era through the mechanism of unequal exchange, despite significant changes in the structure of the world economy.¹²⁰

It is within this unequal structural context that Africa is hoping to break its dependence on the export of raw materials and diversify and industrialise its economies. However, the reality is that African countries are integrated into a global economy on entirely unequal and unjust terms.

Quo Vadis the Just transition?

Despite the emergence of the concept of the Just Transition and much rhetoric around its application to the Global South in recent years, the reality is that 'the ongoing energy transition is premised upon Extractivist logic, linked to neo-colonial patterns of uneven development and the creation of sacrifice zones of mineral extraction in the Global South'.¹²¹ Scholars have coined the term 'decarbonisation by dispossession' to describe a process whereby the energy transition that is currently taking place is reinforcing and deepening the pre-existing colonial character of resource extraction, especially in regard to CM. They argue, 'a capital-driven shift to low-carbon technologies, primarily in the North, is organically linked with the production of sacrifice zones of extraction and dispossession, concentrated in the South'. As such, the transition reinforces these relations and arrangements rather than challenging them.¹²²

As others note, the rush for CM is 'interacting with already-existing inequalities and vulnerabilities that are structured by age, class, gender, patterns of globalisation and geography ... that perpetuate neocolonialism dependence, economic inequality, and degradation of the environment'.¹²³ That this is happening is, in a sense, entirely predictable because the transition is happening in an 'unequal world system that is structured by existing inequalities ... powerlessness and peripheralization'.¹²⁴

The Decarbonisation Divide –
The decarbonisation divide already exists in the recycling sector. Every year thousands of tonnes of e-waste from the Global North finds its way to Africa (particularly Ghana) where small quantities of copper and other metals are recovered by 'waste pickers'. In doing so 'waste pickers' regularly expose themselves to mercury, lead, cadmium, flame retardants, asbestos, refractory ceramic fibres, and radioactive substances.¹²⁵

The problem for Africa when faced with the increased demand for its CM is that the current logic of the transition 'leaves dominant power relations and political and economic arrangements intact'.¹²⁶ This failure to unravel relationships of political and economic power is the critical issue because it means that the dominant narratives around the concept of a Just Transition are largely technocratic, with 'most just transition plans and programmes failing to account for the broader set of injustices and inequalities inherent in resource extraction'.

Put simply, they fail to take into account the political and structural impediments that prevent the realisation of a meaningful Just Transition in the Global South. Thus, 'advocacy around the 'just transition' does little to challenge the consolidation of profits enjoyed by North America, Europe and China. As such, it does little to challenge inter-country inequalities'.¹²⁷

Despite supplying critical mineral resources for the new energy transition, Africa has currently captured only a small share of the value generated downstream of the supply chain from these phases. For example, in 2023 the price of raw bauxite was \$65 per tonne, whereas the price of aluminium in 2023 was \$2335 per tonne.¹²⁸ This price differential excludes the actual end of the value chain – the finished manufactured product. For example, even when lithium, nickel and cobalt are processed and sold, these sales still only represent 1.1% of the total electric vehicle value chain.¹²⁹ As experts note, a genuinely Just Transition cannot happen 'without radically reimagining how resource extraction is conducted or without confronting the internal contradictions of extractive capitalism'.¹³⁰



Reimagining mineral development in Africa – potential solutions

The AU and African leaders are fully aware of all the problems briefly alluded to above meaning that they feature strongly in the AMV, the AfCFTA, and the AGMS.¹³¹ The magnitude of these historically entrenched systemic problems, considered within the context of the climate crisis, means that now is not the time to shy

away from the daunting reality of the scale of the changes that are necessary to enable Africa to truly benefit from its abundant CM resources. It is in this spirit of honest and open reflection that the following sections outline exactly what steps need to be taken to enable Africa to meaningfully benefit from the CM boom.

Global system change

A wholesale transformation of the global economy with justice as its guiding principle is the only way to ensure that Africa is to reap meaningful, transformative, and long-lasting changes from its CM. This reality is acknowledged by the UN Secretary-General's Panel on Critical Energy Transition Minerals which states that, 'resourcing the energy transition requires a new paradigm rooted in equity and justice' observing that 'the race to net zero cannot trample over the poor'. To this end, the Panel refers to numerous principles which must guide the energy transition. Among other things, it notes that:

- (i) Existing global trade rules that 'hinder structural transformation' need to be reformed to ensure that trade is 'rules-based and non-discriminatory'.
- (ii) All countries are entitled to affordable access to renewable energy, noting that 'a new paradigm of responsibility' needs to inform global decision-making around the transition.
- (iii) All countries, in particular developing countries, 'should have an equitable opportunity to harness technological innovation, participate in global mineral value chains and to benefit from these'.
- (iv) Multilateral cooperation should 'support value addition and fair trade through technology transfer, infrastructure provision, regional coordination, access to finance, scientific research and development, as well as skills and knowledge transfer via education, training and capacity building'.

- (v) There should be 'responsible investment and fair trade'. To this end, 'investors banks, insurers, commodity and stock exchanges development banks, governments and businesses should provide access to finance on inclusive and affordable terms'.
- (vi) 'Indigenous Peoples, who are custodians and owners of mineral resource-rich lands ... must have their individual and collective rights upheld and their knowledge and contributions recognized' in terms of the principles of Free, Prior and Informed Consent (FPIC).

The Panel on Critical Energy Transition Minerals, somewhat hesitantly, states that these principles are 'ambitious', when in effect they call for both a fundamental realignment of global trade and finance regimes, and on the centring of the rights of Indigenous Peoples in debates about resource extraction. In both senses, therefore, they represent a radical departure from how mineral resources have been extracted in the past.

These sentiments are shared by African experts in two major reports which explore the Continent's CM and the transition to a low-carbon future. The first report, **'African Perspectives of a Just Transition to Low-Carbon Economies'** notes that **'a new global compact is required to address challenges and present opportunities for shared prosperity in the transition'**. In particular, it argues that trade and investment rules need to be reformed so that 'iniquitous, asymmetric, imbalanced and unfair rules' are amended 'to address the concerns of the African economies' and ensure 'equitable flows of finance for a Just Transition in Africa'.¹³²

'resourcing the energy transition requires a new paradigm rooted in equity and justice' observing that 'the race to net zero cannot trample over the poor'.

The second report, 'Just Transition: A Climate, Energy and Development Vision for Africa' makes similarly bold statements. Drawing attention to 'structural dependencies and value-chain lock-ins that [have] long outlasted formal independence', it argues that 'imbalanced and unfair international rules on trade, investment and technology transfer' need to be reformed within the wider context of the wholesale reform of the 'international financial architecture'. It continues by contending that there needs to be a:

far-reaching change to the way societies and the capitalist, economic system functions today. It necessarily calls for deep, structural transformation, where whole systems of economics, governance, production, social services, foreign relations and, not least energy, are re-shaped. While this may appear far-reaching, it is less radical than believing that business-as-usual presents a viable option.

To this end, it notes that the entire narrative of the Just Transition needs a 'new social contract' whereby the transition moves beyond simply providing the raw materials for the Global North's energy transition.¹³³ It is patently obvious that very little will change in the minerals sector or in Africa's developmental trajectory, unless there are major systemic changes in global politics and economics. What is needed, therefore, is nothing short of a revolution which centres equity and justice at the heart of all decision-making. It is, therefore, very helpful to view the debate about CM and Africa through the lens of 'system change not climate change'.



A moral accounting - who will pay?

While it is well beyond the scope of this research report to speculate on the kinds of intensely political actions that need to occur at local, national and international levels in both the public and private spheres to bring about these revolutionary, systemic changes, one question that can be addressed relates to how to finance these changes. If justice is indeed to be realised, then for several reasons it is the Global North that needs to foot the financial and technical bill to transition Africa’s economies and societies. There is little doubt that the Global North has a vast debt to the Global South, and the SSA in particular. This debt comes from:

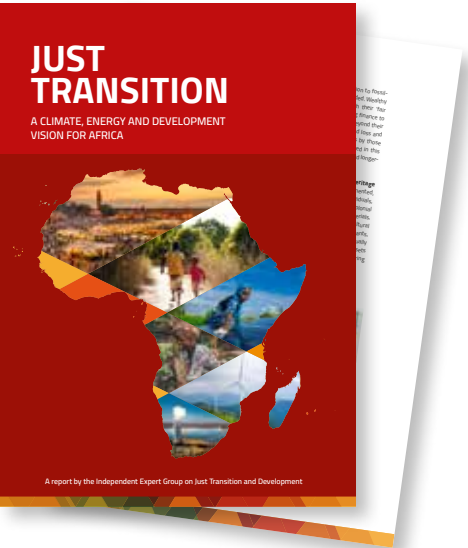
Reparations for slavery and colonialism - There is a growing global movement for reparations to be paid to African countries from countries which were involved in the slave trade during the 18th and 19th centuries, and in colonialism more generally.¹³⁴ The AU’s theme for 2025 is ‘Justice for Africans and People of African Descent Through Reparations’ which aims to create a common African position on reparations. Estimates of the financial cost of the Atlantic slave trade alone range from \$100 - \$ 135 trillion, while the combined costs of slavery and colonialism has been estimated at \$777 trillion.¹³⁵

While there are varied proposals on the form of reparations, the AU notes that ‘proposals often include compensatory payments to African nations and communities affected by colonial exploitation. This could also involve investments in infrastructure, education, and healthcare to support economic development’.¹³⁶ While also calling for reparations, the authors of the ‘Just Transition: A Climate, Energy and Development Vision for Africa’ report extend the analysis by noting:

Africa has suffered from decades of colonial pillage and neo-colonial extractivism that was not limited to the theft of minerals, timber and other raw materials, countless hours of unpaid labour, priceless artifacts, and the appropriation of cultural heritage, but also the biopiracy and theft of African indigenous knowledge, seeds, plants and medicinal know-how.¹³⁷

Climate Justice – The fact that the African continent has contributed so little to the climate crisis in terms of Greenhouse Gas (GHG) emissions and yet will be disproportionately negatively impacted by climate change has resulted in growing mainstream acceptance of the concept of ‘climate justice’ (countries of the Global North account for over 91% of emissions between 1960 – 2020).¹³⁸ Researchers have calculated, using carbon prices from the UN’s Intergovernmental Panel on Climate Change, that by 2050 the Global North will owe the Global South approximately \$192 trillion in emission debt because of its disproportionate use of historic and available carbon budgets.¹³⁹ There is, therefore, clear evidence that the Global North owes Africa, and SSA in particular, a massive financial debt (notwithstanding the moral debt).

