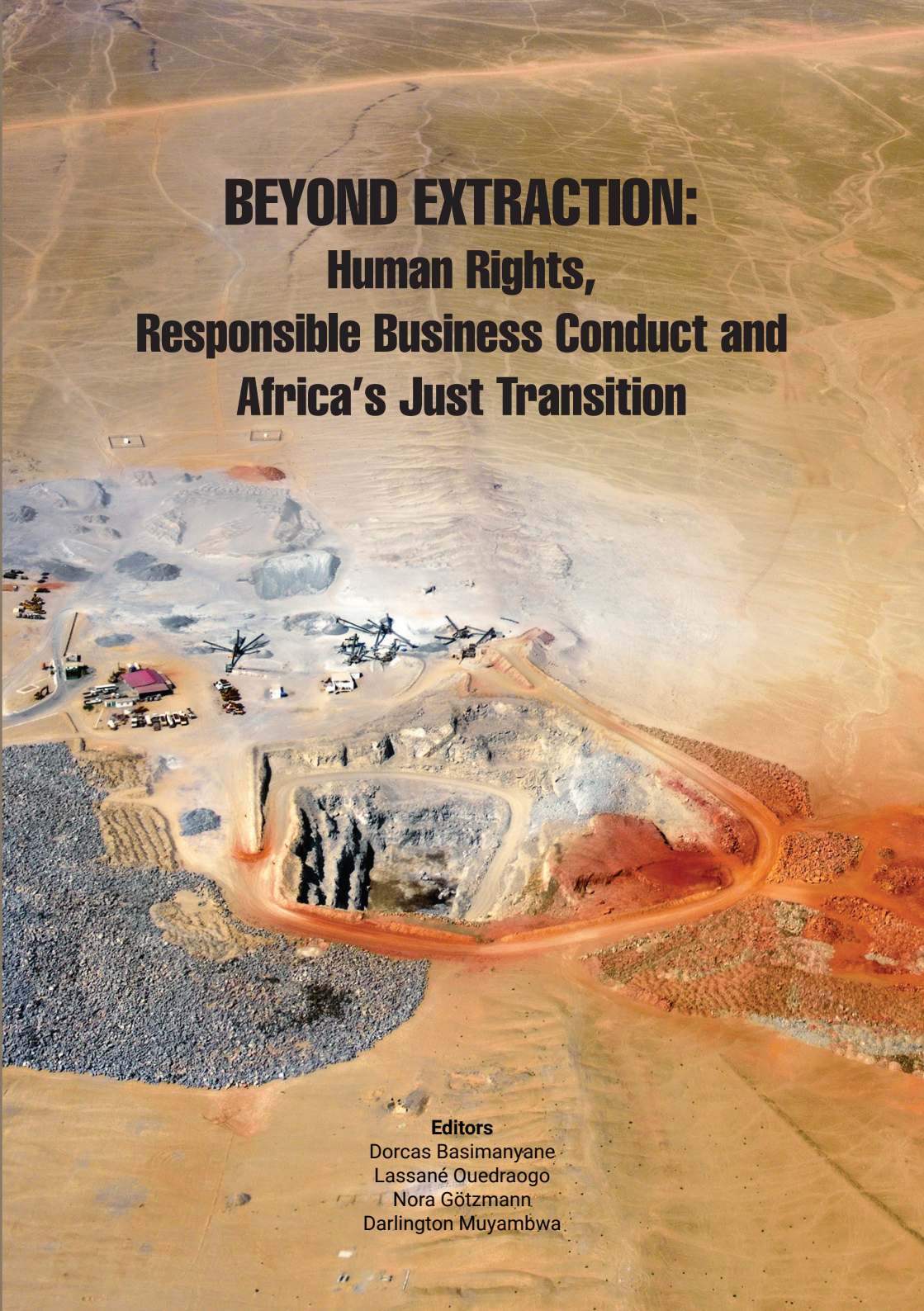




BEYOND EXTRACTION: Human Rights, Responsible Business Conduct and Africa's Just Transition



**DANISH
INSTITUTE FOR
HUMAN RIGHTS**

Editors

Dorcas Basimanyane
Lassané Ouedraogo
Nora Götzmann
Darlington Muyambwa

BEYOND EXTRACTION: Human Rights, Responsible Business Conduct and Africa's Just Transition

Editors

Dorcas Basimanyane

Centre for Human Rights, Faculty of Law, University of Pretoria

Lassané Ouedraogo

Centre for Human Rights, Faculty of Law, University of Pretoria

Nora Götzmann

Danish Institute for Human Rights

Darlington Muyambwa

Danish Institute for Human Rights



**DANISH
INSTITUTE FOR
HUMAN RIGHTS**

Contents

Acknowledgments	vii
Contributors	ix
Abbreviations and acronyms	xi

Introduction: Transition minerals, energy justice and Africa's green industrialisation	1
--	---

1 African regional economic communities and the political economy of extraction: Gatekeepers or guardians of the just transition?	7
<i>John Saidi Nyanje</i>	

1 Introduction.....	8
2 Methodology	11
3 Continental level: African Union	13
4 Human rights and community dimensions.....	24
5 Policy recommendations	31
6 Conclusion.....	33

2 Sacrificial communities and the Just Transition: An analysis of policy contradictions in South Africa's Critical Minerals and Metals Strategy	40
<i>Felix Dube</i>	

