

Policy Brief

Community-Centered Just Energy Transition in Nigeria: Policy Pathways for Inclusive Critical Minerals Governance and Sustainable Development

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Key messages

- Strengthen governance to ensure transparent, accountable, and sustainable management of Nigeria's critical minerals.
- Empower host communities through inclusive decision-making, equitable benefit-sharing, and respect for human rights.
- Protect the environment by enforcing strong safeguards, responsible mining practices, and mine rehabilitation.
- Promote local value addition by formalizing artisanal mining, creating jobs, and expanding domestic mineral processing.
- Enhance implementation through coordinated institutions, sustainable financing, and effective monitoring and evaluation.

Context

The global transition from fossil fuel-based energy systems to renewable and low-carbon alternatives is accelerating (Kabeyi and Olanrewaju, 2022). The use of renewable and low-carbon alternatives significantly contributes economic growth, accessibility to clean energy, and minimize the impacts of climate change. This development is driven by the urgent need to address climate change, enhance energy security, and achieve the objectives of the Paris Agreement and the Sustainable Development Goals (SDGs) (Gan et al., 2023). This transition has substantially increased global demand for critical minerals including lithium, cobalt, graphite, nickel, manganese, and rare earth elements; which are indispensable components of clean energy technologies such as electric vehicles, battery storage systems, wind turbines, solar photovoltaic panels, and modern electricity grids (Mahnoor et

al., 2005; Berahab, 2022). As countries compete to secure sustainable and resilient supply chains for these strategic minerals, resource-rich developing economies have an unprecedented opportunity to leverage their mineral wealth to promote inclusive economic growth and sustainable development (Figure 1).

Nigeria is well positioned to benefit from this emerging global market due to its abundant deposits of critical minerals, including lithium, tin, columbite, tantalite, graphite, gold and rare earth elements distributed across several states (Olade, 2021; Onyealisi, 2025; Olade, 2025). The country's growing commitment to economic diversification, industrialization, and energy transition further highlights the strategic importance of developing a well-governed critical minerals sector. If managed effectively, these resources can stimulate domestic

value addition, create quality employment, strengthen local industries, increase government revenues, and contribute to achieving national climate and development objectives. However, the rapid expansion of mineral extraction also presents significant governance challenges that require urgent policy attention.

Historically, extractive industries in many developing countries have been associated with environmental degradation, land-use conflicts, displacement of local populations, inadequate compensation, weak regulatory oversight, and limited benefit sharing with host communities (Hilson, 2002; Tagliarino et al., 2018; Fayomi et al., 2024). In Nigeria, artisanal and small-scale mining, illegal mining activities, weak institutional coordination, environmental pollution, and insufficient community participation continue to undermine the sustainable management of mineral resources. Without deliberate reforms, the global demand for critical minerals could exacerbate existing inequalities, intensify social tensions, and undermine the principles of environmental justice and sustainable development.

A community-centered just energy transition provides a practical framework for addressing these challenges by ensuring that the benefits and costs of the transition are shared equitably among all stakeholders. At its core, a just transition emphasizes inclusive governance, respect for human rights, environmental stewardship, transparency, gender equality, decent work, and meaningful participation of affected communities in decision-making processes (Olawuyi et al., 2025). Rather than treating host communities as passive recipients of development interventions, this approach recognizes them as strategic partners whose knowledge, priorities, and rights are fundamental to achieving socially equitable and environmentally sustainable resource governance.

This policy brief examines the opportunities and governance challenges associated with Nigeria's critical minerals sector within the broader context of the global energy transition. It synthesizes current evidence, identifies institutional and policy gaps, and proposes practical, actionable policy pathways for strengthening community participation, improving transparency and accountability, enhancing environmental safeguards, promoting equitable benefit-sharing mechanisms, and promoting sustainable local economic development. The recommendations are designed to support policymakers, development partners, civil society organizations, mining companies, and community leaders in developing governance systems that align national development priorities with international

commitments on climate action, human rights, and responsible mineral resource management.