The term Global North as used here does not just refer to governments, but also to all the transnational corporations that are implicated in slavery, colonialism and modern-day neo-colonial practices. That this debt is largely based on the immoralities of slavery, colonialism and neo-colonialism (income inequality) is clear. Getting these debts even officially acknowledged by countries and corporations in the Global North, let alone paid, is a massive undertaking.¹⁴⁰ Despite this, the existence of these debts is all the evidence that is needed to prove that there is an overwhelming moral argument grounded in justice that countries of the Global North should unravel the systemic injustices of the global economy and finance through grants the infrastructure and skills development Africa needs to use its CM to further ‘Equitable Resource-based industrialisation’ on the Continent.



Democracy in Africa

It is not just the Global North that needs to be called to account, **as it is clear that many African leaders (and their respective political parties) also need to account for their respective roles in perpetuating the ‘resource curse’ via processes of ‘elite capture’.** There is, in fact, an ongoing political crisis over how African leaders chose to use rents from resources. While progress towards democratic governance is progressing in some countries in SSA, it is regressing in others.

Overall, problems persist in many SSA countries relating to weak legislative oversight, compromised judicial independence, secrecy, corruption (elite capture), and electoral irregularities.¹⁴¹ It does not, of course, have to be this way as Botswana demonstrates. Despite being almost entirely dependent on the export of minerals, particularly diamonds, the country has avoided the worst excesses of the ‘resource curse’.

Case Study 5: Botswana – Escaping the Resource Curse

Botswana has been one of the world’s fastest growing economies for decades and as such is now considered a ‘middle-income’ country with a GDP per capita of over \$8000, with a very low debt-GDP ratio compared to other African states. In terms of HDI, Botswana is considered to be in the ‘high human development category’ due to significant progress made by the government in the education and health sectors in particular.¹⁴²

The critical ingredient in Botswana has been political leadership, which experts describe variously as ‘visionary’ and ‘unique’.¹⁴³ Since independence there has been a strong commitment among Botswanan leaders to follow a genuinely developmental path. **Resources from the extractive sectors have, therefore, not been squandered and captured by elites but have been used productively across the economy – particularly in infrastructure such as schools, hospitals and roads.** Experts note that a number of factors, encouraged by progressive and developmental leadership, have driven Botswana’s relative success. These include:

- 1. Regular democratic elections which are free and fair.
- 2. Traditional and Westminster style coalition building among political leaders which has led to a stable collective national vision.
- 3. A highly trained and apolitical civil service.
- 4. Zero tolerance for corruption.

- 5. Strong institutional and legal frameworks governing resource extraction, in particular its ‘Diamonds for Development Strategy’ and the creation of a sovereign wealth fund, which means ‘that natural resource wealth (read diamonds) equally benefits the citizens’.¹⁴⁴
- 6. Strong negotiating teams which maximise resource rents.

Some observers have suggested that several other factors have contributed to Botswana’s success. These include its relatively small and manageable population, its ethnic Swana homogeneity, and the fact that it is able to focus on one resource (diamonds) in particular with only one company (De Beers).¹⁴⁵ Others point to a lack of genuine economic diversification outside of mining (a classic ‘resource curse’ symptom), persistent income inequality, and the subordination of small ethnic minorities.¹⁴⁶

While these factors should not be dismissed, **there is still clear evidence that different choices have been made by political leaders in Botswana** that have contributed to its relative success compared to other resource-rich African countries.

There is ample evidence to suggest that the quality of political leadership is a critical factor in determining how a state uses rents extracted from the resources sector. This holds true, of course, for all resources like CM. This means, therefore, that for Africa to pursue ‘Equitable Resource-based industrialisation’ significant governance reforms need to take place in most African states. It is high time for a new ‘social contract’ between citizens and governments in Africa.

While there is an honest and frank discussion of governance weaknesses in the mineral resources sector in both the AU’s AMV and the AGMS, both shy away from seeing these weaknesses as symptoms of wider governance challenges at national levels.

For example, the AMV largely ignores the issues of corruption and elite capture.

The AGMS fails to mention corruption at all, only briefly indicating that when it comes to elite capture Africans are ‘being compromised by foreign interests and agendas’ as if African leaders lack agency.¹⁴⁷ There is an obvious need for the AU to meaningfully confront the crisis of political leadership on the Continent. This is a daunting challenge given that overall policy direction at the AU is in the hands of African leaders, some of whom are complicit in elite capture.¹⁴⁸

**Case Study 6:
Can South Africa Take Advantage of its CM?**

South Africa has very significant resources of two CM – manganese and vanadium – that could be used to generate a battery value chain in South Africa. Manganese is a crucial component of lithium-ion batteries, while vanadium is used in vanadium redox flow batteries (VRFB). While South Africa already has several companies assembling batteries, and some making inverters, at present it exports the vast majority of both minerals to China to make batteries. However, research indicates that 60 000 new jobs could be created in the battery sector by 2030.¹⁴⁹

South Africa can realise these jobs by increasing battery assembly, increasing the processing of minerals to battery grade and commercially developing VRFB. Research indicates that strong government policies (regulations, laws, taxes and tariffs) to support the industry are required, such as a commitment to use utility-scale batteries in national energy systems to boost early development.¹⁵⁰ As research notes, ‘government policies and local procurement targets play a vital role in driving the storage market’. Research also shows that strategic partnerships with other global and local manufacturers can help ‘integrate local firms into the value chain’.¹⁵¹

Research has also shown that South Africa has significant potential outside of battery technologies. It already assembles solar PV components, has built wind turbine towers and some internal components and ‘its broad industrial capabilities in connected or related value chains (such as mining, steel, aluminium, automotive, shipbuilding, capital equipment and electro-technical equipment)’ means that it can capture much more of the renewable energy value chain. Much like with the battery sector, development needs strong policy certainty resulting in strong demand and strategic support from global manufacturers.¹⁵²

Encouragingly, and after some delay, South Africa’s Renewable Energy Masterplan has recently been approved by the Cabinet. The Plan seeks to develop industrial value chains throughout the renewable energy sector in South Africa and should hopefully provide the policy certainty that the sector needs to grow and take advantage of South Africa’s CM.



What can be done?

While the transformation of the global economy and its political institutions and **the deepening of accountable governance in Africa** are longer-term goals and are the only ones which will deliver true justice to Africans, there are many policies and initiatives that can be strengthened or instituted now which will assist Africa in trying to maximise the benefits of the CM boom.

While many of these initiatives will result in localised changes, some will further the objective of seeing longer-term systemic change in line with the broadest and most inclusive definitions of a Just Transition. It should be pointed out, however, that many of the recommendations

listed here can only realistically be fully implemented if the Global North releases its stranglehold on the Global South and genuinely commits (ethically, politically, and economically) to assisting the Global South undergo a meaningful Just Transition.

Recommendations at international level

FINANCIAL

- (i) Institutions such as the World Bank, IMF, GATT, and the WTO need to be democratised so that countries of the Global South have more control over finance and trade policies. .
- (ii) Trade-Related Intellectual Property Rights (TRIPS) under the WTO need to be reformed to allow Africa access to technologies, such as renewable energy technologies (including for African manufacturing).¹⁵⁴ Through this process, African states and companies can foster beneficial strategic partnership with global companies to assist in the transfer of knowledge and technology.
- (iii) Either debt cancellation and/or the wholesale implementation of fair debt relief for countries in SSA needs to take place, while the entire system of international loans and financing needs to be democratised, gendered, and reformed. .
- (iv) The subsidisation of fossil fuels in SSA needs to be substantially reduced. The Organisation for Economic Cooperation and Development estimated that direct fossil fuel subsidies in 2022 amounted to \$1.5 trillion, while others have estimated the total to be closer to \$7 trillion if indirect subsidies are also taken into account.¹⁵⁵ While figures for SSA are difficult to find, research estimates that fossil fuel subsidies in the region amounted to \$26 billion in

- 2015 (in 2015 value), or US\$75 billion if the costs of negative externalities are included.¹⁵⁶ In 2023, South Africa alone paid out over \$7.5 billion in fossil fuel subsidies.¹⁵⁷ Given that there is direct evidence that such subsidies negatively impact the development of renewables they should be stopped and the money redirected towards economic diversification and renewable energy.¹⁵⁸
- (v) The Global North needs to take its commitments to Climate Justice seriously and provide massively increased funds in the form of grants and technical assistance to countries of the Global South to enable them to transition to renewable energy.¹⁵⁹ This is critical, given that Africa received only 2% of global clean energy funding in 2023.¹⁶⁰
 - (vi) A United Nations Tax Convention should be created to ensure that all forms of IFF cease.¹⁶¹ This means holding transnational corporations to account for tax evasion and tax avoidance practises. All current loopholes which facilitate IFF need to be closed. Major global accounting firms (KPMG, EY, Deloitte and PwC) need to be held accountable for their role in IFF.¹⁶² Accountability should be in the form of criminal charges as opposed to fines.