1 Introduction.....	41
2 Analytical and theoretical framework	43
3 South Africa's Critical Minerals and Metals Strategy	47

4	Structural contradictions between the Critical Minerals and Metals Strategy and the Just Transition Framework	48
5	Analysis of the accountability deficit in practice.....	52
6	Recommendations toward policy coherence	58
7	Conclusion	61

3 The potential of the African Green Minerals Strategy in facilitating regional cooperation to develop electrical vehicles and battery value chains in Southern and East Africa 67

Chantelle Moyo

1	Introduction.....	68
2	The African Mining Vision and the African Green Minerals Strategy	71
3	The EV market, policies and prospects: The cases of South Africa and Kenya.....	77
4	DRC-Zambia Battery Initiative and its implications for the regional EV value chains.....	85
5	Conclusion	92

4 Value addition, beneficiation, and transition minerals-led industrialisation in Ghana and Nigeria 98

Michael Addaney

1	Introduction: Setting the context for minerals-led industrialisation.....	99
2	Research design, methods and analytical framework	103
3	The current landscape: Opportunities, constraints and governance deficits.....	107

4	Case studies: Progress and challenges in Ghana and Nigeria.....	114
5	Conclusion: From mineral wealth to industrial development	129

5 Rethinking transition minerals and just energy futures in Africa: The cases of Namibia, Guinea and Morocco 140

Oyeniya Abe

1	Introduction.....	141
2	Theoretical framework: The dimensions of energy justice.....	143
3	Regulation of transition minerals in Africa: Case studies from Guinea, Morocco and Namibia	151
4	Rethinking Africa's transition minerals approach through energy justice.....	161
5	Recommendations.....	166
6	Conclusion.....	170

Acknowledgments

The development of this volume was led by the Business and Human Rights Unit of the Centre for Human Rights, University of Pretoria and the Danish Institute for Human Rights (DIHR) as part of the ‘Just transition through responsible business conduct in Africa 2024-2027’ project, made possible thanks to the financial support of the Swedish International Development Cooperation Agency (Sida). Implemented by a Consortium of the DIHR, the Zimbabwe Environmental Law Organisation (ZELO), HakiRasilimali, the Centre for Environment Justice (CEJ) and African Resources Watch (AFREWATCH), the overall objective of the project is to support the promotion and protection of human rights in the context of just transition in Africa, with a particular focus on transition minerals.

The responsibility for all contents of this volume rests with the authors alone and the views expressed do not necessarily reflect the views of the Consortium or Sida. Where for non-commercial use, this publication, or parts thereof, may be reproduced provided that the source and authors are appropriately credited.

Contributors

Dr John Saidi Nyanje is an international lawyer and academic specialising in climate law, international economic law and sustainable development in Africa. He lectures in International Law and is actively engaged in advancing climate justice through research, litigation, teaching and policy dialogue. His work focuses on climate litigation, including proceedings before international courts and tribunals, as well as issues of loss and damage and state responsibility. His scholarship examines legal strategies for accountability and enforcement in climate-related disputes.

Dr Felix Dube is a Lecturer in the Department of Public Law at the University of Venda. He also serves on the South African Human Rights Commission's Section 11 Committee on Climate Justice. His research focuses on the judicial protection of constitutional environmental rights and indigenous jurisprudence in the context of the just energy transition.

Dr Chantelle Moyo holds a PhD (Law and Development), Master of Laws (Environmental Law) and Bachelor of Laws and is a certified expert in climate and renewable energy finance. Currently, she is the Lead: Just Transitions at Southern Transitions where she works on areas such as mineral resource global and regional value chains, renewable energy, green industrialisation and economic diplomacy, among others, with a specific focus on the Global South. Previously, Chantelle has been the Programme Manager of the Regional Programme Economy-Africa and Regional Programme Energy and Climate Change in Sub-Saharan Africa at the Konrad Adenauer Stiftung.

Dr Michael Addaney is a Senior Lecturer at the Department of Land Management in the School of Mines and Built Environment at the University of Energy and Natural Resources, Sunyani, Ghana. He holds a PhD in Environment and Natural Resource Law from Wuhan University, an MPhil in Human Rights and Democratisation from the University of Pretoria, and a BSc in Development Planning from the Kwame Nkrumah University of Science and Technology.

Dr Oyeniya Abe is an Adjunct Professor of Law at the University of the Pacific, California, USA. He holds a PhD in commercial law from the University of Cape Town. He is a specialist in African legal theory, business and human rights, and comparative human rights law. He is also a Research Associate at the Centre for Comparative Law in Africa, University of Cape Town, South Africa. He has extensive experience practising and teaching law across Africa, Europe and North America. He has held visiting academic positions at prominent institutions, including the Centre for Human Rights and Legal Pluralism at McGill University in Canada, the Institute for Business Ethics at the University of St Gallen in Switzerland, and the Canadian Institute of Resources Law. He also served as a Fulbright Scholar at Loyola University in Chicago, USA. Dr Abe serves as a legal expert advising the Chair of the Open-Ended Intergovernmental Working Group on a Legally Binding Instrument on Business and Human Rights at the United Nations Human Rights Council.