The scope of this policy brief encompasses the governance of critical minerals throughout the mining value chain from exploration and licensing to extraction, processing, environmental management, community engagement, revenue management, mine closure, and post-mining land restoration. It also considers cross-cutting issues such as gender inclusion, youth empowerment, artisanal and small-scale mining formalization, climate-smart mining practices, and institutional capacity strengthening. Thus, promoting a community-centered approach to critical minerals governance, this policy brief aimed to provide a strategic roadmap for ensuring that Nigeria's contribution to the global clean energy transition delivers long-term economic prosperity, environmental sustainability, and social justice for present and future generations.

Current Situation

The accelerating global transition to clean energy has fundamentally reshaped international demand for critical minerals, positioning mineral-rich developing countries as key actors in the emerging green economy. Critical minerals including lithium, cobalt, graphite, nickel, manganese, tin, and rare earth elements are essential inputs for renewable energy technologies, battery storage systems, electric vehicles, hydrogen technologies, and modern electricity infrastructure (Tyagi et al., 2023; Mahnoor et al., 2025). As governments and industries seek secure and sustainable supply chains, competition for access to these strategic resources has intensified, creating new economic opportunities for countries (including Nigeria) with substantial mineral reserves.

Nigeria possesses significant deposits of several critical minerals distributed across states such as Nasarawa, Plateau, Kaduna, Kogi, Niger, Kebbi, Zamfara, Bauchi, and Oyo. In recent years, the Federal Government has prioritized the revitalization of the solid minerals sector as part of broader efforts to diversify the economy away from oil dependence (Ndiomaluke et al., 2025). Policy reforms, increased investor interest, and growing international partnerships have further elevated the strategic importance of the mining sector in supporting national industrialization, job creation, export diversification, and implementation of Nigeria's Energy Transition Plan.

Despite these opportunities, the governance of critical minerals remains constrained by persistent institutional, environmental, and socio-economic challenges (Table 1). Artisanal and small-scale mining continues to dominate mineral production in many regions, often operating outside formal regulatory frameworks. Illegal mining, weak enforcement of environmental regulations, inadequate geological data, overlapping institutional mandates, limited local processing capacity, and insufficient investment in mining infrastructure continue to reduce the sector's overall contribution to sustainable development. Furthermore, many host communities experience environmental degradation, banditry, loss of agricultural land, water contamination, occupational health risks, and limited access to the economic benefits generated from mineral extraction.

Community participation in mineral governance also remains inadequate. Decision-making processes surrounding mineral licensing, environmental assessments, compensation arrangements, and community development projects frequently provide limited opportunities for meaningful engagement by affected populations. Women, youth, Indigenous groups, and other marginalized stakeholders are often underrepresented in governance processes despite bearing a disproportionate share of mining-related social and environmental impacts. These governance deficiencies undermine public trust, increase the likelihood of conflicts between mining operators and host communities, and threaten the long-term sustainability of mineral development.

Policy Gaps

Although Nigeria has enacted important legislation and policy frameworks governing the mining sector, including the Minerals and Mining Act, environmental regulations, and national development strategies, these instruments were largely designed before the rapid expansion of global demand for critical minerals associated with the clean energy transition. Consequently, they do not comprehensively address emerging issues such as responsible critical minerals governance, supply-chain due diligence, climate-smart mining, circular economy approaches, responsible sourcing standards, or community-centered benefit-sharing mechanisms.

Several critical policy gaps persist:

- Limited integration between mining, energy transition, climate change,

environmental protection, and local development policies.

- Weak institutional coordination among federal, state, and local government agencies responsible for mining governance.
- Inadequate legal provisions guaranteeing meaningful community participation and Free, Prior and Informed Consent (FPIC) throughout the mining lifecycle.
- Weak monitoring and enforcement of environmental and social safeguards, including mine rehabilitation and biodiversity protection (Table 2).
- Limited transparency in mineral licensing, revenue management, and allocation of benefits to host communities.
- Insufficient formalization and technical support for artisanal and small-scale mining operations.
- Inadequate investment in local mineral beneficiation, value addition, research, innovation, and workforce development.
- Absence of comprehensive monitoring and evaluation systems to assess social, environmental, and economic outcomes of critical mineral development.