- (vii) A transaction tax on all international financial transactions (a very small tax on each trade of stocks, derivatives, currency, and other financial instruments) as low as 0.01% could raise as much as \$600 billion (in 2011 prices) annually which could be used to help fund a Just Transition in Africa. Such a tax would also have the advantage of reducing speculation investments in raw materials and in Global South markets¹⁶³
- (viii) Adding 5% to the tax rate of the world’s multi-millionaires and billionaires would raise \$1.7 trillion a year that could be amongst others spent on Africa’s Just Transition.¹⁶⁴

INSTITUTIONAL SOLUTIONS

- (i) **International institutions such as the United Nations Security Council, the United Nations Framework Convention on Climate Change, and the International Energy Agency, need to be democratised and gendered so that countries of the Global South have more influence over policy development.** The growing influence of private companies in these institutions needs to be reversed.
- (ii) The United Nations Human Rights Council needs to urgently transition the 2011 Guiding Principles on Business and Human Rights into a binding treaty. This process has been delayed for more than a decade because of opposition from governments and transnational corporations. A globally binding treaty would require governments to ensure that businesses are accountable for human rights throughout their global value chains.¹⁶⁵
- (iii) An international, binding protocol (not voluntary) needs to be introduced to manage all aspects of global resource extraction, to foster shared value creation and promote just transitions. Any new protocol needs to be mandatory along the entire minerals value chain so as to counter the opaque nature of CM value chains (from resource extraction, through processing and manufacturing, to the delivery of the final product). The protocol should build off the UN Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice¹⁶⁶ and other credible global frameworks and standards, acknowledge uneven development, and there should be zero tolerance for violations.¹⁶⁷
- (iv) Protocols like the United Nations Sustainable Development License to Operate (SDLO)¹⁶⁸ need to go further and make the approval of all extractive projects dependent on obtaining the Free, Prior and Informed Consent (FPIC) of impacted communities,

- aligning with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Therefore, communities that will be impacted by mining have a right to say no or, indeed, the right to say yes.
- (v) Evidence indicates that because there are so many ‘good resource governance initiatives’ at different international, national and local levels (there are at least 70 frameworks and standards related to CM), the resource governance sector is characterised by confusion which compromises implementation, monitoring and accountability.¹⁶⁹ As one research report notes, ‘the sheer number of these laws and schemes means that consolidation and coordination are desperately required’. It continues, ‘the sheer complexity of the current landscape is raising as many potential problems as it solves’.¹⁷⁰

An international protocol should, therefore, gradually replace and strengthen the myriad voluntary and/or industry-driven initiatives (e.g. Environmental, Social and Governance (ESG) frameworks, International Council on Mining and Metals initiatives and OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas) that are supposed to ensure that mining and mineral processing is undertaken in ways that are not socially and environmentally harmful. These voluntary schemes need to be improved, and in some cases replaced because an overwhelming amount of evidence from SSA and elsewhere in the world illustrates that these voluntary schemes have a minimal and largely tokenistic impact on good governance (the ongoing crises in resource governance in Africa is clear proof of their failure). **Research indicates that transnational corporations and oftentimes host governments implement such voluntary schemes (if at all) to the barest possible extent to try and avoid reputational damage and operational delays.**¹⁷¹

- (vi) The United Nations should create and enforce a global system of environmental regulations. This system should create internationally binding regulations concerning how EIAs are conducted, and how compliance with them should be undertaken, including enforcement mechanisms. Public participation should be at the core of these regulations. There should be zero tolerance for violations. Funds for such an agency to be derived from the profits of transnational corporations and/or governments along the lines of the ‘polluter pays’ principle.

- (vii) Working groups within credible organizations could lead the initiatives outlined above, so long as membership includes members of communities and civil society groups active in the resources sector.
- (viii) ISDS mechanisms should never be able to prevent host countries from implementing comprehensive national and regional laws for due diligence, public participation, and benefit-sharing.¹⁷² Any existing treaties that prevent governments from acting in their interests must be renegotiated.
- (ix) Global mining Restricted Areas (sometimes called “No-Go Zones”) must be demarcated and protected, including areas of significant cultural importance, protected areas, key biodiversity areas, high carbon areas, significant natural ecosystems, and critical water bodies.
- (x) Global political will needs to be generated to ensure that transnational corporations which dominate resource extraction in Africa (just Glencore and Anglo-American control approximately 65% of all mining in Africa) are fully held to account for any negative social, economic, and ecological impacts from their operations.¹⁷³

RECOMMENDATIONS AT AFRICAN CONTINENTAL LEVEL

- (i) Regional cooperation (Pan Africanism), including preferential trade agreements, between African states is essential to the development of CM in Africa. This includes the development of collaborative economic and industrial policies. Such collaborative strategies will enable African states to trade CM between themselves and become competitive in the wider renewable energy value chain.¹⁷⁴ Africa will only become competitive if states recognise their respective comparative advantages and work together. This regional cooperation needs to extend into all facets of resource extraction, from negotiating contracts right through to mine closure procedures. As experts note, ‘strategic alliances at the regional level structured around state–state conditionalities can prevent a race to the bottom’.¹⁷⁵ Others argue that African countries should practise ‘strategic non-alignment’, which prioritises African needs, rather than picking sides in the current geopolitical rush for CM. This approach will enable Africa to choose ‘the most developmental package of investment and value-addition’ from those being offered by global players, be they states or private companies.¹⁷⁶

The Problem of Bilateral Agreements – The emergence of bilateral agreements between individual African states and individual states seeking access to CM is seriously hampering attempts to foster regional cooperation. Dozens of bilateral agreements have already been signed between African states and other countries. For example, South Africa, Zambia and the DRC have committed to at least six bilateral agreements over CM, while China has signed eight bilateral agreements for CM with countries from SSA.¹⁷⁷ This ‘lack of coordination and fragmentation among African countries has played in favour of global superpowers so far’ because African countries are weaker when they negotiate individually.¹⁷⁸ Bilateral agreements, are of course, both a legacy of colonial relationships and of the vulnerability of individual African states within the current global economic structure.

- (ii) Regional bodies like the AU (via AfCFTA), the Southern African Development Community (SADC) and the Economic Community of West African States (ECOWAS) need to foster much greater regional development, especially around resource extraction.
- (iii) Given the critical importance of regional cooperation, more African states should join the AMSG.
- (iv) **African states, and institutions such as the AU, should reach out to other nations in the Global South outside of Africa to share successful policies and best practices to create technological and political partnerships.**
- (v) The African Development Bank and the Africa Finance Corporation need to divest from fossil fuels and direct funds allocated for energy exclusively into the development of renewable energy sources in Africa. In addition, they need to help resource the kinds of wider infrastructural development Africa needs to diversify its economies within the wider context of the Just Transition. As experts note, ‘there is no scope for any country – even for African countries – to build fossil fuel-based societies’.¹⁷⁹
- (vi) African states must ensure that they cooperate in terms of taxation arrangements and not try to individually attract foreign investment by lowering corporation taxes as this results in another ‘race to the bottom’.¹⁸⁰

- (vii) Both the AMV and the AGMS need to be reformed to make them binding on member states. In addition, binding commitments to FPIC and global no-mining zones should be included in both.
- (viii) It is worth noting that there are countries where a lot of lithium is located on the territories of indigenous peoples and wetlands. In such cases, it is necessary to protect the interests of the indigenous people and vital ecosystems. Countries in SSA that individually or collectively dominate the global supply of specific CM could also consider forming strategic partnerships (cartels) that enable them to collectively set reasonable prices when extracting the CMs as a means by which to maximise the prices they receive for those minerals.¹⁸¹
- (ix) Africa should leverage its massive renewables potential to power the mining and processing of CM.¹⁸² This idea can be ‘sold’ to the Global North as part of its commitment to Climate Justice and as a means by which to avoid the mining and processing of CM with fossil fuels. The contradictory relationship between mining and processing CM with fossil fuels and the imposition of carbon border adjustments should be clear to institutions like the EU.

- (x) African leaders must not accept false solutions to climate change, such as carbon credit markets (offsets), carbon capture and storage, nuclear power, and ‘clean coal’, in exchange for giving foreign states access to CM on the Continent. None of these false solutions will deliver a Just Transition on the Continent.¹⁸³

RECOMMENDATIONS AT AFRICAN STATE LEVEL

- (i) African states need to recognise the importance of working together in strategic alliances to avoid being divided by bilateral agreements. To this end, African countries should be willing to recognise their respective strengths (comparative advantages) and weaknesses along value chains and act accordingly. For example, Guinea could supply bauxite to SSA countries with cheaper electricity costs for processing into aluminium. This aluminium could then be used by other states in SSA with more favourable conditions to manufacture solar PV panels.¹⁸⁴

African Battery Mineral Value Chains and Lessons from the Lobito Corridor – Research indicates that Africa can develop battery mineral value chains (BMVC) for electric vehicles and large-scale battery storage systems. To do so Africa needs to build regionally integrated value chains because ‘no single country has all the natural resources necessary, and there are varying degrees of industrial capabilities between the most and least industrialized African economies’.¹⁸⁵ Once again, the importance of African solidarity in the face of the CM boom is clear.

In April 2022, the DRC and Zambia signed a bilateral agreement to develop a BMVC between. A few months later, the US signed a trilateral agreement with the DRC and Zambia to develop EV batteries in the DRC which was followed by a similar agreement between both countries and the EU. In 2023, a multi-billion-dollar agreement was signed between the US, the EU, the Africa Finance Corporation, African Development Bank, Angola, the DRC and Zambia to upgrade and extend Angola’s Benguela railway to Zambia with the goal of gaining direct access from the Atlantic to the wider region’s cobalt and copper. Thus, what started out as a promising regional agreement, has turned into an international agreement with multiple stakeholders with a clear focus on the export market. These developments reveal Africa’s dependency on capital and technology from the Global North and show how power imbalances influence policy choices as the DRC and Zambia cannot possibly dictate terms in agreements of this nature.¹⁸⁶ It also demonstrates that foreign interest in CM in the DRC and Zambia is not motivated by justice, but by geopolitical concerns over China’s control of the processing of CM into batteries.¹⁸⁷

Figure 7: The Lobito Development Corridor¹⁸⁸

- (ii) African states need to develop strong and accountable long-term domestic developmental and economic diversification policies to manage the rents which come from the minerals sector. These policies should clearly articulate long-term integrated developmental goals and indicate how the resources sector will be positioned within these policies to enable 'Equitable Resource-based industrialisation'.