Abbreviations and acronyms

AfCFTA:	African Continental Free Trade Area
AGMS:	African Green Minerals Strategy
AMV:	African Mining Vision
AU:	African Union
CMMS:	Critical Minerals and Metals Strategy (South Africa)
DRC:	Democratic Republic of the Congo
EAC:	East African Community
EACJ:	East African Court of Justice
ECOWAS:	Economic Community of West African States
ESG:	Environmental, Social and Governance
EU:	European Union
EV:	Electric Vehicle
FPIC:	Free, Prior and Informed Consent
GDP:	Gross Domestic Product
GHG:	Greenhouse Gas Emissions
JTF:	Just Transition Framework (South Africa)
OECD:	Organisation for Economic Co-operation and Development
RBI:	Resource-Based Industrialisation
RECs:	Regional Economic Communities
SADC:	Southern African Development Community
STEM:	Science Technology Engineering and Mathematics
UNECA:	United Nations Economic Commission for Africa
UNGPs:	United Nations Guiding Principles on Business and Human Rights
US:	United States of America

Introduction

Transition minerals, energy justice and Africa's green industrialisation

The rising threats of global warming and climate change¹ have prompted a worldwide shift toward low-carbon energy systems, resulting in unprecedented demand for transition minerals² such as cobalt, lithium, manganese, bauxite, graphite and rare-earth elements, many of which are abundant in Africa.³ Although these minerals are vital to renewable energy technologies, energy storage systems and electric mobility, they have a wide range of human rights and environmental implications for the communities from which they are mined.⁴ Africa, which hosts a significant share of the world's transition mineral reserves,⁵ has become central to the emerging

-
- 1 Intergovernmental Panel on Climate Change (IPCC) 'Climate Change 2021: The physical science basis', <https://www.ipcc.ch/report/ar6/wg1/> (accessed 19 November 2025).
 - 2 International Energy Agency *The role of critical minerals in clean energy transitions* (2021), <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions> (accessed 19 November 2025).
 - 3 African Energy Chamber 'Africa's critical minerals and the future of global energy transition' 12 January 2026, <https://energychamber.org/africas-critical-minerals-and-the-future-of-the-global-energy-transition/> (accessed 20 January 2026).
 - 4 Amnesty International *Time to recharge: Human rights and the mining of battery minerals* (2021) 47-75; see also KL Hund and others *Minerals for climate action: The mineral intensity of the clean energy transition* (2020) 93-97; International Energy Agency (n 2).
 - 5 African Minerals Development Centre 'Mineral profiles on the african green minerals observatory', <https://www.africangreenminerals.com/> (accessed 12 January 2026).

green industrial order. Yet, the continent's position within global value chains remains structurally primarily as exporter of unprocessed raw materials while value addition, technological upgrading and high-quality job creation occur elsewhere.⁶

To understand these implications, this edited volume critically explores the intersection of human rights and the just transition in Africa, with particular focus on the governance of transition minerals. As part of this overall objective, the central aim of this edited volume is to provide innovative African perspectives on what a just transition in the African context could look like, including by reflecting on the contradictions, challenges and possibilities associated with the development and role of transition minerals.

The contributions to the volume were selected through a targeted call for papers and have been developed through a collaborative and iterative process. Each author was supported in conducting evidence-based research on a specific theme related to transition minerals, drawing on legal and policy analysis, case studies and relevant regional and international standards. Drafts of the chapters were reviewed during an authors' workshop, held at the margins of the Africa Business and Human Rights Forum in Lusaka in October 2025, where each author presented their preliminary findings, received structured feedback from designated respondents and peers, and collectively reflected on complementarities and gaps across the volume. Insights from these discussions, as well as from

6 A Persenda 'Building value chains in Africa: Obstacles and opportunities in the current trade landscape' SOAS Centre for Sustainable Structural Transformation April 2025, https://www.soas.ac.uk/sites/default/files/2025-04/Working%20Paper%20007_Building%20Value%20Chains%20in%20Africa.pdf (accessed 10 January 2026).

the editorial team, informed subsequent revisions and refinements to the chapters.

In this volume we use the term 'transition minerals' to describe the metals and minerals that are essential to the global shift from fossil fuels to low-carbon energy systems. The term 'green minerals' can sometimes be interpreted in ways that ignore the social and environmental challenges linked with their extraction and processing. Similarly, 'critical minerals' is usually used as a strategic, country-specific designation that highlights economic importance and supply risk, rather than focusing primarily on their role in decarbonisation. From our perspective, the term 'transition minerals' provides a clearer way to describe their function as vital facilitators of the energy transition, without implying that their production is inherently sustainable or conflating them with broader, security-driven criticality issues.

The chapters present a focus on three key themes surrounding just transitions in Africa. The first theme, Governance and Policy Architecture, examines the structural, legal and institutional factors influencing these transitions, highlighted by Dr John Nyanje's exploration of African regional economic communities (RECs) and their roles as either gatekeepers or guardians in the political economy of extraction, and Dr Felix Dube's analysis of policy contradictions between the Just Transition Framework and the Critical Minerals and Metals Strategy of South Africa. The second theme, Value Chains and Industrialisation, emphasises economic transformation through minerals and technologies, with contributions from Dr Chantelle Moyo on the African Green Minerals Strategy (AGMS) and its implications for electric vehicle (EV) value chains, alongside Dr Michael Addaney's examination of value addition, beneficiation and industrialisation driven by transition minerals in Ghana and Nigeria. Finally, the third theme, Transition Pathways and Future

Directions, summarises the main questions and suggestions about Africa's energy future as discussed by Dr Oyeniya Abe. He urges a rethink of transition minerals and just energy futures on the continent by focusing on energy justice, which considers the global decarbonisation agenda as a struggle not just for green growth, but for equitable, dignified and sustainable development.