These governance deficiencies increase the risk that expanding critical mineral extraction could reproduce patterns commonly associated with the "resource curse," including environmental degradation, social exclusion, corruption, community conflict, banditry and unequal distribution of economic benefits.

Why Action Is Needed

The next decade presents a unique opportunity for Nigeria to position itself as a leading supplier of responsibly sourced critical minerals while advancing national objectives for economic diversification, industrialization, climate resilience, and sustainable development. However, achieving these objectives requires governance reforms that place affected communities at the center of decision-making and ensure that mineral development generates broad-based social and economic benefits.

Failure to strengthen governance frameworks could undermine investor confidence, increase environmental liabilities, intensify community grievances, and reduce Nigeria's competitiveness in international markets where environmental, social, and governance (ESG) performance increasingly influences investment decisions and market access. Conversely, adopting a community-centered just energy transition framework can enhance

transparency, improve environmental stewardship, promote social inclusion, strengthen local livelihoods, and build resilient institutions capable of supporting sustainable mineral development.

Urgent policy action is therefore required to modernize Nigeria's critical minerals governance architecture, strengthen institutional coordination, formalize artisanal mining, promote responsible investment, safeguard human rights, and establish equitable benefit-sharing mechanisms that ensure host communities become active partners in the country's transition to a low-carbon economy (Table 3). Thereby aligning national policies with international best practices and emerging global standards for responsible mineral governance, Nigeria can transform its critical mineral resources into a catalyst for inclusive economic growth, environmental sustainability, and long-term national prosperity.

Table 1. Key Challenges to Community-Centered Just Energy Transition and Inclusive Critical Minerals Governance in Nigeria

Challenge Category	Key Challenges	Implications
Institutional	Weak coordination among federal, state, and local institutions; overlapping regulatory mandates; inadequate technical and institutional capacity; insufficient monitoring and enforcement mechanisms.	Policy inconsistency, regulatory inefficiencies, weak compliance, delayed implementation of reforms, and reduced investor confidence.
Governance	Limited transparency in mineral licensing and revenue management; weak accountability mechanisms; corruption; inadequate stakeholder participation; limited implementation of Free, Prior and Informed Consent (FPIC).	Increased community conflicts, loss of public trust, inequitable benefit distribution, and governance failures across the mining value chain.
Environmental	Land degradation, deforestation, biodiversity loss, water and soil contamination, poor mine closure practices, inadequate environmental impact assessments, and limited rehabilitation of abandoned mine sites.	Ecosystem degradation, declining agricultural productivity, increased climate vulnerability, public health risks, and long-term environmental liabilities.
Social	Inadequate community participation in decision-making; displacement of local populations; limited benefit-sharing; gender inequality; youth unemployment; occupational health and safety concerns; weak grievance redress systems.	Increased social unrest, livelihood losses, human rights concerns, reduced social licence to operate, and widening socio-economic inequalities.
Economic	Heavy dependence on raw mineral exports; limited domestic mineral processing and value addition; inadequate infrastructure; constrained access to finance for artisanal miners; informal mining activities.	Lost economic opportunities, low job creation, reduced government revenue, weak industrial development, and continued dependence on imported technologies.
Legal and Regulatory	Outdated legal frameworks for emerging critical minerals; inconsistent enforcement of mining and environmental regulations; inadequate legal protection for host communities; slow licensing processes.	Regulatory uncertainty, weak investor confidence, legal disputes, and ineffective implementation of sustainable mining practices.
Technical and Data	Limited geological mapping, inadequate geospatial databases, poor mineral resource information systems, weak research capacity, and insufficient digital monitoring technologies.	Evidence gaps, poor planning, inefficient resource management, and limited capacity for informed policy decisions.
Climate and Energy	Limited integration of mining policies with climate change adaptation and mitigation strategies; reliance on fossil fuel-powered mining operations; inadequate adoption of renewable energy technologies.	Higher greenhouse gas emissions, increased operational costs, and reduced competitiveness in sustainable global mineral markets.
Artisanal and Small-Scale Mining (ASM)	High levels of informal and illegal mining; unsafe mining practices; child labour risks; environmental degradation; limited access to modern technologies, finance, and formal markets.	Low productivity, environmental damage, revenue losses, safety risks, and persistent informality within the mining sector.
International Market and Supply Chain	Increasing international ESG requirements, responsible sourcing standards, supply-chain due diligence obligations, and growing global competition for critical minerals.	Risk of losing access to premium international markets, reduced foreign investment, and limited participation in global clean energy value chains.