- (iii) African states can further 'Equitable Resource-based industrialisation' in several ways:

- a) **Local Content** – Several SSA states (e.g. Ghana, Liberia, Mozambique, South Africa) have introduced local content legislation which legally requires foreign mining companies to source goods and services from local companies and to employ local people. This initiative is designed to develop local upstream supply chains for the minerals sector (trucks, tyres, drills, belts, tools, catering, surveying, human resources, etc) and create local employment. Evidence indicates that if they are properly implemented and monitored, they can reduce competition from imported goods and services and boost local industries and create jobs.¹⁸⁹

As with all policies, however, their quality and enforcement are key. Critics have argued that in some instances local content requirements are unrealistic as some countries lack the

local capacity to deliver the required goods and services, meaning that the enforcement becomes 'loose'. Observers note, however, that this inability is oftentimes the result of 'international power relations in the extractive sector' that favour established international suppliers over local suppliers. This is yet another example of the unfair terms of trade that negatively impact Africa's desire to industrialise. Others note that local content requirements have been used to facilitate corruption, as politically connected companies get awarded contracts as opposed to those most able to deliver.¹⁹²

Suggested solutions to these problems include legally compelling foreign mining companies to help capacitate local companies and train local people so that full advantage can be taken of such content laws.¹⁹³ Whether international mining companies should shoulder these types of responsibilities which are traditionally the preserve of the state is debatable. One solution which will be beneficial, is for African countries to recognise local content from other African countries.

- b) **Local Ownership Requirements** – Several African countries have recently passed legislation increasing the amount of local ownership/equity in mines.¹⁹⁴

This policy ensures resource rich countries receive a higher percentage of the income from the mineral resources. However, simply increasing the local ownership stake does nothing to improve the weak governance of resources and may, in fact, simply mean that more resources get 'captured'. Until rents from mining are used more effectively towards developmental outcomes little will come from simply increasing equity stakes.

- c) **Export Bans** – Numerous SSA countries have introduced export bans on primary products in the interests of seeing them processed to varying degrees before export so as to capture more of the CM value chain. For example, Namibia and Zimbabwe have banned the export of raw lithium, while Nigeria and Ghana have banned the export of unprocessed ores completely.

While these bans could potentially result in African states moving up the supply chain there are potential problems. Export bans are easily sidestepped if enforcement is weak or simply absent. For example, lithium is still exported from Zimbabwe in raw form due to corruption, while it is also being stockpiled in Zimbabwe because low lithium prices and a lack of energy access are discouraging foreign companies from investing in local processing.¹⁹⁵

In addition, bans do not lessen the reliance of African states on foreign companies or states for CM processing. Unless local entities are directly involved in processing, export bans do not necessarily increase resource rents.¹⁹⁶ For example, while Guinea has banned the export of bauxite, it is entirely reliant on foreign companies to invest in and build processing facilities to turn bauxite into aluminium..

- d) **Sovereign Wealth Funds** – The establishment of sovereign wealth funds with clear developmental agendas and accountable management can benefit resource rich countries. For example, a contributory factor to Botswana's avoidance of the worst of the resource curse has been its Pula Fund, which currently manages \$3.5 billion, and has been used for long-term investments outside of the resources sector.¹⁹⁷

Chile has an 'Economic and Social Stabilisation Fund' which determines how much the government can spend of its mining revenue on present needs and on long-term infrastructure projects. The Fund also helps with mineral price volatility by using surplus revenues gained from high prices to compensate when prices are low.¹⁹⁸

- (iv) African countries need to develop strong and unambiguous commitments to develop utility-scale renewable energy to close the energy gap in Africa and to power 'Equitable Resource-based industrialisation'. **Experience from South Africa has shown that unless renewable energy policies are pursued consistently both the deployment of renewable energy, and the manufacturing of renewable energy components fails.** For example, it is estimated that for the manufacturing of blades for wind turbines to be economically viable in an African country, an order commitment of at least 4 000MW over five years is required.¹⁹⁹
- (v) In the interests of transparency and accountability all African states should join the Extractive Industries Transparency Index to improve mineral governance frameworks.
- (vi) African states need to accelerate their efforts to formalise ASM.
- (vii) Individual country development banks, such as South Africa's Development Bank of Southern Africa, need to divest from fossil fuels and direct funds allocated for energy generation exclusively into the development of renewable energy. The same goes for African export credit agencies and state-owned industrial development corporations.
- (viii) African states need to recognise the key role that civil society organisations play in both the mineral resources and energy sectors in terms of engaging with Indigenous Peoples and local communities, and in holding companies and states accountable. The existence of free and vibrant civil society organisations, where women are equal partners, are a crucial ingredient in the realisation of 'Equitable Resource-based industrialisation' within the context of the Just Transition.



Conclusion

In September 2023, the ninety-year-old South African Institute for International Affairs (SAIIA), an organisation not known for its radicalism, published a report on CM in the SADC region. In this report it argued:

... reimagining raw material sourcing is essential, considering resource availability and technological capabilities. This includes exploring alternatives to scarce or environmentally detrimental materials and embracing sustainable extraction and recycling practices ... restructuring society is crucial to reflect a new social contract that encompasses our understanding of the environment, energy, resources and our relationships with one another. **This transformation necessitates a systemic approach that integrates scientific and engineering advancements, improved education and communication, and adherence to the principles of the rule of law and human rights.**²⁰⁰

That such a progressive and transformative statement appears in a SAIIA report shows how urgent the need is to fundamentally change the way that minerals are extracted in Africa. The statement above contrasts starkly with numerous reports on CM in Africa that acknowledge that the ‘mistakes of the past’ cannot be repeated but then put their faith in the very same ‘solutions’ and technocratic processes, such as ESG Frameworks, which have done next to nothing to prevent the ongoing brutal exploitation of Africa’s minerals. It is patently obvious that systemic reform on many fronts is necessary if Africa is to fully and sustainably realise the benefits of its CM and pursue a genuinely just, Just Transition. To do so, African leaders need to take responsibility for their historical failings and renew the social contract with the people of Africa. Concomitantly, and critically, the Global North must provide the financial and technological resources for this transition, not as charity but as a moral responsibility.²⁰¹

References

International Energy Agency (IAE). 2025. The Global Critical Minerals Outlook 2025. IEA, Paris

Nijnens, J., Behrens, P., Kraan, O., Sprecher, B. & Kleijn, R. 2023. Energy transition will require substantially less mining than the current fossil system. Joule 7, Nov. 15, 2023, pp2408-2413

Watari, T., Nansai, K., Nakajima, K. & Giurco, D. 2021. Sustainable energy transitions require enhanced resource governance. Journal of Cleaner Production, Vol. 312, 20 August 2021, 127698

Notes

1 'Digging for Opportunity: Harnessing Sub-Saharan Africa's Wealth in Critical Minerals', *International Monetary Fund*, 2024, p. 1.

2 D. Gielen, 'Critical Materials for the Energy Transition', *International Renewable Energy Agency*, 2012, p. 10. The European Union lists the following 30 minerals as 'critical': Antimony, Baryte, Bauxite, Beryllium, Bismuth, Borate, Cobalt, Coking Coal, Fluorspar, Gallium, Germanium, Hafnium, Heavy Rare Earth Elements, Light Rare Earth Elements, Indium, Lithium, Magnesium, Natural Graphite, Natural Rubber, Niobium, Platinum Group Metals, Phosphate Rock, Phosphorus, Scandium, Silicon metal, Strontium, Tantalum, Titanium, Tungsten, and Vanadium. See, 'The 2020 EU Critical Raw Materials List', *International Energy Agency*, 26 Oct. 2022, <https://www.iea.org/policies/15274-the-2020-eu-critical-raw-materials-list>. In comparison, the United States has published a list of 50 minerals that it considers as 'critical'. These are Aluminium, antimony, arsenic, barite, beryllium, bismuth, cerium, caesium, chromium, cobalt, dysprosium, erbium, europium, fluorspar, gadolinium, gallium, germanium, graphite, hafnium, holmium, indium, iridium, lanthanum, lithium, lutetium, magnesium, manganese, neodymium, nickel, niobium, palladium, platinum, praseodymium, rhodium, rubidium, ruthenium, samarium, scandium, tantalum, tellurium, terbium, thulium, tin, titanium, tungsten, vanadium, ytterbium, yttrium, zinc, and zirconium. See, 'Us Geological Survey releases 2022 List of Critical Minerals, United States Geological Survey, Feb. 2022, <https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-critical-minerals>. Accessed 6 April 2025.

3 L. Weng, 'Unlocking the Potential of Critical Minerals Extraction for Africa's Structural Transformation', *SOAS Centre for Sustainable Structural Transformation*, Working Paper 5, Jan. 2025, p. 4.

4 'Global Critical Minerals Outlook 2024', *International Energy Agency*, 2024, p. 9.

5 'The Role of Critical Minerals in Clean Energy Transitions', World Energy Outlook Special Report Minerals in Clean Energy Transitions', *International Energy Agency*, 2022, p. 5.

6 'Africa's critical mineral resources, a boon for intra-African trade and regional integration', *United Nations Economic Commission for Africa*, 22 Dec. 2024, <https://www.uneca.org/stories/africa%E2%80%99s-critical-mineral-resources%2C-a-boon-for-intra-african-trade-and-regional-integration>. Accessed 9 April 2025.

7 The Role of Critical Minerals in Clean Energy Transitions (2022), p. 5.

8 The Role of Critical Minerals in Clean Energy Transitions (2022), p. 7.

9 These minerals are, Aluminium, Beryllium, Cobalt, Gallium, Germanium, Graphite, Lithium, Manganese, Platinum, Rare Earth Elements, Titanium, and Tungsten. See, 'NATO releases list of 12 defence-critical raw materials', *North Atlantic Treaty Organisation*, 11 Dec. 2024, https://www.nato.int/cps/en/natohq/news_231765.htm. Accessed 6 April 2025.