Collectively, the five contributions in the volume interrogate the political economy, legal architecture and governance dynamics of transition minerals in Africa through the lenses of human rights and responsible business conduct. Drawing on case studies from Guinea, Morocco, Namibia, Ghana, Nigeria, South Africa, Kenya, the Democratic Republic of the Congo (DRC), Zambia and the regional economic communities (Economic Community of West African States (ECOWAS); Southern African Development Community (SADC); and East African Community (EAC)), the chapters examine how current and emerging mineral regimes reproduce or disrupt entrenched extractivist patterns in the context of mining of transition minerals. The analysis foregrounds various dimensions of energy justice (distributional, recognitional, procedural) to assess whether the continent's mineral endowments are being mobilised in ways that advance – or undermine – a just transition.

At the national level, the chapters explore how transition-mineral strategies are framed within broader industrial and energy transitions. For example, the contribution by Michael Addaney interrogates value-addition and beneficiation policies in Ghana and Nigeria, while that of Felix Dube sheds light on the contradictions between the critical-minerals strategy and just transition framework in South Africa. In the contexts of Morocco, Guinea and Namibia, the contribution by Oyeniya Abe focuses on the extent to which mineral revenues and industrial policies align with social outcomes, including rural electrification, gender equity and community-centred

development. Across the chapters, particular attention is also paid to the legal and regulatory instruments governing land, environmental protection, labour standards, human rights due diligence and requirements for meaningful consultation and participation of local communities.

At the regional and continental scales, the volume examines Africa's evolving normative frameworks – including the African Mining Vision (AMV), the AGMS and the African Continental Free Trade Area (AfCFTA) – and their translation into binding or non-binding instruments within RECs. The contribution by John Nyanje, for example, analyses the capacity and mandates of RECs to harmonise standards, enforce accountability and integrate mineral governance into wider trade and industrialisation agendas. The contribution by Chantelle Moyo evaluates AGMS-driven initiatives to develop EV and battery value chains in Southern and East Africa, highlighting opportunities for regional specialisation, cross-border special economic zones and coordinated infrastructure and skills development.

Across these diverse contexts, a common set of structural challenges emerges: weak and fragmented governance; inadequate enforcement of environmental and social safeguards; marginalisation of local and indigenous communities; fiscal regimes that favour external investors over domestic development; infrastructural and technological deficits that constrain beneficiation; and external regulatory pressures (for example, European Union (EU) and Organisation for Economic Co-operation and Development (OECD) due-diligence regimes, US mineral-security laws) that entrench Africa's role as a supplier of raw materials while shifting compliance burdens downstream.

Taken together, the chapters advance three core arguments. First, without the explicit incorporation of energy justice principles

and robust human-rights and environmental protections, the energy transition risks reproducing historical patterns of sacrifice zones and resource curses, merely rebranded as ‘green extractivism’. Second, transformative outcomes require a paradigmatic shift from extraction-driven, enclave models toward justice-centred mineral governance that embeds rights, participation and redistribution across the entire value chain. Third, regional and continental coordination – operationalised through empowered RECs, effective implementation of the AGMS and AMV, and strategic use of the AfCFTA – is indispensable for enhancing Africa’s bargaining power, scaling value-addition and securing equitable insertion into global green value chains.

By synthesising empirical case studies with normative and institutional analyses, this collection provides a rigorous evidence base and actionable recommendations for policy makers, regional bodies, corporations, investors and civil society. It demonstrates that the way in which Africa governs its transition minerals will be decisive not only for the continent’s prospects of sustainable industrialisation, but also for the possibility of a genuinely just global energy transition.

African regional economic communities and the political economy of extraction: Gatekeepers or guardians of the just transition?

John Saidi Nyanje

Abstract: *Africa holds a significant share of the world's transition minerals, such as cobalt, lithium and rare earth elements, positioning it as a key player in global decarbonisation. However, the continent faces challenges such as weak governance and an inequitable distribution of resources. The African Union has established various frameworks to guide mineral governance, but their effectiveness relies heavily on regional economic communities (RECs). Through qualitative, desk-based legal research, this chapter examines the roles of the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC) and the East African Community (EAC) in shaping extractive governance. The findings suggest that while RECs contribute to environmental safeguards and community protections, they lack enforcement power and political autonomy. Additionally, they must navigate complex external regulations. The conclusion emphasises that strengthening RECs is crucial to promoting justice, accountability and human rights in Africa's*

energy transition, and that an empowered RECs system can translate mineral wealth into sustainable development.

