Policy Insights
164
June 2025

Towards Just Resource Exploitation in a Green Transition

AWA DIOUF

African perspectives
Global insights

SAIIA 90 EST.1934

Executive summary

Growing demand for minerals required by green technologies presents both opportunities and risks for Africa, where about 30% of these minerals are found. Without strong governance, the surge in demand could exacerbate existing inequalities, accelerate environmental degradation and foster corruption and weak institutional oversight. By prioritising progressive taxation, industrial value addition, regional cooperation and community-centred benefit sharing, African nations could transform their mineral wealth into a driver for long-term economic growth and climate resilience. This policy insight explores how green minerals can enhance Africa's climate resilience while ensuring equitable benefits for local communities. It examines challenges in natural resource governance, opportunities to strengthen rent capture and policies to safeguard potentially affected populations. It also outlines strategies to reinvest mineral rents in climate initiatives and create a profitable green industry, and concludes with policy recommendations to promote economic growth, environmental sustainability and social equity.

Introduction

The global fight against climate change has intensified demand for minerals that are vital to the energy transition, known as green minerals. Some of these minerals are even considered critical because their supply chains face significant risks, including extraction challenges and geopolitical instability, as many are concentrated in politically sensitive regions. While green minerals are primarily valued for their role in renewable energy and climate mitigation, critical minerals are also classified based on their strategic importance to national economies, which often leads to targeted policy interventions to secure their supply.[1] With their critical role in renewable energy technologies, the global demand for green minerals needs to increase sixfold by 2050.[2] Without strong governance, this surge in demand could exacerbate existing inequalities, accelerate environmental degradation and foster corruption and weak institutional oversight.

Figure 1 illustrates Africa's significant share of global critical mineral reserves, highlighting its dominance in platinum group metals (92%), cobalt (50%), manganese (42%) and other key minerals essential for renewable energy technologies. With approximately 30% of the world's reserves of critical minerals,[3] African countries are considered important actors in

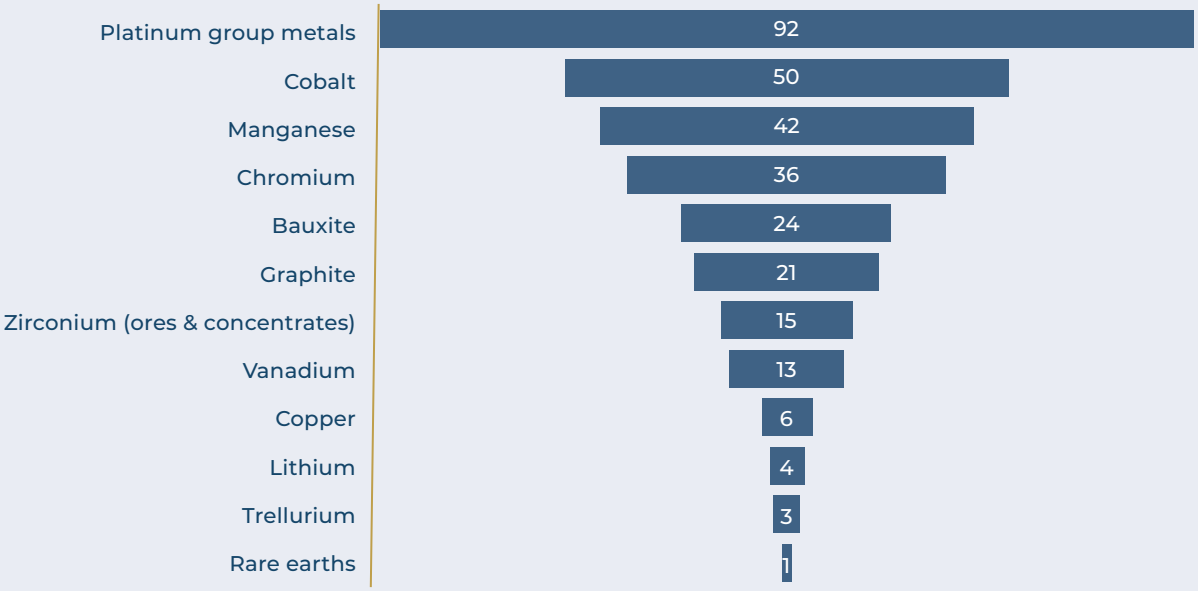
1 Deon Cloete et al., "Exploring the Critical Minerals Ecosystem in SADC: Country Barriers and Enablers" (Policy Insights 161, South African Institute for International Affairs, 2023).

2 Oli Brown et al., "Critical Transitions: Circularity, Equity, and Responsibility in the Quest for Energy Transition Minerals" (Working Paper, UN Environment Programme, 2024).

3 International Monetary Fund, "Digging for Opportunity: Harnessing Sub-Saharan Africa's Wealth in Critical Minerals" (Analytical Note, Regional Economic Outlook, April 2024).

renewable energy technology value chains.[4] They are positioning themselves to capitalise on the energy transition, as demonstrated by the launch of the African Green Minerals Observatory and strategic plans such as the African Green Minerals Strategy that aim to add value, strengthen fiscal frameworks and manage resources sustainably.[5] However, as highlighted by the UN Secretary General's Panel on Critical Energy Transition Minerals, it is imperative that the exploitation of these resources is guided by principles of equity and justice to ensure that mineral wealth contributes to sustainable development and benefits all stakeholders involved, notably local communities.