Table 2. Monitoring, Evaluation and Learning (MEL) Framework for Community-Centered Just Energy Transition and Inclusive Critical Minerals Governance in Nigeria

Strategic Objective	Key Indicators	Means of Verification / Data Source	Reporting Frequency	Lead Institutions	Adaptive Management Actions
Strengthen critical minerals governance	National Critical Minerals Policy adopted; number of institutional coordination meetings; regulatory compliance rate (%)	Government gazettes, policy reports, ministry records	Annual	Federal Ministry of Solid Minerals Development, National Assembly	Review policies and strengthen inter-agency coordination based on implementation performance
Promote inclusive community participation	Number of communities participating in decision-making; FPIC agreements signed; stakeholder satisfaction index	Community consultation reports, project records, independent surveys	Biannual	Federal and State Governments, Community Development Committees, CSOs	Revise engagement strategies and improve community representation where participation is low
Enhance environmental sustainability	Percentage of mining projects with approved EIAs; area of rehabilitated land (ha); water and air quality compliance	Environmental monitoring reports, satellite imagery, inspection reports	Quarterly	Federal Ministry of Environment, NESREA, State Environmental Agencies	Strengthen enforcement measures and update environmental management plans
Improve equitable benefit-sharing	Percentage of mining royalties allocated to host communities; number of community development projects completed; local employment rate (%)	Revenue reports, financial audits, community development reports	Annual	Ministry of Finance, Mining Companies, State Governments	Adjust benefit-sharing mechanisms and improve transparency in revenue allocation
Formalize artisanal and small-scale mining	Number of ASM operators registered; cooperatives established; illegal mining incidents reduced (%)	ASM registration database, inspection reports, security records	Biannual	Federal Ministry of Solid Minerals Development, State Governments	Expand registration, technical support, and access to finance for ASM operators
Promote gender equality and social inclusion	Women's participation in mining governance (%); youth employment created; grievances resolved (%)	Gender reports, labour statistics, grievance records	Annual	Ministry of Women Affairs, National Human Rights Commission, CSOs	Strengthen inclusive policies and targeted capacity-building programmes
Increase local value addition and economic development	Percentage of minerals processed locally; investment in mineral processing; SMEs participating in value chains	Industry reports, investment records, manufacturing statistics	Annual	Ministry of Industry, Trade and Investment, SMEDAN	Introduce incentives for domestic processing and local enterprise development
Support climate-smart mining	Percentage of mining operations using renewable energy; GHG emissions reduced; energy efficiency improvements	Energy audits, environmental reports, carbon inventories	Annual	Energy Commission of Nigeria, Mining Companies	Promote renewable energy adoption and low-carbon mining technologies
Strengthen transparency and accountability	NEITI compliance score; mineral revenue disclosure rate; corruption cases investigated and resolved	NEITI reports, audit reports, anti-corruption agency records	Annual	NEITI, EFCC, ICPC	Enhance digital reporting systems and strengthen accountability mechanisms
Improve evidence-based decision-making	Updated national mineral database; number of policy-relevant research outputs; geospatial information portal operational	National statistics, research publications, GIS databases	Annual	National Bureau of Statistics, Universities, Research Institutes	Revise policies using new evidence, emerging technologies, and stakeholder feedback