10 P. Beaumont, 'China trade war poses threat to US arms firms' rare earths supply, analysts warn', *The Guardian*, 16 April 2025, <https://www.theguardian.com/us-news/2025/apr/16/china-trade-war-us-arms-firms-rare-earths-supply>. Accessed 22 April 2025.

11 V. Chime, 'Trump follows the minerals trail – but for weapons not clean energy?', *Climate Home News*, 4 April 2025, <https://www.climatechangenews.com/2025/04/04/trump-follows-the-minerals-trail-but-for-weapons-not-clean-energy/>. Accessed 6 April 2025.

12 'Digging for Opportunity: Harnessing Sub-Saharan Africa's Wealth in Critical Minerals', *International Monetary Fund*, 2024, p. 2.

13 J. Boafo (et al), 'The race for critical minerals in Africa: A blessing or another resource curse?', *Resources Policy*, 93, 2024, p. 2.

14 See, for example, 'The Critical Minerals Rush – Why is contract transparency so important?', *Extractive Industries Transparency Initiative*, Oct. 2023.

15 The Role of Critical Minerals in Clean Energy Transitions (2022)', p. 13.

16 L. Weng, 'Unlocking the Potential of Critical Minerals Extraction for Africa's Structural Transformation', *SOAS Centre for Sustainable Structural Transformation*, Working Paper 5, Jan. 2025, pp. 47 - 48.

17 M. Muller, 'The 'new geopolitics' of mineral supply chains: A window of opportunity for African countries', *Southern African Journal of International Affairs*, 30(2), 2023, p. 183.

18 During this research report Global North refers to the world's 'developed', high-income countries mostly situated in the northern hemisphere – while the Global South describes 'developing' and 'least-developed' countries largely found in the southern hemisphere.

19 H. Lazenby, 'US Inflation Reduction Act impact report lays bare critical mineral supply fault lines', *Mining.com*, 1 Sept. 2023, <https://www.mining.com/us-inflation-reduction-act-impact-report-lays-bare-critical-mineral-supply-fault-lines/>. Accessed 6 April 2025.

20 'European Critical Raw Materials Act', *International Energy Agency*, Oct. 2024, <https://www.iea.org/policies/17662-european-critical-raw-materials-act>. Accessed 6 April 2025.

21 P. Beuter (et al), 'Mapping Africa's Green Minerals Partnerships', *Africa Policy research Institute*, Jan. 2025, p. 4.

22 Analysts refer to a 'new geopolitics of supply chains', See, Muller (2023), p. 178.

23 W. Davis, 'How Can African Make the Most of its Transition Minerals: A pledge for enhancing value addition for development and prosperity', *Publish What You Pay*, Sept. 2024, p. 9.

24 P. Diene (et al), 'Triple Win: How Mining Can Benefit Africa's Citizens, Their Environment and the Energy Transition', *Natural Resource Governance Institute*, Nov. 2022, pp. 4 & 7 Sturman (2022), p. 51 & Owen (2022).

25 It should be noted that SSA's 30% global share is not static as it can increase or decrease as new discoveries are made or existing discoveries are exhausted.

26 Weng, (2025), p. 11.

27 'Digging for Opportunity: Harnessing Sub-Saharan Africa's Wealth in Critical Minerals' (2024), p. 2.

28 'The low-carbon economy of the future depends on mining and in turn, the future of mining largely depends on the exploration for and discovery of new mineral deposits', *The African Mining Indaba*, 16 Jan. 2024, <https://miningindaba.com/articles/reviving-africas-untapped-exploration-pipelin>. Accessed 7 April 2025.

29 Muller (2023), p. 182.

30 'UK-South Africa joint statement on partnering on minerals for future clean energy technologies', Policy Paper, *British Government*, 23 Nov. 2022, <https://www.gov.uk/government/publications/uk-south-africa-joint-statement-on-partnering-on-minerals-for-future-clean-energy-technologies>. Accessed 6 April 2025.

31 V. Vivoda, 'Friend-shoring and critical minerals: Exploring the role of the Minerals Security Partnership', *Energy Research and Social Science*, June 2023, pp. 7 - 8.

32 'Digging for Opportunity: Harnessing Sub-Saharan Africa's Wealth in Critical Minerals' (2024), p. 2.

33 Davis (2024), p. 4.

34 See, Rosser, A., 'The Political Economy of the Resource Curse: A Literature Survey', *Institute of Development Studies*, April 2006 & Udosen, C, Abasi-Ifreke, S & George, I., 'Fifty Years of Oil Exploration in Nigeria: The Paradox of Plenty', *Global Journal of Social Sciences*, 8(2) & Dauvin, M & Guerreiro, D., 'The Paradox of Plenty: A Meta-Analysis', *Economix*, Working paper 14 & Humphreys, M., Sachs, J., Stiglitz, J. (eds.), *Escaping the Resource Curse*, (Columbia University Press: New York), 2007 & Soares de Oliveira, R., Patey, J., Oppong, N. (eds.), (2020), 'Special Section: Governing African Oil and Gas: Boom-Era Political and Institutional Innovation', *The Extractive Industries and Society*, 7(4) & Frynas, J. & Buur, L., 'The Presource curse in Africa: Economic and political effects of anticipating natural resource revenues', *The Extractive Industries and Society*, 7(4), November 2020.

35

When considering the phenomenon of the ‘resource curse’ it is essential to understand that the skewed economic and political priorities of colonial states during the era of Africa’s colonisation laid the foundations for the phenomenon both in terms of developments within African countries and in patterns of world trade. See, for example. W. Rodney, How Europe Underdeveloped Africa, Verso, 2018 & J. Moore, Capitalism in the Web of Life: Ecology and the Accumulation of Capital, Verso, 2015. For the post-colonial period see, S. Amin, Maldevelopment: Anatomy of a Global Failure, Pambazuka, 2011.

36

N. Overy, 'South African Public Financing of the Mozambique Liquid Natural Gas Project', *Fair Faince Southern Africa*, 2024, pp. 8-9.

37

'Human Development Index Data Tracker', QERY, Feb. 2025, <https://qery.no/undp-human-development-index/>. Accessed 7 April 2025.

38

'GDP per capita, current prices', *International Monetary Fund*, 2025, <https://www.imf.org/external/datamapper/NGDPDPC@WEO/OEMDC/ADVEC/WEOWORLD/COD/ZAF>. Accessed 7 April 2025.

39

'DR Congo', *Mo Ibrahim Foundation*, <https://iiag.online/locations/cd.html> & 'Democratic Republic of the Congo, Transparency International', <https://www.transparency.org/en/cpi/2023/index/cod>. Accessed 8 April 2025.

40

'2021 Resource Governance Index: Democratic Republic of Congo (Mining)', *National Resource Governance Institute*, 16 Sept. 2021, <https://resourcegovernance.org/publications/2021-resource-governance-index-democratic-republic-congo-mining>. Accessed 9 April 2025.

41

There is an enormous amount of research on these issues. See, for example, 'Powering Change or Business as Usual: Forced Evictions at Industrial Cobalt and Copper Mines in the Democratic Republic of the Congo', *Amnesty International*, 2023 & 'Beneath the Green: A critical look at the environmental and human costs of industrial cobalt mining in DRC', *Raid/African Resource Watch*, March 2024 & 'Overview of corruption and anti-corruption: Democratic Republic of Congo (DRC)', *Anti-Corruption Resource Centre*, no date.

42

D. Makal, 'Impunity and pollution abound in DRC mining along the road to the energy transition', *Mongabay*, 14 May 2024, <https://news.mongabay.com/2024/05/impunity-and-pollution-abound-in-drc-mining-along-the-road-to-energy-transition/>. Accessed 8 April 2025 7 'Beneath the Green: A critical look at the environmental and human costs of industrial cobalt mining in DRC', *Raid/African Resource Watch*, March 2024.

43

'Democratic Republic of the Congo', *Extractive Industries Transparency Index*, <https://eiti.org/countries/democratic-republic-congo>. Accessed 9 April 2025.

44

'Democratic Republic of the Congo - Market Overview', *International Trade Administration*, US Government, 14 March 2024, <https://www.trade.gov/country-commercial-guides/democratic-republic-congo-market-overview>. Accessed 9 April 2025.

45

‘Africa Mining Vision’, *African Union*, February 2009, p. v.

46

'Africa's Green Minerals Strategy: African Union's Mineral Resources Strategy for the Just Transition and Decarbonising Future', *African Union*, December 2024, preface.

47

Africa's Green Minerals Strategy (2024, preface to iii. According to reports, the Southern African Development Community (SADC) published a ‘Regional Mining Vision’ in 2019 which includes the ‘same ambition’ as the AMV (see, D. Cloete (et al), 'Exploring the Critical Minerals Ecosystem in SADC: Country Barriers and Enablers', *South African Institute of International Affairs*, Sept. 2023, p. 22). During the course of this research, it has proven impossible to locate a copy of this document. At present, the SADC has no specific policy or strategy on CMs.

48

Africa's Green Minerals Strategy (2024), p. 86.

49

'AfCFTA- the African Dream', *TrendsNAfrica*, 21 Dec. 2024, <https://trendsnafrica.com/afcta-the-african-dream/>. Accessed 17 April 2025.

50

'About AMSG', *Africa Minerals Strategy Group*, no date, <https://africamineralsgroup.org/about-africa-minerals-strategy-group/>. Accessed 23 April 2025.

51

'Africa Minerals Strategy Group Launches the Africa Responsible Mineral Sourcing Initiative (ARMSI)', *Africa Minerals Strategy Group*, <https://africamineralsgroup.org/africa-minerals-strategy-group-launches-the-africa-responsible-mineral-sourcing-initiative-armsi/>. Accessed 23 April 2025.