Figure 1 Africa's share of global critical mineral reserves (%)



Source: Antonio Andreoni and Elvis Avenyo, *August 2023 Critical Minerals and Routes to Diversification in Africa: Linkages, Pulling Dynamics and Opportunities in Medium-High Tech Supply Chains*, Report (UNCTAD, 2023)

Resource-rich countries have frequently encountered the 'resource curse', where natural resource wealth is paradoxically linked to weak institutions, poor rent capturing, corruption, low economic growth and conflict.[6] Moreover, more than half of energy transition minerals are located on or near lands inhabited by Indigenous and rural communities, making equitable resource rent distribution essential to ensuring local

4 James Boafo et al., "The Race for Critical Minerals in Africa: A Blessing or Another Resource Curse?", *Resources Policy* 93 (2024).

5 Africa Natural Resources Management and Investment Center, "Approach Paper Towards Preparation of an African Green Minerals Strategy" (African Development Bank Group, December 2022).

6 Saleem H. Ali, Kathryn Sturman and Nina Collins, *Africa's Mineral Fortune: The Science and Politics of Mining and Sustainable Development* (Routledge, 2019); Weihong Qi, "Revisiting the Resource Curse in the Age of Energy Transition: Cobalt Reserves and Conflict in Africa", arXiv, Cornell University, April 26, 2024.

acceptance and preventing socio-political tensions.[7] Many of these countries/regions are already highly vulnerable to climate change and face increasing risks from extreme weather events, water scarcity and environmental degradation. Without proactive measures, mineral extraction could further compound these challenges, deepening socio-economic inequalities.[8] Strengthening climate resilience in these areas is vital not only for protecting affected communities but also for ensuring the long-term viability of resource extraction and green mineral supply. Finally, African countries are historically raw mineral exporters, resulting in poor value addition, missed opportunities for job creation and economic development, and continued dependence on volatile commodity markets. As a result, while the exploitation of green minerals offers substantial opportunities, it simultaneously raises urgent concerns.

The green transition demands minerals, and sustainable development demands equitable rent sharing and smart green initiatives. This policy insight explores how green minerals can enhance Africa's climate resilience while ensuring equitable benefits for local communities. It examines challenges in natural resource governance, opportunities to strengthen rent capture and policies to safeguard potentially affected populations. It also outlines strategies to reinvest mineral rents in climate initiatives and create a profitable green industry. The policy insight concludes with policy recommendations to promote economic growth, environmental sustainability and social equity.

Capturing resource rents: Current gaps and opportunities

Natural resource exploitation in Africa has long been associated with governance challenges, slower economic growth, political instability, conflict and social inequalities – a phenomenon widely known as the 'resource curse'.[9] Overdependence on resource revenues exposes economies to price volatility, undermines economic diversification and weakens other economic activities.[10] In addition, the mismanagement of resource wealth has fuelled elite capture, corruption and conflicts. Poor governance structures frequently prevent resource rents from being reinvested into public services such as

7 John R. Owen et al., "Energy Transition Minerals and Their Intersection With Land-Connected Peoples", *Nature Sustainability* 6, no. 2 (2023): 203–211.

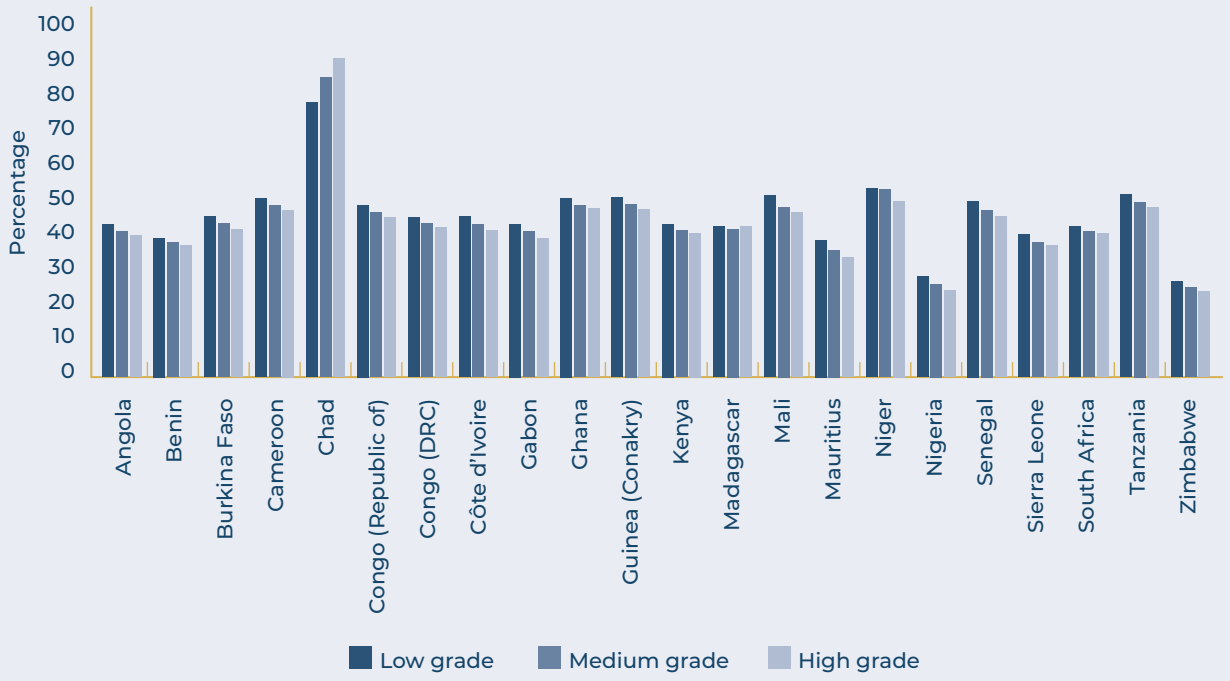
8 Sarah McAuley, "Community Climate Resilience in Critical Mineral Supply Chains", SEI Projects, 2022.