COMMUNITY-CENTERED JUST ENERGY TRANSITION AND INCLUSIVE CRITICAL MINERALS GOVERNANCE IN NIGERIA

Turning Mineral Wealth into Inclusive, Sustainable and Equitable Prosperity

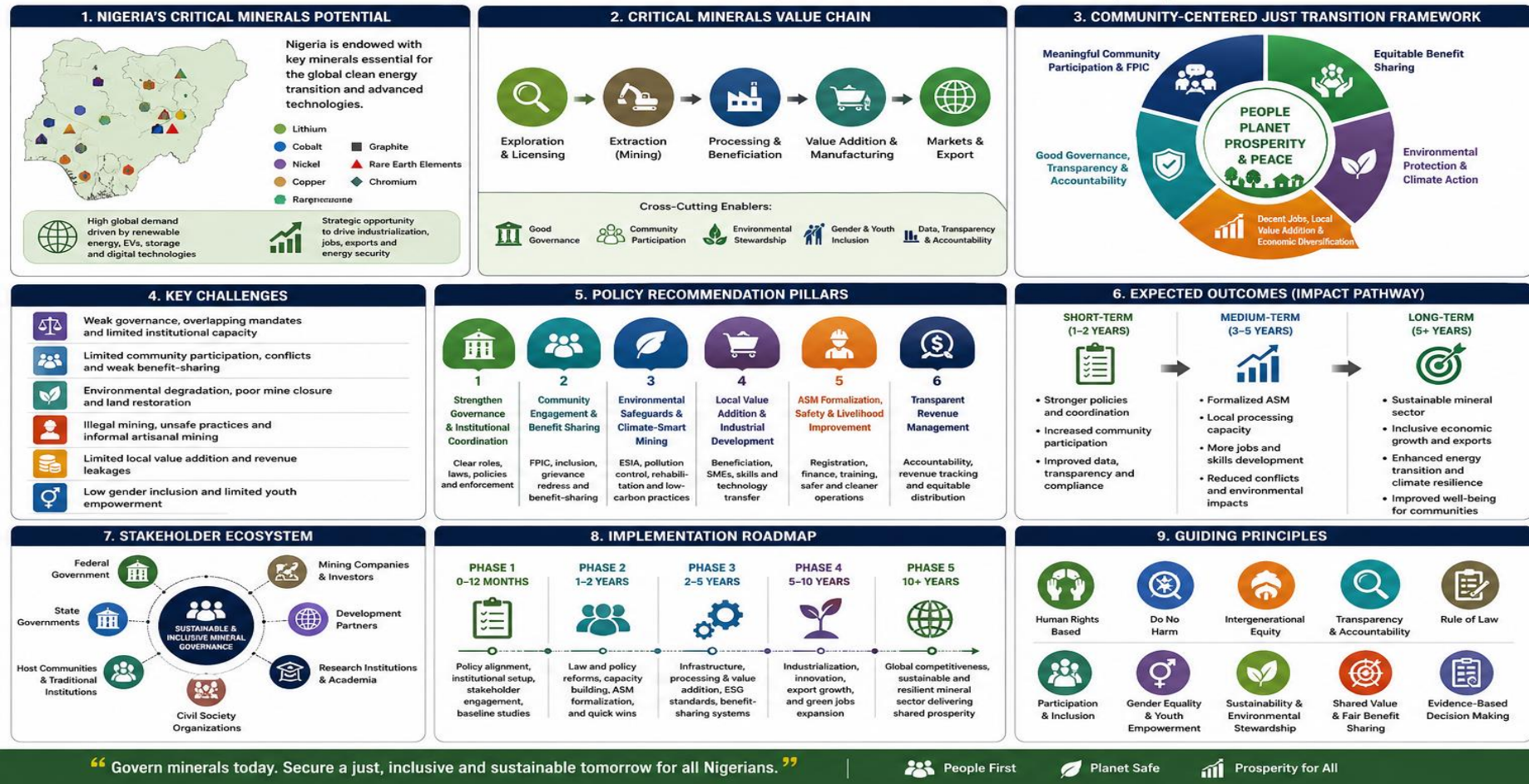


Figure 1: Conceptual framework for a community-centered just energy transition in Nigeria, illustrating the critical minerals value chain, governance priorities, key implementation challenges, stakeholder roles, policy pillars, implementation roadmap, expected outcomes, and guiding principles for achieving inclusive, transparent, and sustainable critical minerals governance