52

See, for example, I. Pesa, 'Toxic coloniality and the legacies of resource extraction in Africa', *International Review of Environmental History*, 9(2), 2023 & L. Leonard, 'Socio-environmental impacts of mineral mining and conflicts in Southern and West Africa: navigating reflexive governance for environmental justice', *Environmental Research Letter*, 19 (2024) M. Nagidi & P. Hlungwani, 'Development or destruction? Impacts of mining on the environment and rural livelihoods at Connemara Mine, Zimbabwe', *South African Geographical Journal*, 2022 & D. Hallowes & V. Munnik, The Destruction of the Highveld Part 1: Digging Coal, groundWork, 2016.

53

Africa's Green Minerals Strategy (2024), p. 77. Interestingly, in its ‘Risk Analysis’ section, the AGMS does not note risks to the environment.

54

'Resourcing the Energy Transition: 'Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice', *UN Secretary-General’s Panel on Critical Energy Transition Minerals*, 11 Sept. 2024, p. 11.

55

'Sustainable and Responsible Critical Mineral Supply Chains Guidance for policy makers', *International Energy Agency*, Dec. 2023, p. 7.

56

See, for example, Digging for Opportunity: Harnessing Sub-Saharan Africa’s Wealth in Critical Minerals (2024), p. 2 & European Critical Raw Materials Act, *European Union*, 2023, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/european-critical-raw-materials-act_en. Accessed 9 April 2025.

57

G. Mkodzongi, 'Lithium mining and national economic development in Zimbabwe: Prospects for resource-based national development', *Africa Policy Research Unit*, July 2024, p. 3.

58

T. Chitagu, 'Zimbabwe’s lithium liability', *Oxpeckers*, May 2024, <https://oxpeckers.org/2024/05/zimbabwe-lithium-liability/>. Accessed 9 April 2025.

59

'Critical for Who? Lithium and Society in Zimbabwe: The Case of Bikita Community', *Southern Africa Resource Watch*, Oct. 2024.

60

'Implications of the Lithium Mining Rush in Zimbabwe: Analysis of Legal Developments', *Zimbabwe Environmental Law Association & Africa Institute of Environmental Law*, February 2023 & J. Matanzima, “‘Disempowered by the transition’: Manipulated and coerced agency in displacements induced by accelerated extraction of energy transition minerals in Zimbabwe”, *Energy Research and Social Science*, 117, 2024, p. 13.

61

'Zimbabwe: Two lithium mines shut down for operating without environmental impact assessment certificates', *Business and Human Rights Centre*, 28 Feb. 2023, <https://www.business-humanrights.org/en/latest-news/zimbabwe-two-lithium-mines-shut-down-for-operating-without-environmental-impact-assessment-certificates/>. Accessed 9 April 2025.

62

'The Controversy of Green Energy: Unmasking Southern Africa's Critical Mineral Sacrifice Zones', *Alternative Information and Development Centre*, 2025, p. 6 - 7 & P. Greenfield, 'Is a Madagascan mine the first to offset its destruction of rainforest?', *The Guardian*, 9 March 2022, <https://www.theguardian.com/environment/2022/mar/09/ambatovy-the-madagascan-mine-that-might-prove-carbon-offsetting-works-aoe>. Accessed 9 April 2-25.

63

I. Dibattista (et al), 'Socio-environmental impact of mining activities in Guinea: The case of bauxite extraction in the region of Boke', *Journal of Cleaner Production*, 387, 2023.

64

Global Critical Minerals Outlook 2024 (2024) pp. 79 & 160 & M. Priester (et al), 'Mineral grades: an important indicator for environmental impact of mineral exploitation', *Mineral Economics*, April 2019.

65

Africa's Green Minerals Strategy (2024), p. 77.

66

Africa's Green Minerals Strategy (2024), preface.

67

Resourcing the Energy Transition: 'Principles to Guide Critical Energy Transition Minerals Towards Equity and Justice (2024), p. 4.

68

'Sustainable and Responsible Critical Mineral Supply Chains Guidance for policy makers', *International Energy Agency*, Dec. 2023 & Digging for Opportunity: Harnessing Sub-Saharan Africa’s Wealth in Critical Minerals (2024), p. 2 & European Critical Raw Materials Act, *European Union*, 2023, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/green-deal-industrial-plan/european-critical-raw-materials-act_en. Accessed 10 April 2025.

69

J. Owen (et al), 'Fast track to failure? Energy transition minerals and the future of consultation and consent', *Energy Research & Social Science*, 89, 2022, p. 4.

70

P. Zamchiya, 'Mining, capital and dispossession in post-apartheid South Africa', *Review of African Political Economy*, 49(173) & S. Mwna & A. Bowman, 'Land, conflict and radical distributive claims in South Africa’s rural mining frontier', *The Extractive Industries and Society*, 11, 2022.

71

See, for example, Owen (2022) & 'The Controversy of Green Energy: Unmasking Southern Africa's Critical Mineral Sacrifice Zones', *Alternative Information and Development Centre*, 2025 & A. Williams, 'Indigenous Peoples of Southern Africa Land Dispossession in the Critical Minerals Complex - Particular focus on the Northern Cape Province in South Africa', *Secretariat of the Permanent Forum on Indigenous Issues - United Nations*, 2 - 4 Dec. 2024 & J. Matanzima, "“Disempowered by the transition”: Manipulated and coerced agency in displacements induced by accelerated extraction of energy transition minerals in Zimbabwe', *Energy Research and Social Science*, 117, 2024, p. 13.

72

Owen (2022), p. 11.

73

Mkodzongi (2024) & C. Wilhelm & R. Maconachie, 'Exploring local content in Guinea's bauxite sector: Obstacles, opportunities and future trajectories', *Resources Policy*, 71, 2021 & S. Kugara & T. Mdhluli, 'Unearthing Corruption in Extractivism for Development: A Case Study of Thathe-Fhundudzi Community in South Africa', *African Renaissance*, Oct. 2024 & D. Mudenda & L. Ndikumana, 'Dark Spots in the International Commodity Value Chain: The Case of Copper in Zambia', *Political Economy Research Institute, University of Massachusetts - Working Paper Series 592*, Jan. 2024.

74

'Illicit Financial Flows', *Global Integrity*, no date, <https://gfintegrity.org/issue/illicit-financial-flows/>. Accessed 9 April 2025.

75

'Submission to the Committee on Planning and Budgeting: The Effects of Illicit Financial Flows on the Budget and its Sustainability in Zambia', *Policy Monitoring and Research Centre*, Nov. 2022, p. 3.

76

T. Ngozo, 'Illicit Financial Flows in the Mining Industry in South Africa', *Oxfam South Africa*, 2020, p. 22 'Interlinkage between debt, illicit financial flows, and inequality in the ECOWAS sub-region in the post-Covid-19 (sic)', *Tax Justice Network Africa*, 2023, p. 6.

77

'Impact of Illicit Financial Flows on Domestic Resource Mobilisation: Optimizing Revenues from the Mineral Sector in Africa', *African Minerals Development Centre – The African Union*, 2017, p. 3.

78

L. Signe (et al), 'Illicit financial flows in Africa: Drivers, destinations, and policy options', *Africa Growth Initiative at Brookings*, March 2020, p. 6.

79

J. Afolabi, 'Does illicit financial flows crowd-out domestic investment? Evidence from Sub-Saharan Africa economic regions', *International Journal of Finance and Economics*, 29, 2024, p. 1429.

80

B. Sovacool (et al), “The decarbonisation divide: Contextualising landscapes of low-carbon exploitation in Africa”, *Global Environmental Change*, 60, 2020, p. 1.

81

Boafo (2024), p. 1.

82

'Critical Minerals and Renewable Energy Value Chains in the Democratic Republic of Congo: A Study of Actors and Initiatives', *Southern Africa Resource Watch*, Jan. 2025, p. 13.

83

C. Church & A. Crawford, 'Green Conflict Minerals: The fuels of conflict in the transition to a low-carbon economy', *International Institute for Sustainable Development*, 2018, p. 8.

84

'Artisanal and Small-Scale Mining of Critical Minerals', *Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development*, 2024, p. 19.

85

Church & Crawford (2018), p. 27.

86

K. Sturman (et al), 'Mission critical Strengthening governance of mineral value chains for the energy transition', *Extractive Industries Transparency Institute*, 2022, p. 10.

87

P. Behuria, 'The injustice of just transitions: How the neglect of the green division of labour cements African dependencies', *Energy Research and Social Science*, 122, 2025, p. 5.

88

T. Stein (et al), 'Addressing the "Green Resource Curse" in Sub-Saharan Africa', *Energy Research and Social Science*, 74, 2021.

89

N. Ouedraogo & J. Kilolo, 'Africa’s critical minerals can power the global low-carbon transition', *Progress in Energy*, 6, 2024, p. 2.

90

Amin (2011).

91

'AfCFTA- the African Dream', *TrendsNAfrica*, 21 Dec. 2024, <https://trendsnafrica.com/afcta-the-african-dream/>. Accessed 17 April 2025.

92

Davis (2024), p. 4.

93

Muller (2023), p. 183.

94

C. Hendrix, 'Building Downstream Capacity for Critical Minerals in Africa: Challenges and Opportunities', *Peterson Institute for International Economics*, Dec. 2022, p. 3 - 4. Also see, ‘T. Acheampong & M. Tyce, 'Navigating the energy transition and industrial decarbonisation: Ghana’s latest bid to develop an integrated bauxite-to-aluminium industry', *Energy Research and Social Science*, 107, 2024.

95

Acheampong & Tyce (2024).

96

'Impact of Illicit Financial Flows on Domestic Resource Mobilisation: Optimizing Revenues from the Mineral Sector in Africa', *African Minerals Development Centre - African Union*, Jan. 2017 & E. Namaganda, 'Contradictions to decent African jobs under energy transition-related extractivism: the case of graphite mining in Mozambique', *Review of African Political Economy*, 50, 2023.