9 Peter Arthur, "Governance of Natural Resource Management in Africa: Contemporary Perspectives", in *Managing Africa's Natural Resources*, eds. Kobena T. Hanson, Cristina D'Alessandro and Francis Owusu (Springer, 2014): 39–65; Kobena T. Hanson and Peter Arthur, "Assessing Extractive Natural Resources and Digitalization of Governance Initiatives in Africa: Rethinking Questions of Decline and Resilience", in *Sustainable Development, Digitalization, and the Green Economy in Africa Post-COVID-19*, eds. Korbla P. Puplampu, Kobena T. Hanson and Peter Arthur (Springer, 2023): 101–123; George Kararach, "Translating the Extractive Resources To Economic Growth and Transformation", *The Journal of Sustainable Development Law and Policy* 8, no. 1 (2017): 90.

10 Ramez Abubakr Badeeb, Hooi Hooi Lean and Jeremy Clark, "The Evolution of the Natural Resource Curse Thesis: A Critical Literature Survey", *Resources Policy* 51 (March 2017): 123–134.

health, education and infrastructure, which further exacerbates inequalities.[11] While some resource-rich countries, such as Botswana, Indonesia and Malaysia, have managed to avoid the resource curse through strong fiscal policies and economic diversification, their success remains an exception rather than the rule.[12]

Figure 2 Average effective tax rate by country for a representative mine in 2020



Source: FERDI, Taxation of Mining Industries, "Database on Mining Industry Taxation", 2020

Tax revenue collection is a primary mechanism through which resource-rich countries can capture and redistribute resource rents for national development. However, Africa faces persistent challenges in effectively capturing and equitably distributing these revenues, primarily due to weak taxation frameworks, governance failures and external economic volatility.

A key barrier to resource rent capture is global mineral price volatility, which exposes governments to unpredictable revenue flows. Many African countries lack adaptive fiscal

11 Rafael Aguirre Unceta, "République Démocratique Du Congo : Revenus Miniers Et Dépenses Publiques Pour le Développement" [Democratic Republic of Congo: Mining Revenues and Public Spending on Development], *Mondes En Développement* 1, no. 189 (2020): 55–80.

12 Gilles Carbonnier, "Comment conjurer la Malédiction des Ressources Naturelles?" [How to Ward Off the Natural Resources Curse?], *Annuaire Suisse de Politique de Développement* 26, no. 2 (2007): 83–98.

tools to stabilise earnings. This makes it difficult to sustain long-term public investments.[13] Governments typically rely on production-based and profit-based taxation systems to collect revenues from extractive industries, but these frameworks are often rigid, outdated and ineffective at adjusting to market fluctuations.[14] As shown in Figure 2, tax regimes are regressive and experience a decline in their effective tax rate as project profitability increases. This means that the government captures a higher share of revenues when profits are low, and a lower share when profits are high. In such cases, companies bear a greater share of the downside risk during periods of low profitability, while the state reaps fewer benefits during booms. If tax systems were progressive or even proportional, the average effective tax rate would rise with profitability, allowing for more equitable risk sharing between the state and investors. Furthermore, corruption and bad governance remain a persistent challenge, with high-level rent-seeking behaviour distorting tax policies and weakening enforcement mechanisms. Systemic corruption discourages transparency and prevents fair revenue distribution, limiting the public's share of natural resource wealth.[15]

To maximise rent capture from green minerals, African governments must transition from rigid taxation models to more adaptive, progressive fiscal regimes that respond to profitability fluctuations. Implementing sliding-scale royalties and rent taxes would ensure that governments secured a fairer share of revenues during commodity price surges while maintaining a competitive investment climate.[16] In addition, well-enforced profit-based taxation could enhance revenue collection without deterring investment, particularly when paired with robust anti-avoidance measures to curb profit shifting and illicit financial flows.[17]

Enhancing fiscal transparency and governance is equally crucial. Measures such as mandatory contract and revenue disclosure – aligned with the Extractive Industries Transparency Initiative – and independent audits could deter corruption and reinforce

13 Elias T. Ayuk and Rebecca A. Klege, "Extractive Resources, Global Volatility and Africa's Growth Prospects", *The Journal of Sustainable Development Law and Policy* 8, no. 1 (2017): 259–287; Paolo D'Orazio, "Assessing the Fiscal Implications of Changes in Critical Minerals' Demand in the Low-Carbon Energy Transition", *Applied Energy* 376 (2024): 124197; John J. Struthers, "Commodity Price Volatility: Causes, Policy Options and Prospects for African Economies", in *Logistics and Global Value Chains in Africa*, eds. Adebisi Adewole and John J. Struthers (Palgrave Macmillan, 2019), 133–168.