Table 3: Policy Implementation Matrix for Community-Centered Just Energy Transition and Inclusive Critical Minerals Governance in Nigeria

Policy Area	Objective	Key Actions (Near / Mid / Long Term)	Lead Actors	Financing Options	Key Indicators
Critical Minerals Governance Framework	Establish a transparent, accountable, and coordinated governance framework for critical minerals	Near: Develop a National Critical Minerals Policy and governance framework. Mid: Harmonize mining, environmental, and energy policies. Long: Periodically review policies based on global energy transition trends.	Federal Ministry of Solid Minerals Development, Federal Ministry of Environment, National Assembly	Federal budget, development partners, AfDB, World Bank	National policy adopted; governance coordination index; compliance rate
Community Participation and Inclusive Decision-Making	Ensure host communities actively participate in mineral governance and benefit-sharing	Near: Institutionalize Free, Prior and Informed Consent (FPIC) and community consultations. Mid: Establish Community Development Committees for mining areas. Long: Legally mandate community representation in mining governance institutions.	Federal Ministry of Solid Minerals Development, State Governments, Traditional Institutions, CSOs	Government allocations, donor grants, mining company CSR funds	Number of communities participating; stakeholder satisfaction index; FPIC compliance rate
Environmental Protection and Mine Rehabilitation	Minimize environmental degradation and restore degraded mining landscapes	Near: Strengthen Environmental Impact Assessment (EIA) compliance and environmental monitoring. Mid: Implement mine reclamation and ecosystem restoration projects. Long: Institutionalize biodiversity conservation and climate-smart mining practices.	Federal Ministry of Environment, NESREA, Mining Inspectorate, State Environmental Agencies	Ecological Fund, Green Climate Fund, mining rehabilitation bonds	Area rehabilitated (ha); EIA compliance rate; reduction in pollution incidents
Benefit Sharing and Local Economic Development	Promote equitable distribution of mining benefits and improve community livelihoods	Near: Review royalty-sharing mechanisms. Mid: Support local procurement and SME participation in mining value chains. Long: Establish Community Development Trust Funds for sustainable local investment.	Ministry of Finance, Federal Ministry of Solid Minerals Development, State Governments	Mineral royalties, sovereign wealth funds, PPPs	Local employment rate; percentage of royalties shared; income growth in host communities
Transparency and Anti-Corruption	Improve accountability in mineral licensing, revenue collection, and resource management	Near: Digitize mining licensing and cadastral systems. Mid: Strengthen implementation of Extractive Industries Transparency Initiative (EITI) standards. Long: Develop open-access mineral governance and revenue transparency platforms.	Mining Cadastre Office, NEITI, EFCC, ICPC	Federal budget, governance reform grants	Transparency index; revenue disclosure rate; reduction in corruption cases
Human Rights, Gender and Social	Protect vulnerable groups and promote	Near: Develop gender-responsive mining guidelines. Mid: Implement youth and	Ministry of Women Affairs, National Human	Government social investment	Women's participation rate; number of

Inclusion	equitable participation in mining development	women's empowerment programmes in mining communities. Long: Institutionalize social safeguards and grievance redress mechanisms.	Rights Commission, CSOs	programmes, UN agencies	grievances resolved; youth employment levels
Artisanal and Small-Scale Mining Formalization	Improve productivity, environmental performance, and livelihoods of artisanal miners	Near: Register artisanal miners and cooperatives. Mid: Provide technical training, safety equipment, and access to finance. Long: Integrate artisanal mining into formal critical mineral value chains.	Federal Ministry of Solid Minerals Development, SMEDAN, State Governments	Cooperative finance, development banks, mining support funds	Number of registered miners; productivity increase; reduction in illegal mining
Climate-Smart Mining and Renewable Energy Integration	Reduce greenhouse gas emissions and improve resource efficiency in mining operations	Near: Promote energy audits and cleaner production technologies. Mid: Encourage renewable energy adoption in mining operations. Long: Develop low-carbon mining certification standards.	Energy Commission of Nigeria, Rural Electrification Agency, Mining Companies	Climate finance, carbon markets, green investment funds	Renewable energy adoption rate; emissions reduction; energy efficiency improvements
Research, Innovation and Capacity Development	Strengthen knowledge generation and technological innovation for sustainable mining	Near: Support research on critical minerals and just energy transition. Mid: Establish Centres of Excellence and innovation hubs. Long: Promote university-industry-government partnerships for technology development.	Universities, Research Institutes, TETFund, Ministry of Science and Technology	Research grants, TETFund, international research partnerships	Research outputs; patents; trained professionals
Monitoring, Evaluation and Policy Learning	Track progress and ensure adaptive governance of the just energy transition	Near: Develop national monitoring and evaluation framework with baseline indicators. Mid: Publish annual implementation and sustainability reports. Long: Conduct periodic policy reviews informed by evidence and stakeholder feedback.	National Bureau of Statistics, Federal Ministry of Solid Minerals Development, Independent Evaluators	Federal budget, donor-supported M&E programmes	Annual reports published; SDG performance indicators; policy implementation score