1 Introduction

Africa holds a central position in the global green energy transition. The continent accounts for more than 30 per cent of the world's known reserves of cobalt, manganese, rare earth elements and other transition minerals that are indispensable to renewable energy systems and electric vehicle production.¹ The demand for these resources has surged under global decarbonisation commitments, making African mineral corridors a strategic frontier for international supply chains.² Yet, this structural endowment is embedded in fragile political economies characterised by governance deficits, rentier dynamics and uneven distribution of benefits. Communities living in proximity to mining sites often face dispossession, environmental degradation and human rights abuses, underscoring the paradox of mineral wealth coexisting with deep socio-economic vulnerability.³

The regulatory landscape governing these resources is fragmented but normatively rich. At the continental level, the African Charter on Human and Peoples' Rights (African Charter) (1981) enshrines

-
- 1 ANRC 'Approach paper to guide preparation of an African green minerals strategy' (African Development Bank 2022) 12; United Nations Environment Programme 'Our work in Africa', <https://www.unep.org/regions/africa/our-work-africa> (accessed 28 September 2025); US Geological Survey 'US geological survey releases 2022 list of critical minerals' 22 February 2022, <https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-critical-minerals> (accessed 28 September 2025).
 - 2 NS Ouedraogo & JMM Kilolo 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy*.
 - 3 L Kulamadayil *The pathology of plenty: Natural resources in international law* (2025) 4.

peoples' sovereignty over natural resources (article 21) and the right to a satisfactory environment (article 24).⁴ Internationally, the Paris Agreement (2015) situates climate mitigation as a collective obligation, thereby indirectly pressuring resource-rich economies to facilitate low-carbon transitions.⁵ More recently, the African Union (AU)'s Green Minerals Strategy (2025) provides a roadmap for aligning mineral governance with climate imperatives and development goals.⁶ Complementing this, the African Mining Vision (AMV) (2009) emphasises beneficiation and local value addition as pathways out of extractive dependency.⁷ Despite this normative architecture, effective enforcement remains elusive. Much of the responsibility for operationalising continental commitments rests with Africa's regional economic communities (RECs), which function as the building blocks of the AU.⁸

RECs such as the Economic Community of West African States (ECOWAS), the Southern African Development Community (SADC) and the East African Community (EAC) have each adopted sectoral instruments ranging from harmonisation directives to model mining policies.⁹ These frameworks recognise the need to promote

4 African Charter on Human and Peoples' Rights (adopted 27 June 1981, entered into force 21 October 1986) 1520 UNTS 217, arts 21 & 24.

5 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) UN Doc FCCC/CP/2015/10/Add.1.

6 African Union Commission 'Africa's green minerals strategy' (African Union 2025).

7 African Union 'Africa mining vision' (African Union 2009).

8 P Jourdan 'Continental frameworks for mineral resource governance in Africa: Strategies for enhanced domestication' International Institute for Democracy and Electoral Assistance 2025 15; Treaty Establishing the African Economic Community (adopted 3 June 1991, entered into force 12 May 1994) OAU Doc CM/Res.464 (LXIX).

9 ECOWAS Directive C/DIR3/05/09 on the Harmonisation of Guiding Principles and Policies in the Mining Sector (2009); SADC Protocol on Mining (1997); EAC Draft EAC Mining Bill (2017).

mineral-led industrialisation while safeguarding environmental and community rights. Yet, enforcement capacity is weak, adjudicatory mechanisms are underutilised, and the integration of human rights standards is inconsistent.¹⁰ At the same time, external regulatory regimes, including the Organisation for Economic Co-operation and Development (OECD) Due Diligence Guidance,¹¹ the European Union (EU) Battery Regulation,¹² and the US Dodd-Frank Act,¹³ shape Africa's governance space, creating overlapping demands that African states and RECs must navigate.

Despite their strategic importance, RECs are often overlooked in scholarship and policy debates on the just transition. Analyses usually focus either on national mining codes or on continental strategies, neglecting the regional level where harmonisation, transboundary governance and collective bargaining with external actors occur.¹⁴

This chapter argues that strengthening REC mandates, enforcement mechanisms and adjudicatory capacities is essential for transforming Africa's transition minerals into vehicles of a just and equitable decarbonisation pathway. By situating RECs at the centre of Africa's political economy of extraction, the chapter examines whether existing regional frameworks, ECOWAS, SADC and EAC,

10 JT Gathii 'Saving the Serengeti: Africa's new international judicial environmentalism' (2016) 16 *Chicago Journal of International Law* 386.

11 OECD *Due diligence guidance for responsible supply chains of minerals from conflict-affected and high-risk areas* (2016).

12 Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries [2023] OJ L191/1.

13 US Dodd-Frank Wall Street Reform and Consumer Protection Act 2010 sec 1502.

14 JT Gathii 'African regional trade agreements as flexible legal regimes' (2010) 35 *North Carolina Journal of International Law and Commercial Regulation* 571.

consolidate or challenge extractive dependencies. It interrogates the governance opportunities and institutional gaps within each REC, and evaluates how these mediate the tensions among industrialisation, environmental justice and community rights. In so doing, the chapter finds that RECs occupy a dual and contradictory position: They can function as gatekeepers, reproducing fragmented governance and enabling extractive political economies, or as guardians, capable of embedding distributive justice, environmental safeguards and human rights protections into regional mineral governance. Despite extensive continental norms, the just transition hinges not on AU frameworks alone but on REC-level interventions, where mineral corridors, transboundary ecosystems and affected communities intersect. As such, RECs constitute the institutional hinge between Africa's normative commitments and the lived realities of extraction.