14 Bertrand Laporte, Celine de Quatrebarbes and Yannick Bouterige, "Tax Design and Rent Sharing in Mining Sector: Evidence from African Gold-Producing Countries", *Journal of International Development* 34, no. 6 (2022): 1176–1196.

15 George-Marios Angeletos and Tryphon Kollintzas, "Rent Seeking/Corruption and Growth: A Simple Model" (Paper, SSRN, 2000); Ivar Kolstad and Tina Søreide, "Corruption in Natural Resource Management: Implications for Policy Makers", *Resources Policy* 34, no. 4 (2009): 214–226.

16 Laporte, de Quatrebarbes and Bouterige, "Tax Design and Rent Sharing"; Desmond Ashikwei, Omowumi Iledare and Eric Amarfio, "Fiscal System Design and Economic Evaluation for Petroleum Resource Development in Ghana (Comparative Analysis Between Fixed Royalty and Sliding Scale Royalty)" (Paper presented at the SPE Nigeria Annual International Conference and Exhibition, Lagos, Nigeria, July 2023).

17 Abdallah Ali-Nakyea and Nasir Alfa Mohammed, "Resource Rent and Capital Gains Taxes in Africa", in *Taxation and Management of Natural Resources in Africa*, eds. Abdallah Ali-Nakyea, Nasir Alfa Mohammed and Joshua Yindenaba Abor (Springer, 2024): 133–151; Bertrand Laporte, Celine de Quatrebarbes and Yannick Bouterige, "Rent Sharing and Progressivity of Tax Regimes in the Mining Sector: An Analysis of 21 African Gold-Producing Countries" (Working Paper, Ideas, 2019).

public trust.[18] Renegotiating outdated contracts could help to shift structural power from corporations to governments, enabling African countries to maximise long-term fiscal benefits from their mineral wealth.[19] Establishing sovereign wealth funds with robust governance mechanisms could further stabilise revenue flows and ensure that resource rents are strategically reinvested in economic diversification, green energy development and climate resilience.

Ensuring local community resilience and well-being

No community should pay the price for natural resource extraction, and even less for a greener world. While effectively capturing green mineral rents is essential, this must be paired with equitable rent sharing. Green mineral exploitation must put local communities' well-being at its core, especially given that many deposits are located near vulnerable populations. Too often, resource-rich African countries have failed to ensure that mining revenues translate into tangible improvements in local livelihoods, which has exacerbated socio-economic inequalities and fuelled discontent and conflicts. Ensuring that mining rents are fairly redistributed through local development funds, infrastructure investments and inclusive benefit-sharing agreements is critical to fostering social acceptance and preventing the marginalisation of communities most affected by extraction activities.

Green mineral exploitation must put local communities' well-being at its core, especially given that many deposits are located near vulnerable populations

The impacts of natural resource extraction on local communities are widely debated in the literature. Some studies highlight the positive economic outcomes of mining, such as increased local employment opportunities and economic activity.[20] However, mining

18 Michael Effah Asamoah, Mawuena Akosua Cudjoe and Teddy Ossei-Kwakye, "Accountability and Transparency of Management of Natural Resources in Africa: Is the Information Sharing the Solution?", in *Taxation and Management of Natural Resources in Africa*, eds. Abdallah Ali-Nakyea, Nasir Alfa Mohammed and Joshua Yindenaba Abor (Springer, 2024): 109–131; Eyene Okpanachi and Nathan Andrews, "Global Energy Governance and Natural Resource Transparency in Africa: Assessing the Extractive Industries Transparency Initiative (EITI) in Nigeria and Ghana" (ASA 2013 Annual Meeting Paper, SSRN, 2013).

19 Sarah G. Katz-Lavigne, "The Renegotiation Window: Resource Contract Renegotiations in the Mining Industry in Africa from 2000 to 2013", *Resources Policy* 51 (March 2017): 22–30.