Conclusions

Nigeria the most populous country in Africa, stands at a pivotal moment in the global energy transition. Its abundant critical mineral resources provide a unique opportunity to drive economic diversification, industrial development, job creation, sustainable development, and climate-resilient growth. However, realizing these benefits depends on establishing governance systems that are transparent, inclusive, environmentally responsible, and community-centered. Without targeted reforms, the expansion of critical mineral extraction risks exacerbating environmental degradation, social inequalities, and governance challenges, thereby limiting the country's ability to benefit from the growing global demand for responsibly sourced minerals. A community-centered just energy transition provides a practical pathway for balancing economic development with environmental sustainability and social equity. Thus, strengthening institutional coordination, ensuring meaningful community participation, formalizing artisanal and small-scale mining, promoting local value addition, safeguarding environmental and human rights standards, and improving transparency and accountability, Nigeria can transform its critical minerals sector into a driver of inclusive and sustainable development. Achieving this vision requires immediate and coordinated action by government, the private sector, civil society, development partners, research institutions, and host communities. Policymakers should prioritize the development of an integrated critical minerals governance framework that aligns with national development priorities and international best practices. Mining companies should adopt responsible business practices that respect human rights, protect the environment, and promote equitable benefit-sharing. Development partners should provide technical assistance, capacity building, and innovative financing to support governance reforms and community development initiatives. Communities should be recognized as equal partners in decision-making and empowered to participate throughout the mining value chain. Therefore, acting now, Nigeria can position itself as a regional leader in responsible critical minerals governance, strengthen its contribution to the global clean energy transition, and ensure that the benefits of its mineral wealth are shared equitably among present and future generations. The time to establish a just, inclusive, and sustainable critical minerals sector is now.

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List of Abbreviations used in this policy brief

Abbreviation	Full Meaning
AfDB	African Development Bank
ASM	Artisanal and Small-Scale Mining
CSO	Civil Society Organization
EIA	Environmental Impact Assessment
EITI	Extractive Industries Transparency Initiative
ESG	Environmental, Social and Governance
FPIC	Free, Prior and Informed Consent
FGN	Federal Government of Nigeria
FMEEnv	Federal Ministry of Environment
FMSMD	Federal Ministry of Solid Minerals Development
GCF	Green Climate Fund
GDP	Gross Domestic Product
GHG	Greenhouse Gas
ICMM	International Council on Mining and Metals
ICPC	Independent Corrupt Practices and Other Related Offences Commission
IEA	International Energy Agency
LGA	Local Government Area
M&E	Monitoring and Evaluation
NEITI	Nigeria Extractive Industries Transparency Initiative
NESREA	National Environmental Standards and Regulations Enforcement Agency
NBS	National Bureau of Statistics
NGO	Non-Governmental Organization
PPP	Public–Private Partnership
SDGs	Sustainable Development Goals
SME	Small and Medium-sized Enterprise
SMEDAN	Small and Medium Enterprises Development Agency of Nigeria
TETFund	Tertiary Education Trust Fund
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WBG	World Bank Group