The chapter proceeds in four parts. The first part outlines the legal and institutional foundations of Africa's transition-minerals governance, focusing on continental norms and the delegated role of RECs. The second part undertakes a comparative analysis of ECOWAS, SADC and EAC, examining their mining, investment and environmental instruments and enforcement mechanisms. The third part evaluates how these regional frameworks engage with external regulatory regimes and just-transition principles, highlighting points of convergence, conflict and regulatory fragmentation. The final part synthesises the findings and proposes pathways for strengthening REC-level governance to advance a just, inclusive and sustainable minerals-based energy transition in Africa.

2 Methodology

This chapter adopts a qualitative, desk-based legal research methodology. It employs doctrinal analysis to examine international

investment law instruments, REC treaties, national mining and investment laws, and relevant jurisprudence on transition minerals governance. This is complemented by a comparative approach that assesses how selected African RECs and member states regulate and position transition minerals within broader development and energy-transition frameworks.

The RECs and countries analysed were selected based on their strategic relevance to Africa's transition minerals landscape, including the presence of significant mineral reserves, leadership roles within their respective RECs, and the adoption or ongoing development of legal and policy frameworks addressing mineral governance, industrialisation and energy transition.

The study relies exclusively on secondary data. Primary materials include treaties, REC instruments, national constitutions, mining and investment legislation and regulatory policies, while secondary sources comprise academic literature, policy reports and publications by the AU, RECs, development finance institutions and civil society organisations.

The study is subject to limitations inherent in desk-based research. It does not incorporate primary empirical data, and the availability and depth of legal and policy documentation vary across jurisdictions. In addition, transition minerals governance remains a rapidly evolving field. Nevertheless, the methodology provides a robust analytical framework for examining emerging African legal approaches to transition minerals governance.

3 Continental level: African Union

3.1 Normative frameworks for mineral governance

The AMV, adopted in 2009, remains the cornerstone of Africa's continental mineral governance architecture.¹⁵ It articulates a paradigm shift away from enclave extraction toward resource-based industrialisation, emphasising beneficiation, linkages to local economies and sustainable development.¹⁶ While the AMV is aspirational in scope, its implementation has been uneven, largely due to weak alignment with binding legal instruments and over-reliance on voluntary commitments.¹⁷ To operationalise the AMV, the AU adopted the Action Plan for the Implementation of the AMV (2011), which clusters strategic interventions around geological knowledge, governance, artisanal mining, linkages and human rights.¹⁸

More recently, the African Green Minerals Strategy (AGMS) (2024) provides a normative update that situates mineral governance explicitly within the context of the global need to respond to climate change.¹⁹ The strategy identifies Africa's transition minerals: cobalt, lithium, manganese, graphite and rare earths, as both a comparative

15 African Union (n 7).

16 A Bohne & I Thiam 'Introduction' in A Bohne & I Thiam (eds) *The Africa mining vision: Can business as usual be visionary? Perspectives from four regions* (2019) 4.

17 D van Wyk, S Reyneke & E Bain 'Attainable vision or fairy tale?' in A Bohne & I Thiam (eds) *The Africa mining vision: Can business as usual be visionary? Perspectives from four regions* (2019) 23.

18 African Union 'Action plan for implementing the Africa mining vision' (African Union 2011).

19 African Union Commission (n 6).

advantage and a governance challenge.²⁰ Unlike the AMV, the AGMS explicitly foregrounds key principles of the just transition, emphasising distributive justice, gender inclusion and community rights as integral to resource governance.²¹ Its ambition, however, is constrained by its non-binding character and reliance on RECs for operationalisation. Notably, the extent to which this reliance is accompanied by clear, instructional guidance to RECs remains ambiguous, raising questions about institutional capacity, coherence and the practical challenges of translating continental aspirations into enforceable regional and national legal frameworks.²²

3.2 Developmental visions and continental strategies

Beyond sector-specific frameworks, Africa's resource governance is nested within broader developmental visions. Agenda 2063, the AU's long-term plan for inclusive growth and structural transformation, positions natural resources as a strategic lever for industrialisation and sustainable development.²³ Its First Ten-Year Implementation Plan (2014-2023) identifies mineral-based value addition as central to Africa's integration into global value chains. Similarly, the African Climate Change Strategy (2022) frames the exploitation of transition minerals as a necessary component of Africa's decarbonisation trajectory, while acknowledging the risks of reproducing extractive dependency if beneficiation and local capacity are neglected.²⁴

20 African Union Commission (n 6) 12.

21 African Union Commission (n 6).

22 As above.

23 African Union Commission *Agenda 2063: The Africa we want* (2015).

24 African Union *The African Union climate change and resilient development strategy and action plan (2022-2032)* (2022) 115.

Moreover, the entry into force of the African Continental Free Trade Area (AfCFTA) in 2021 has significant implications for mineral governance.²⁵ The AfCFTA Protocol on Investment (2023) introduces sustainability obligations for investors, offering a potential platform for embedding human rights due diligence in cross-border mineral investments.²⁶ Yet, as with other AU strategies, enforcement is contingent upon REC domestication and state compliance, which remain uneven.