20 Anja Benshaul-Tolonen et al., "The Local Socioeconomic Effects of Gold Mining: Evidence from Ghana", *The Extractive Industries and Society* 6, no. 4 (2019): 1234–1255; Punam Chuhan-Pole, Andrew L. Dabalen and Bryan Christopher Land, Mining in Africa: Are Local Communities Better Off?, Report (Africa Development Forum Series, 2017); James Cust and Steven Poelhekke, "The Local Economic Impacts of Natural Resource Extraction", *Annual Review of Resource Economics* 7, no. 1 (2015): 251–268; Sandro Provenzano and Hannah Bull, "The Local Economic Impact of Mineral Mining in Africa: Evidence from Four Decades of Satellite Imagery" (Paper, arXiv, Cornell University, 2021).

activities are also associated with significant adverse effects. Local communities can experience income losses and an increase in inequalities and poverty, with more adverse effects on the most vulnerable stratas.[21] They create socio-economic and environmental tensions when local communities disproportionately bear the negative externalities of extraction, such as environmental degradation, water contamination and restricted access to essential resources.[22] Foreign companies often prioritise expatriate labour, sidelining local skills development and employment. This fuels resentment and conflict, especially when stark contrasts arise between the living conditions of expatriate workers and those of local communities.[23]

Furthermore, the lack of participatory management and inclusive decision-making processes further erodes trust between communities and mining operators, exacerbating tensions.[24] The negative effect of mining on local communities is also noticeable in the context of critical minerals. For instance, lithium extraction in Zimbabwe threatens many communities with physical, cultural and economic harm.[25] Nevertheless, green mineral extraction holds significant potential to improve the socio-economic conditions of local communities.[26] To ensure these benefits materialise, governments and companies must adopt inclusive resource management practices that prioritise fair rent distribution, social safeguards and community participation. Legislative frameworks that promote local content policies and participatory governance strategies could help resource-rich communities to share in the benefits of the green transition. A key aspect of this approach is decentralising mineral rent management, ensuring that a meaningful portion of captured rents directly benefits local communities. Local governments, given their proximity to communities and better understanding of their needs, play a crucial role in this process. However, challenges persist – often due to insufficient revenue allocation, limited administrative capacity and governance weaknesses that hinder the effective use of funds. In some cases, corruption and mismanagement at the local level further impede the equitable distribution of mining revenues.

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21 Dou Shiquan et al., "The Impact of Mineral Resource Extraction on Communities: How the Vulnerable are Harmed", *Extractive Industries and Society* 10 (June 2022): 101090.

22 Chomba Kolala and Bridget Bwalya Umar, "National Benefits, Local Costs? Local Residents' Views on Environmental and Social Effects Of Large-Scale Mining in Chingola, Zambia", *Natural Resources Forum* 43, no. 4 (2019): 205–217; Seth Opoku Mensah and Seth Asare Okyere, "Mining, Environment and Community Conflicts: A Study of Company-Community Conflicts Over Gold Mining in the Obuasi Municipality of Ghana", *Journal of Sustainable Development Studies* 5, no. 1 (2014): 64–99; Vikrant Wankhede, *Benefit Sharing in the Mining Sector in Africa*, Report (Centre for Science and Environment, 2020).

23 Renzo Castellares and Morgane Fouché, "The Determinants of Social Conflicts in Mining Production Areas" (Working Paper 100, Peruvian Economic Association, June 2017); Opoku Mensah and Asare Okyere, "Mining, Environment and Community Conflicts: A Study of Company-Community Conflicts over Gold Mining in the Obuasi Municipality of Ghana", *Journal of Sustainable Development Studies* 5, no 1 (2014): 64–99; Tim Wegenast and Gerald Schneider, "Ownership Matters: Natural Resources Property Rights and Social Conflict in Sub-Saharan Africa", *Political Geography* 61 (November 2017): 110–122.

24 Marta Conde and Philippe Le Billon, "Why Do Some Communities Resist Mining Projects While Others Do Not?", *Extractive Industries and Society* 4, no. 3 (July 2017): 681–697; Kieren Moffat and Airong Zhang, "The Paths To Social Licence To Operate: An Integrative Model Explaining Community Acceptance Of Mining", *Resources Policy* 39, no. 1 (2014): 61–70; Obby Phiri, Elisavet Mantzari and Pauline Gleadle, "Stakeholder Interactions and Corporate Social Responsibility (CSR) Practices: Evidence From the Zambian Copper Mining Sector", *Accounting, Auditing and Accountability Journal* 32, no. 1 (2019): 26–54.

25 Joshua Matanzima, "Displaced by the Transition: The Political Ecology of Climate Change Mitigation, Displacements and Lithium Extraction In Zimbabwe", *Extractive Industries and Society* 20 (2024): 101572.

26 Hugo Lapeyronie and Eszter Szedlacsek, "Mining in Africa: Are Local Communities Paying the Price of the Global Energy Transition?", *Extractive Industries and Society* 21 (2025): 101565.

Ghana's Minerals Development Fund Act of 2016 provides an example of efforts to allocate a share of mineral rents to local governments to address socio-economic challenges in mining-affected areas.[27] This framework is designed to channel mining revenues into critical infrastructure, education and healthcare services, but its impact is often constrained by governance inefficiencies and capacity gaps. Strengthening local governance, fostering transparency through community engagement and implementing robust oversight mechanisms could enhance the effectiveness of such initiatives. In some contexts, however, local governments have demonstrated their capacity to effectively utilise public revenues for development. In Colombia, for example, local tax revenues have had a greater impact on public goods provision than oil royalties, highlighting the importance of strong local governance in maximising the benefits of natural resource wealth.[28]

Beyond government-led initiatives, corporate-led strategies such as corporate social responsibility (CSR) programmes have also contributed to addressing local development needs. In Africa, CSR initiatives in the mining sector have played a role in funding education, healthcare and employment programmes, which has fostered better relations between mining firms and local communities.[29] However, while CSR efforts can complement government initiatives, they should not serve as a substitute for state-led policies that ensure systematic and long-term community benefits. Instead, governments should create clear regulatory frameworks that require mining firms to integrate social safeguards into their operations while prioritising sustainable local development.