97

Davis (2024), p. 14.

98

'World Energy Employment 2024', *International Energy Agency*, 2024, pp. 87 - 88.

99

World Energy Employment 2024 (2024), p. 87.

100

Namaganda (2023), p. 441. There is some evidence that new CM mines opening in Zambia are resisting the unionisation of workers. See, McNamara & Siziba, (2024), p. 53.

101

W. Shen, 'China's role in critical mineral mining and its impacts', *Institute of Development Studies*, 20 July 2023, <https://www.ids.ac.uk/opinions/chinas-role-in-critical-mineral-mining-and-its-impacts/>. Accessed 24 April 2025.

102

EU Parliament: Traceability of critical raw materials, with a focus on Africa [https://www.europarl.europa.eu/RegData/etudes/STUD/2025/754473/EXPO_STU\(2025\)754473_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2025/754473/EXPO_STU(2025)754473_EN.pdf).

103

United States Department of Labor: Forced Labor in Cobalt Mining in the Democratic Republic of the Congo <https://www.dol.gov/sites/dolgov/files/ILAB/DRC-FL-Cobalt-Report-508.pdf>.

104

N. Oppong, 'Mining and the Quagmire of Job Creation in Africa', *Current History*, 122, 2023, pp. 183-4.

105

'Mining jobs among the ones artificial intelligence will take over first', *Mining.com*, 10 July 2017, <https://www.mining.com/web/mining-jobs-among-ones-artificial-intelligence-will-take-first/>. Accessed 23 April 2025.

106

J. Ahadjie, 'Africa's Green Minerals Strategy: Bolstering Africa's Role in the BEV and RE Value Chain', *African Development Bank*, no date E. Nforngwa (et al), 'Leveraging Critical Minerals to Catalyze Inclusive Broad-based Development in Africa: Outcomes of the African Regional Consultative Forum on Critical Minerals and Just Transition', *Panafrican Climate Justice Alliance*, Jan. 2024 & Acheampong (2022).

107

Stein (2021).

108

'Selected definitions and characteristics of ‘fragile states’ by key international actors', *International Labour Organisation*, 2016.

109

Church & Crawford (2018), pp. 17 -19.

110

K. Mohamadieh & D. Uribe, 'The Rise of Investor-State Dispute Settlement in the Extractive Sector: Challenges and Considerations for African Countries', *South Centre*, Feb. 2016, p. 2.

111

'Just Energy Transition Partnership offers should come as grants, not loans', *World Wildlife Fund South Africa*, 7 Nov. 2022, <https://www.wwf.org.za/?41686/Just-Energy-Transition-Partnership-offers-should-come-as-grants-not-loans>. Accessed 17 April 2025.

112

'Climate Finance Shadow Report 2023: Assessing the Delivery of the \$100 Billion Commitment', *Oxfam*, 2023, p.5.

113

'Life or Debt: The Stranglehold of Neocolonialism and Africa's Search for Alternatives', *Tricontinental: Institute for Social Research*, April 2023, p. 5 & Y. Sokana (et al), 'Just Transition: A Climate, Energy and Development Vision for Africa', *Independent Expert Group on Just Transition and Development*, 2023, p. 17.

114

I. Kvangraven, 'Dependency theory: strengths, weaknesses, and its relevance today', in E. Reinert (ed), *A Modern Guide to Uneven Economic Development*, Edward Elgar, 2023.

115

Namaganda (2023), p. 441.

116 'Where in the world do the poor live? It depends on how poverty is defined', *The World Bank*, 2 August 2023, <https://datatopics.worldbank.org/world-development-indicators/stories/where-do-the-poor-live.html>. Accessed 10 April 2025.

117 J. Ghosh, 'Interpreting Contemporary Imperialism', *Review of African Political Economy*, March 2021, p. 12.

118 Ghosh (2021), p. 12 & I. Kvangraven, 'Dependency theory: strengths, weaknesses, and its relevance today', in E. Reinert (ed), *A Modern Guide to Uneven Economic Development*, Edward Elgar, 2023, p. 158.

119 J. Hickel (et al), 'Imperialist appropriation in the world economy: Drain from the global South through unequal exchange, 1990–2015', *Global Environmental Change*, 73, 2022, p. 2.

120 Hickel (2022), pp. 1 & 6, 8.

121 See, for example, 'A globally just transition Perspectives from the Committee for Development Policy', *United Nations*, Dec. 2023 'The Role of the G20 in Promoting Green and Just Transitions', *Organisation for Economic Co-operation and Development*, 2024. D. Andreucci (et al), 'The coloniality of green extractivism: Unearthing decarbonisation by dispossession through the case of nickel', *Political Geography*, 107, 2023, p. 2.

122 Andreucci (2023), pp. 2 - 5.

123 B. Sovacool (et al), 'The decarbonisation divide: Contextualising landscapes of low-carbon exploitation in Africa', *Global Environmental Change*, 60, 2020, p. 2.

124 Sovacool (2020), p. 17.

125 Sturman (2022), p. 61.

126 Andreucci (2023), p. 3.

127 Behuria (2025), p. 2.

128 Behuria (2025), p. 5.

129 Davis (2024), p. 11.

130 N. Bainton (et al), 'The Energy-Extractive Nexus and the Just Transition', *Sustainable Development*, 29, 2021, p. 631.

131 See, in particular, Africa's Green Minerals Strategy (2024), p. 10 -11.

132 X. Ngwadla (et al), 'Energy Transition Considerations by African Economies towards a Just Transition: Summary for Policy Makers', *African Climate Policy Centre of the United Nations Economic Commission for Africa*, 2024, pp. 4-5, 27.

133 Sokana (2023), pp. 24 & 62.

134 See, for example, O. Otele, 'The Logic of Slavery Reparations', *The Guardian*, 31 March 2023, <https://www.theguardian.com/news/ng-interactive/2023/mar/31/more-than-money-the-logic-of-slavery-reparations> & N. Guibert, 'French government faces calls for slavery reparations', *Le Monde*, 17 April 2025, https://www.lemonde.fr/en/politics/article/2025/04/17/french-government-faces-calls-for-slavery-reparations_6740347_5.html & M. Franczak & O. Taiwo, 'Here's how to repay developing nations for colonialism – and fight the climate crisis', *The Guardian*, 14 Jan. 2022, <https://www.theguardian.com/commentisfree/2022/jan/14/heres-how-to-repay-developing-nations-for-colonialism-and-fight-the-climate-crisis>. Accessed 19 April 2025.

135 N. Vertecchi, 'Africa is Uniting in the Call for Reparations for Historical Injustices', *Italian Institute for International Political Studies*, 4 March 2025, <https://www.ispionline.it/en/publication/africa-is-uniting-in-the-call-for-reparations-for-historical-injustices-202101>. Accessed 20 April 2025.

136 '38th African Union Summit to Focus on Reparatory Justice and Racial Healing Under the Theme: “Justice for Africans and People of African Descent Through Reparations”', *African Union*, 28 Jan. 2025, <https://au.int/en/pressreleases/20250128/38th-african-union-summit-focus-reparatory-justice-and-racial-healing-under>. Accessed 19 April 2025.

137 Sokana (2023), p. 70.

138 'Climate change is a matter of justice – here's why', *United Nations Development Programme*, 30 June 2023, <https://climatepromise.undp.org/news-and-stories/climate-change-matter-justice-heres-why>. Accessed 19 April 2025.

139 A. Fanning & G. Hickel, 'Compensation for atmospheric appropriation', *Nature Sustainability*, 6, 2023.

140 'Europe Has Yet to Address Colonial Legacies'. *Human Rights Watch*, 14 Nov. 2024, <https://www.hrw.org/news/2024/11/14/europe-has-yet-address-colonial-legacies-0>. Accessed 19 April 2025.

141 'The state of democracy in Africa', *Global State of Democracy Initiative*, 2023, <https://www.idea.int/gsod/2023/chapters/africa/>. Accessed 18 April 2025.

142 Botswana, *United Nations Development Programme*, <https://data.undp.org/countries-and-territories/BWA>. Accessed 19 April 2025 & 'Democracy and Development in Botswana', *African Journal of Social Policy and Administration*, 13(1), 2022, p. 52.

143 E. Bothale, 'Political Settlements Analysis of Natural Resource Governance in Botswana', *Politikon*, 49(3), 2022, p. 282 & P. Mbabazi, 'What Can Resource-Rich African Countries Learn from the Botswana Success Story?', *Institute for Peace and Security Studies*, Policy Brief 12(13), Oct. 2018, p. 6.

144 Bothale (2022), p. 281.

145 A. Karstens, 'Dust to Diamonds: How Botswana Escaped the Resource Curse', MA, University of Stellenbosch, 2021.

146 K. Good, 'Resource Dependency and Its Consequences: The Costs of Botswana's Shining Gems', *Journal of Contemporary African Studies*, 23, Jan. 2005.

147 Africa's Green Minerals Strategy (2024), p. v.

148 The irony of some African leaders promoting the AMV is remarked on here, G. Hilson, 'The Africa Mining Vision: a manifesto for more inclusive extractive industry-led development?', *Canadian Journal of Development Studies*, 2020.

149 R. Halsey (et al), 'Watts in Store Part 2: Creating an enabling environment for the deployment of grid batteries in South Africa', *International Institute for Sustainable Development*, June 2024, p. 13 & S. Dube, 'South Africa Has the Critical Minerals, But Is That Enough to Become a Global Battery Storage Powerhouse?', *Earthjournalism*, 3 Sept. 2024, <https://earthjournalism.net/stories/south-africa-has-the-critical-minerals-but-is-that-enough-to-become-a-global-battery>.

150 Halsey (2024), p. vii – ix.

151 L. Moshikaro & L. Pjeto, 'Localising Vanadium Production for South Africa's Energy Security', *Trade and Industrial Policy Strategies*, August 2023, p. 9.