3.3 Human rights and environmental safeguards

The African Charter constitutes the foundational normative instrument linking natural resource governance to rights obligations.²⁷ Article 21 recognises the peoples' right to freely dispose of their wealth and natural resources, while article 24 enshrines the right to a satisfactory environment. These provisions have been judicially elaborated in *SERAC*, where the African Commission on Human and Peoples' Rights (African Commission) held that states have both negative and positive duties to regulate extractive activities.²⁸ Complementing the African Charter, the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (African Women's Protocol) introduces gender-

25 Agreement Establishing the African Continental Free Trade Area (adopted 21 March 2018, entered into force 30 May 2019).

26 AfCFTA Protocol on Investment (adopted 19 February 2023, not yet in force).

27 African Charter on Human and Peoples' Rights (adopted 27 June 1981, entered into force 21 October 1986) 1520 UNTS 217.

28 O Williams 'Case study: *SERAC v Nigeria* examining the role of international law in supporting social movement goals' MA thesis, American University in Cairo, 2011 11; *Social and Economic Rights Action Centre (SERAC) & Another v Nigeria* (2001) AHRLR 60 (ACHPR 2001) paras 44-47 (*SERAC*).

specific protections, including equality, reproductive rights and access to resources, which can be interpreted as relevant to women's experiences in the extractive industries, even though it does not expressly regulate this sector.²⁹

Environmental safeguards are further codified in the Revised African Convention on the Conservation of Nature and Natural Resources (2003).³⁰ This treaty obliges states to integrate environmental considerations into resource exploitation and to prevent transboundary harms, a provision directly relevant to cross-border mineral corridors.³¹ The African Charter on Democracy, Elections and Governance (African Democracy Charter)³² also bears relevance, as it addresses corruption, accountability and transparency, structural issues that often underlie extractive sector mismanagement.

3.4 Institutional and normative gaps

Despite the density of continental instruments, their effectiveness is curtailed by three structural gaps. First, enforcement deficits persist: AU treaties typically lack supranational enforcement bodies, relying instead on RECs and national implementation.³³

29 Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (adopted 11 July 2003, entered into force 25 November 2005) arts 2, 13, 15 & 19 (African Women's Protocol).

30 Revised African Convention on the Conservation of Nature and Natural Resources (adopted 11 July 2003, entered into force 23 July 2016) art 14.

31 Revised African Convention (n 30) arts 14 & 16.

32 African Charter on Democracy, Elections and Governance (adopted 30 January 2007, entered into force 15 February 2012).

33 RY Simo 'The (domestic) enforcement of AU international economic law instruments: Exploring the desirability of direct effect' in O Amao, M Olivier & KD Magliveras (eds) *The emergent African Union law: Conceptualisation, delimitation, and application* (2021) 95.

Second, jurisdictional asymmetries undermine coherence, as climate, mining, trade and human rights regimes evolve in silos with limited cross-referencing. Third, institutional dependence on RECs creates a bottleneck: While the AU provides the normative framework, the translation of principles into binding regional and domestic obligations is delegated to institutions that often lack capacity or political will. As a result, the AU's frameworks risk remaining aspirational unless bolstered by REC-level harmonisation and adjudication. The following part of the chapter examines how selected RECs have responded to this delegated role, assessing whether REC-level legal instruments, institutional mechanisms and dispute-resolution frameworks meaningfully operationalise continental mineral governance norms. By doing so, it evaluates whether REC practice mitigates – or reproduces – the enforcement and coherence deficits identified above.

3.5 Economic Community of West African States

ECOWAS has developed one of the most advanced regional frameworks for mineral governance. The Directive C/DIR3/05/09 on the Harmonisation of Guiding Principles and Policies in the Mining Sector (2009) provides common standards on licensing, transparency, environmental protection and community rights.³⁴ This directive complements the ECOWAS Treaty (1993, revised), which contains provisions on natural resource cooperation and environmental management.³⁵ ECOWAS has also adopted an

34 ECOWAS Directive C/DIR3/05/09 on the Harmonisation of Guiding Principles and Policies in the Mining Sector (2009).

35 Revised Treaty of ECOWAS (adopted 24 July 1993, entered into force 23 August 1995).

Environmental Policy (2008)³⁶ and established a Court of Justice, which has demonstrated an expanding role in adjudicating socio-economic rights claims, including in the extractive sector.³⁷ Yet, these opportunities coexist with clear gaps. Despite its normative breadth, the ECOWAS Mining Directive remains a ‘soft law’ instrument, with weak enforcement. National mining codes in states such as Nigeria, Ghana and Burkina Faso have selectively incorporated its provisions, but implementation remains inconsistent.³⁸ The limited effectiveness of the ECOWAS Mining Directive is not simply a problem of implementation capacity, but reflects deeper political-economy constraints. Member states retain strong incentives to preserve discretion over licensing and fiscal terms, particularly when extractives constitute a major source of public revenue and elite rents.³⁹ Enforcement is further weakened by power asymmetries between national executives and ECOWAS institutions, as well as competition among states for investment, which discourages collective discipline and enables selective incorporation of regional standards into domestic mining codes.

36 Supplemental Act 1/2008/CCEG/UEMOA; Supplemental Act A/SA 4/12/8 ECOWAS.

37 *SERAC* (n 28).

38 I T Odumosu-Ayanu ‘Governments, investors and local communities: Analysis of a multi-actor investment contract framework’ (2014) 15 *Melbourne Journal of International Law* 473, 478.