Ensuring that local communities benefit equitably from resource rents requires strong, participatory governance frameworks that foster inclusivity, transparency and accountability to promote sustainable development and reduce social conflict.[30] Active involvement of communities in decision making enhances social acceptance of mining projects and ensures that their priorities are addressed. However, challenges such as power asymmetries and knowledge gaps often limit meaningful participation.[31] Participatory governance models, for instance participatory water monitoring programmes in Latin America and Indigenous resource governance systems in Mexico, demonstrate the potential of community-led decision making in resource management.[32] While these approaches help counterbalance external influences and

27 George Ayuune Akeliwira and Bernard Anaba, "Sustainable Economic Planning and Distribution of Mineral Rents in Local Communities: Evidence from Ghana", *Journal of Economics and Sustainable Development* 13, no. 2 (2022).

28 Luis R. Martínez, "Natural Resource Rents, Local Taxes, and Government Performance: Evidence from Colombia", *The Review of Economics and Statistics* (2023): 1–28.

29 Peter Ansu-Mensah et al., "CSR and Community Development: A Focus on Firms in the Extractive Sector in Africa", in *Corporate Social Responsibility in Developing Countries*, eds. Steven Kayambazinthu Msosa, Shame Mugova and Courage Mlambo (Springer, 2023), 65–81.

30 International Energy Agency, *Sustainable and Responsible Critical Mineral Supply Chains: Guidance for Policy Makers*, Report (IEA, 2023).

31 Sam A Kasimba and Paivi Lujala, "Community Based Participatory Governance Platforms and Sharing of Mining Benefits: Evidence from Ghana", *Community Development Journal* 57, no. 4 (October 2022): 635–654.

32 Claudio Pareja et al., "What Participation? Distinguishing Water Monitoring Programs in Mining Regions Based on Community Participation", *Water* 10, no. 10 (2018); Marcela Torres-Wong and Adrian Jimenez-Sandoval, "Indigenous Resource Governance as an Alternative to Mining: Redefining the Boundaries of Indigenous Participation", *The Extractive Industries and Society* 9 (2022): 101001.

foster legitimacy, they must also safeguard marginalised voices. In addition, transparent revenue management, including earmarking mining rents for healthcare, education and environmental conservation, is crucial to guaranteeing that local communities experience tangible benefits from resource extraction.

The environmental impact of critical mineral extraction must also be a priority to prevent the green transition from causing further ecological harm. Mining activities for lithium, cobalt and rare earth elements contribute to habitat destruction, declining ore grades and extensive waste generation.[33] In Chile, lithium extraction has caused severe biodiversity loss and water scarcity, while mining in the Democratic Republic of Congo has led to deforestation, water pollution and ecosystem poisoning.[34] The water-intensive nature of some mineral extraction processes further depletes scarce resources and disrupts Indigenous land use.[35] To mitigate these risks, sustainable mining practices, recycling initiatives and green technologies must be integrated into extraction processes to reduce waste and environmental degradation.[36] In addition, ethical considerations, including fair labour practices and the protection of human and social rights, must be central to mineral supply chain reforms.[37]

Leveraging green mineral revenues for climate resilience and economic development

Green investments today secure tomorrow's climate resilience. African countries have two primary avenues to maximise the benefits of their green mineral wealth in the fight against climate change: the creation of a strong continental green industry and the strategic reinvestment of green mineral rents in climate resilience initiatives. These efforts are essential for ensuring that mineral wealth contributes to sustainable economic transformation rather than reinforcing dependency on raw material exports.

To fully capitalise on the opportunities presented by green minerals, African countries must develop robust value chains that integrate local processing, manufacturing and technology development. The shift from raw mineral exports to domestic value addition can stimulate job creation, enhance industrial capacity and reduce economic vulnerability to volatile commodity markets. For instance, investing in lithium-ion battery production, solar panel manufacturing and electric vehicle (EV) components could ensure that resource-rich nations retained a greater share of the economic benefits of their

33 Evan K. Paleologos et al., "Sustainability Challenges of Critical Minerals for Clean Energy Technologies: Copper and Rare Earths", *Environmental Geotechnics* 12, no. 2 (2024): 88–100.

34 Zakiya Amani, Aliar Hossain and Nasrin Sultan, "Critical Analysis of Sustainable Mining Practices in the Democratic Republic of the Congo", *The Business and Management Review* 15, no. 2 (2024): 235–241; Friends of the Earth, "What's the Environmental Impact of Critical Minerals?", 2024.