152 G. Montmasson-Clair, 'Bridging the gap between aspiration and reality: What would it take to localise the renewable energy value chain in South Africa', *Trade and Industrial Policy Strategies*, 2014, p. 3.

153 South African Renewable Energy Masterplan (SAREM): An inclusive industrial development plan for the renewable energy and storage value chains by 2030, *Department of Mineral Resources and Energy*, Dec. 2023.

154 'African Group's WTO Reform Ideas', *Washington Tariff & Trade Letter*, 14 Jul 2024, <https://www.wttlonline.com/stories/african-groups-wto-reform-ideas,10756>. Accessed 23 April 2025.

155 B. Huber, 'Countries spend huge sums on fossil fuel subsidies – why they're so hard to eliminate', *The Conversation*, 12 Nov. 2024, <https://theconversation.com/countries-spend-huge-sums-on-fossil-fuel-subsidies-why-theyre-so-hard-to-eliminate-239346>. Accessed 19 April 2025.

156 S. Whitley & L. van der Burg, 'Fossil fuel subsidy reform in sub-Saharan Africa: from rhetoric to reality', *The New Climate Economy*, 2015, pp. 7 - 8.

157 A. Geddes & M. Schmidt, 'Blackouts and Backsliding: Energy subsidies in South Africa 2023', *International Institute of Sustainable Development*, 9 April 2024. See, also, 'Still Banking on Fossil Fuels: How the African Development Bank (AfDB) continues to invest in fossil fuels at a cost to all Africans', *Power Shift Africa*, 2024.

158 S. Diallo (et al), 'Effect of Fossil Fuel Subsidies on Renewable Energy Transition in Sub-Saharan African Countries', in I. Ackah & C. Gatete (eds.), *Energy Regulation in Africa: Dynamics, Challenges, and Opportunities*, Springer, 2024.

159 See recommendations in 'Climate Finance Shadow Report 2023: Assessing the Delivery of the \$100 Billion Commitment', *Oxfam*, 2023.

160 'World Energy Employment 2024', *International Energy Agency*, 2024, p. 41.

161 E. Rita & K. Mataba, 'UN Convention on Tax: What happened at recent negotiations, and what's next?', *International Institute for Sustainable Development*, 14 Feb. 2025, <https://www.iisd.org/articles/explainer/United-Nations-International-Tax-Convention-Negotiations>. Accessed 22 April 2025.

162 M. Heydt, 'Unaccountable: The Role of Accountancy Firms in International Financial Scandals', *Global Financial Integrity*, 16 March 2020, <https://gfintegrity.org/unaccountable-the-role-of-accountancy-firms-in-international-financial-scandals/>. Accessed 22 April 2025.

163 'Financial Transactions Taxes and the Global South', *Institute for Policy Studies*, April 2011.

164 'Survival of the Richest: How we must tax the super-rich now to fight inequality', *Oxfam*, Jan. 2023, p. 7.

165 'Global unions push for progress on UN treaty on corporate accountability', *International Trade Union Confederation*, 16 Dec. 2024, <https://www.ituc-csi.org/Global-unions-push-for-progress-on-UN-treaty-on-corporate-accountability>. Accessed 19 April 2025.

166 https://www.un.org/sites/un2.un.org/files/report_sg_panel_on_critical_energy_transition_minerals_11_sept_2024.pdf

167 'Critical materials and sustainable development in Africa: Antonio M.A. Pedro', *One Earth*, 4, 19 March 2021 & 'Mineral Resource Governance in the 21st Century: Gearing Extractive Industries Towards Sustainable Development', *United Nations Environment Programme*, 2020, p. 8.

168 'Mineral Resource Governance in the 21st Century: Gearing Extractive Industries Towards Sustainable Development', *United Nations Environment Programme*, 2020.

169 A. Whitmor, 'A Material Transition: Exploring Supply and Demand Solutions for Renewable Energy Minerals', *War on Want*, March 2021, pp. 27 - 32. & N. Srivastava & A. Kumar, 'Critical minerals for energy transition: The emerging regime complex', *The Extractive Industries and Society*, 20, 2024 & C. Church & A. Crawford, 'Minerals and the Metals for the Energy Transition: Exploring the Conflict Implications for Mineral-Rich, Fragile States in M. Hafner & S. Tagliapietra (eds), *The Geopolitics of the Global Energy Transition*, Springer, 2020 & Sturman (2022), pp. 63 – 69.

170 Whitmor (2021), pp. 6 & 24.

171 A. Pedro (et al), 'Towards a sustainable development licence to operate for the extractive sector', *Mineral Economics*, 2017, p. 155 & Owen (2022) & 'Tracing Cobalt in Fragmented Supply Chains', *dormkaba*, Sept. 2022 & X. Cao (et al), 'Sourcing cobalt in the Democratic Republic of the Congo for a responsible net-zero transition: Incentives, risks and stakeholders', *Resources Policy*, 94, 2024 & C. Fuaset, 'What's Wrong with Corporate Social Responsibility?', *Corporate Watch*, 2006 & Whitmor (2021), pp. 30-36 & Church & Crawford (2018), p. 33 & Muller (2023), p. 193 & K. Talman, 'How 'ESG' came to mean everything and nothing', *BBC News*, 15 November 2023, <https://www.bbc.com/worklife/article/20231114-how-esg-came-to-mean-everything-and-nothing> & K. Makortoff, 'Support for ESG proposals at record low driven by US investors, report shows', *The Guardian*, 18 Feb. 2025, <https://www.theguardian.com/business/2025/feb/18/support-for-esg-proposals-at-record-low-driven-by-us-investors-report-shows>. Accessed 22 April 2025.

172 Davis (2024), p. 5.

173 Beuter (2024), p. 4.

174 Davis (2024), pp. 4 - 5.

175 Beuter (2024), p. 4.

176 N. Zalk, 'Africa's Development Agenda for its Critical Raw Materials: Prospects for development and integration of African battery value chains', *Africa Policy Research Institute*, 2024, pp. 18 -20.

177 Beuter (2024), pp. 3 & 20.

178 Andreoni & Roberts (2022), p. 13.

179 Sokana (2023), p. 13.

180 Diene (2022), p. 23.

181 K. Ross, 'Power play: How the lithium triangle could form “the new OPEC” as battery metal demand soars', *Mining Technology*, 7 July 2023, <https://www.mining-technology.com/features/will-the-lithium-triangle-form-the-new-opec/>. Accessed 21 April 2025.

182 Diene (2023), p. 18.

183 'African Just Transition Network Position Statement for COP29', *African Just Transition Network*, 12 Nov. 2024, <https://groundwork.org.za/africa-just-transition-network-ajtn-position-statement-for-cop29/>. Accessed 22 April 2025.

184 Ouedraogo & Kilolo (2024), p. 9.

185 Zalk (2024), p. 18.

186 G. Neema & C. van Staden, 'Africa's Critical Minerals: Boosting Development Amid Geopolitical Challenges', *South African Institute of International Affairs*, Aug. 2024.

187 E. Chabala, 'Lobito Corridor – A Reality Check', *African Policy Research Institute*, 2 Feb. 2024, <https://afripoli.org/lobito-corridor-a-reality-check> & S. Way, 'What to know about the Lobito Corridor—and how it may change how minerals move', *Atlantic Council*, 20 Dec. 2024, <https://www.atlanticcouncil.org/blogs/africasource/what-to-know-about-the-lobito-corridor-and-how-it-may-change-how-minerals-move/>. Accessed 23 April 2025 & Behuria (2025), p. 6.

188 L. Beaucamp & E. Nforngwa, 'Adding Local Value to African Countries' Critical Raw Materials Trade', *Germanwatch*, Aug. 2024, p. 4.

189 Andreoni & Roberts (2022), p. 13.

190 A. Andreonia & E. Avenyob, 'Critical Minerals and Routes to Diversification in Africa: Linkages, Pulling Dynamics and Opportunities in Medium-High Tech Supply Chains', *Background paper commissioned by the UNCTAD secretariat for the 2023 edition of the Economic Development in Africa Report*, August 2023, p. 53.

191 Muller (2023), p. 189.

192 Diene (2023), p. 22.

193 Ouedraogo & J.Kilolo (2024), p. 8.

194 Ouedraogo & J.Kilolo (2024), p. 8.

195 A. Matikinca & T. Chitagu, 'On the trail of lithium smugglers in Southern Africa', *Oxpeckers*, April 2025, <https://oxpeckers.org/2025/04/lithium-smugglers/> & 'Zimbabwe softens stance on local lithium processing after price collapse', *Mining Weekly*, 3 Oct. 2024, <https://www.miningweekly.com/article/zimbabwe-softens-stance-on-local-lithium-processing-after-price-collapse-2024-10-03>. Accessed 22 April 2025 & N. Zalk, 'Africa's Development Agenda for its Critical Raw Materials: Prospects for development and integration of African battery value chains', *Africa Policy Research Institute*, 2024, p. 16.

196 L. Benabdallah, 'China's Engagement in the critical minerals landscape in Africa: Potentials and challenges of tapping into the Global Energy Transition', *Africa Policy Research Institute*, Sept. 2024, p. 7.

197 'Pula Fund', *Bank of Botswana*, <https://www.bankofbotswana.bw/content/pula-fund>. Accessed 22 April 2025.

198 Diene (2023), p. 25.

199 'The Status of Wind in Africa', *GWEC Africa*, 2023, pp. 27 - 28.

200. D. Cloete (et al), 'Re-imagining the Critical Minerals Ecosystem in SADC: Building Anticipatory Governance', *South African Institute of International Affairs*, Sept. 2023, p. 19

201 Sokana (2023), pp. 81



Greenpeace Africa Head Office

Phone: +27 11 482 4696

E-Mail: coafrika@greenpeace.org

Fundraising related queries

Phone: +27 11 726 2404

E-Mail: fgpa@greenpeace.org

Kenya specific fundraising queries

E-Mail: gkenya@greenpeace.org