35 IEA, *Sustainable and Responsible Critical Mineral*.

36 Paleologos et al., "Sustainability Challenges of Critical Minerals".

37 Friends of the Earth, "What's the Environmental Impact".

mineral wealth. Regional collaboration is crucial to supporting continental supply chains for renewable energy technologies. African nations could pool resources, harmonise industrial policies and leverage trade agreements to establish integrated clean energy corridors. Such approaches would strengthen Africa's competitiveness in the global clean energy market, ensuring that the continent moved beyond its historical reliance on exporting raw materials.

African countries have two primary avenues to maximise the benefits of their green mineral wealth in the fight against climate change: the creation of a strong continental green industry and the strategic reinvestment of green mineral rents in climate resilience initiatives

Beyond industrial development, green mineral rents should be strategically reinvested in climate resilience initiatives that enhance livelihoods and foster sustainable development. In agriculture, climate-smart agriculture and agroforestry have helped farmers adapt to climate change by improving soil health, boosting crop yields and enhancing biodiversity conservation.[38] Nature-based solutions, such as wetland restoration and afforestation, have proven effective in managing floods and strengthening ecosystem resilience. However, challenges persist in their implementation, especially in urban areas, due to governance and financial constraints.[39] Infrastructure designed to withstand climate extremes – such as flood-resistant transportation networks and energy-efficient urban development – could enhance the adaptive capacity of communities most affected by climate change. Education and capacity-building initiatives play a crucial role in strengthening climate adaptation efforts in Africa by equipping stakeholders with technical expertise and climate resilience strategies. Programmes such as Climate Information Services (CIS) and the CIRCLE project have improved access to climate data and research, which has enhanced decision making in key sectors such as agriculture and energy.[40] Investing resource rents in these areas can not only contribute to global climate goals but also address local development challenges, such as energy poverty and unemployment, while creating long-term economic stability.

38 Andrew J. Dougill et al., "Evaluating Climate-Smart Agriculture as Route to Building Climate Resilience in African Food Systems", *Sustainability* 13, no 17 (2021): 9909; Mette Fog Olwig, Aske Skovmand Bosselmann and Kwadwo Owusu, *Agroforestry as Climate Change Adaptation: The Case of Cocoa Farming in Ghana* (Palgrave Macmillan, 2024).

39 Razak Kiribou et al., "Urban Climate Resilience in Africa: A Review of Nature-Based Solution in African Cities' Adaptation Plans", *Discover Sustainability* 5, no. 1 (2024): 1–15; Pauline Long'or Lokidor et al., "Nature-based Solutions for Sustainable Flood Management in East Africa", *Journal of Flood Risk Management* 17, no. 1 (2024): e12954.

40 Fredrick Kayusi et al., "Climate Information Services (CIS): A Vital Tool for Africa's Climate Resilience" (Paper, SSRN, 2024); Obed M. Ogega et al., "Strengthening Climate Research Capacity in Africa: Lessons from the 'Climate Impact Research Capacity Leadership Enhancement' Project", *Regional Environmental Change* 22, no. 4 (2022): 135.

Several countries have successfully reinvested mineral wealth into climate resilience initiatives, offering valuable lessons for African policymakers. Chile, a major copper producer, has strategically used mining taxes to expand its renewable energy sector, particularly in solar and wind power, which now constitutes a significant portion of the national energy grid.[41] Norway's sovereign wealth fund, funded by oil revenues, serves as a global model for managing resource wealth to support future sustainability, including investments in low-carbon technologies and global climate funds. In Africa, Botswana's diamond-funded development strategy has prioritised economic diversification and infrastructure resilience, reducing dependence on finite resources while investing in sustainable growth. Meanwhile, Ghana's Minerals Development Fund Act (2016) earmarks mining revenues for local climate adaptation projects to enhance infrastructure and agricultural resilience in resource-dependent communities.

Policy recommendations

Africa's green mineral wealth presents an opportunity to drive industrialisation, economic diversification and climate resilience. However, without robust governance and strategic reinvestment, mineral exploitation risks perpetuating the resource curse rather than fostering sustainable development. To fully leverage green minerals for economic transformation, policy efforts must focus on strengthening governance and fiscal frameworks, promoting industrialisation and value chain development, fostering regional cooperation and strategic partnerships and ensuring equitable benefit sharing, notably with local communities.

Without robust governance and strategic reinvestment, mineral exploitation risks perpetuating the resource curse rather than fostering sustainable development

Enhancing governance and strengthening fiscal frameworks

Good governance and institutional quality are prerequisites for ensuring that green mineral wealth translates into broad-based economic gains. Weak regulatory frameworks, corruption and opaque tax regimes have historically hindered Africa's ability to maximise resource rents. Governments must implement progressive, adaptive taxation models that

41 N.S. Ouedraogo and J.M.M. Kilolo, "Africa's Critical Minerals Can Power the Global Low-Carbon Transition", *Progress in Energy* 6, no. 3 (2024): 033004.

allow for flexible fiscal adjustments based on commodity prices. Sliding-scale royalties should be introduced to adjust tax rates according to price fluctuations, ensuring that governments capture increased revenues during commodity booms while maintaining a stable investment environment. Windfall taxes could be applied to capture excess profits from high commodity prices, preventing resource wealth from disproportionately benefiting investors at the expense of national development. Strengthening tax administration capacity and improving transparency in revenue management through public disclosure mechanisms would enhance accountability and reduce illicit financial flows. Green investment funds should be established to allocate a portion of mining revenues to renewable energy development, reforestation programmes and climate-smart infrastructure. Ensuring fiscal stability and transparency is crucial to creating a sustainable and predictable investment climate that attracts responsible mining firms while maximising public revenues.

Promoting industrialisation and value chain development

One of the main challenges facing African economies is their continued reliance on raw mineral exports, which limits value retention and economic transformation. To break this cycle, local processing and mineral-based industrialisation must be prioritised. Investments in local processing and manufacturing, such as lithium-ion battery production, solar panel assembly and EV component manufacturing, could generate employment, increase fiscal revenues and reduce dependency on volatile commodity exports. Strategic local content policies, modeled on best practices from Botswana, Chile and Indonesia, could help to develop domestic industries by requiring foreign mining companies to invest in local workforce training, technology transfer and infrastructure development. Green innovation and research must be prioritised to ensure that industrialisation aligns with sustainability goals. Encouraging research and development in renewable energy technologies and low-carbon mining techniques would position African countries as leaders in the global green economy. Developing strong value chains that integrate mineral extraction, processing and high-value manufacturing would help African countries to capture more economic benefits, reduce reliance on commodity price fluctuations and drive long-term economic resilience.

Strengthening regional cooperation and strategic partnerships

Given the fragmented nature of Africa's mineral governance landscape, regional coordination is essential for increasing the continent's bargaining power in global markets, harmonising regulatory standards and preventing tax competition among countries. Regional collaboration could prevent a race to the bottom in taxation by setting harmonised tax and investment policies, which would prevent excessive tax incentives that erode national revenues. Developing regional value chains for mineral processing and clean energy technologies could help African countries pool resources and reduce dependency on external markets. Strategic partnerships with international institutions and foreign governments – including China, the EU and the UK – should

prioritise technology transfer, infrastructure investment and financing mechanisms that support sustainable mining practices and industrial growth. Bilateral and multilateral agreements should ensure that foreign investments in Africa's green minerals include clear commitments to skills development, technology sharing and environmental sustainability. African governments should negotiate investment agreements that extend beyond raw material extraction, ensuring that partnerships include long-term strategies for domestic industrial growth and economic self-sufficiency.

Ensuring equitable benefit sharing with local communities

To prevent social unrest and environmental injustices, green mineral revenues must be equitably distributed to benefit local communities. Mining activities often displace communities, deplete natural resources and exacerbate local inequalities. Without inclusive governance and fair resource sharing, the green transition could reinforce social tensions rather than alleviate them. A portion of mining revenues should be allocated to local development funds that finance healthcare, education and infrastructure projects. Participatory governance mechanisms, such as community development agreements and Indigenous resource governance models, should be adopted to ensure that local populations have a voice in mining decisions and revenue distribution. Environmental and social safeguards should be embedded in mining regulations to mitigate the adverse effects of extraction, including water resource management, pollution control and land restoration policies. CSR regulations should ensure that mining companies engage in sustainable practices and invest in local capacity building, rather than relying on voluntary CSR initiatives that often lack accountability. Innovative approaches, such as Indigenous resource governance and participatory environmental monitoring, could empower local communities to influence mining-related decision making and protect their lands from unsustainable practices.

Scaling up green initiatives for sustainable development and climate resilience

Green initiatives play a crucial role in advancing sustainable development, mitigating climate change and fostering economic resilience in Africa. Investments in renewable energy, reforestation and climate-smart agriculture have demonstrated their potential to reduce carbon emissions while improving livelihoods. To maximise this potential, governments must implement policies that channel revenues from critical minerals into climate adaptation and mitigation projects. One effective strategy is the creation of green investment funds that allocate a portion of mining revenues to renewable energy development, reforestation programmes and climate-smart infrastructure. Establishing carbon taxation or resource-specific levies on mining operations could also generate dedicated funding for environmental restoration and resilience-building initiatives. In addition, fiscal incentives, such as tax credits and subsidies for green energy companies, could encourage reinvestment in sustainable sectors. Furthermore, incorporating

climate resilience targets into national mining policies could ensure that environmental sustainability remains a core priority in mineral governance, helping to align resource exploitation with Africa's long-term climate commitments under the Paris Agreement.

Conclusion

The green mineral boom provides Africa with a rare opportunity to reshape its economic future, reduce reliance on fossil fuels and drive sustainable industrialisation. However, realising these benefits requires strong governance, strategic reinvestment and inclusive development policies. By prioritising progressive taxation, industrial value addition, regional cooperation and community-centred benefit sharing, African nations could transform their mineral wealth into a driver for long-term economic growth and climate resilience. With the right policies and governance frameworks, Africa could lead the global green transition while ensuring that mineral exploitation contributed to a fairer, greener and more sustainable future.

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Acknowledgment

SAIIA gratefully acknowledges the support of the Swedish Government for this publication.

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SAIIA is an independent, non-government think tank whose key strategic objectives are to make effective input into public policy, and to encourage wider and more informed debate on international affairs, with particular emphasis on African issues and concerns.

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