39 African Forum and Network on Debt and Development (AFRODAD) ‘The extent to which ECOWAS countries have domesticated the Africa Mining Vision and the ECOWAS Protocol on Mining’ (2021).

3.6 Southern African Development Community

SADC adopted the Protocol on Mining, one of the earliest regional instruments on extractives.⁴⁰ The Protocol encourages harmonisation of mining policies, sustainable development and cooperation in geological information. The SADC Treaty⁴¹ and the Protocol on Trade⁴² further situate mineral resources within a regional integration agenda. Environmental obligations are codified in the Protocol on Shared Watercourses⁴³ and the Protocol on Environmental Management for Sustainable Development (2014), which indirectly constrain extractive activities.⁴⁴ The Protocol, however, in its normative orientation, reflects an earlier extractive governance paradigm and has not been meaningfully updated to address the accelerated demands of transition minerals, environmental, social and governance (ESG) standards, or just transition imperatives.⁴⁵ Subsequent efforts to modernise SADC's mining governance framework have progressed slowly and unevenly, reflecting political resistance to supranational oversight and the absence of effective regional enforcement mechanisms.⁴⁶

40 SADC Protocol on Mining (adopted 8 September 1997, entered into force 10 February 2000).

41 Treaty of the Southern African Development Community (adopted 17 August 1992, entered into force 30 September 1993) arts 4, 5 & 21.

42 Protocol on Trade in the Southern African Development Community (adopted 24 August 1996, entered into force 25 January 2000) art 3.

43 Protocol on Shared Watercourses in the Southern African Development Community (revised, adopted 7 August 2000, entered into force 22 September 2003) arts 2-5, 7-8, 10.

44 SADC Protocol on Environmental Management for Sustainable Development (adopted 18 August 2014).

45 D Cloete and others 'Navigating the SADC critical minerals transition: Towards preferred futures' (September 2023) 14.

46 Cloete and others (n 45).

Institutionally, the disbanding of the SADC Tribunal in 2012 severely undermined regional adjudication of community and environmental claims, leaving a compliance vacuum.⁴⁷ Member states such as South Africa, Zambia and Zimbabwe thus rely heavily on domestic legal frameworks to regulate extractives, even when regional protocols provide higher standards.

3.7 East African Community

The EAC has been comparatively slow to develop binding regional mining frameworks. The proposed EAC Mining Bill, intended to harmonise licensing, environmental safeguards and revenue-sharing, remains stalled.⁴⁸ Nonetheless, the EAC Treaty obliges member states to cooperate in natural resource management and environmental protection.⁴⁹ The EAC has also adopted instruments relevant to extractives, such as the Protocol on Environment and Natural Resources Management⁵⁰ and the EAC Climate Change Policy (2011).⁵¹ The East African Court of Justice (EACJ) has demonstrated willingness to engage with governance and human rights questions,

47 RB Zarma 'Regional economic community courts and the advancement of environmental protection and socio-economic justice in Africa: Three case studies' PhD thesis, Osgoode Hall Law School of York University, 2021 112.

48 East African Community Mining Bill (2017).

49 Treaty for the Establishment of the East African Community (adopted 30 November 1999, entered into force 7 July 2000) 2144 UNTS 255, arts 5(3) (c), 111, 112 & 114.

50 Protocol on Environment and Natural Resources Management of the East African Community (adopted 3 April 2006, entered into force 2006) arts 5, 9, 10, 17 & 25.

51 East African Community EAC Climate Change Policy (2011) secs 3.3.4, 3.3.5, 4.2 & 6.3.

including in cases touching on land and environmental disputes.⁵² This judicial activism, combined with the pending mining bill, suggests that the EAC could evolve into a stronger actor in extractive governance if political will aligns.

3.8 Comparative analysis: Human rights and the political economy of extraction

Africa's RECs occupy a structurally decisive position in the governance of transition minerals. Situated between ambitious continental frameworks and sovereignty-driven national mining regimes, they generate norms that frequently exceed domestic legislation but lack the authority and enforcement architecture necessary to ensure compliance. ECOWAS, SADC and EAC have each developed mining-relevant instruments, ranging from harmonisation directives to environmental protocols and regional jurisprudence, yet these remain largely soft law mechanisms.⁵³ Their effectiveness is constrained by weak supranational mandates, limited monitoring capacity, and politically contingent incorporation into national mining codes. The disbandment of the SADC Tribunal illustrates the fragility of REC adjudicatory power when regional oversight conflicts with national political interests.⁵⁴

52 *African Network for Animal Welfare (ANAW) v The Attorney General of the United Republic of Tanzania* Ref 9 of 2010 (Judgment, East African Court of Justice at Arusha First Instance Div, 20 June 2014) para 64; *Attorney General of the United Republic of Tanzania v African Network for Animal Welfare (ANAW)* Appeal 3 of 2014 (Judgment, East African Court of Justice at Arusha App Div, 29 July 2015).

53 ECOWAS Mining Directive C/DIR.3/05/09; SADC Protocol on Mining (1997); Draft EAC Mining Bill (2017).

54 On the closure of the SADC Tribunal and its implications for regional accountability, see analysis in regional judicial governance scholarship.

A distributional lens clarifies these institutional limits. Current REC arrangements primarily benefit national executives and mining authorities that retain licensing discretion, alongside investors and external buyers that exploit regulatory variation. By contrast, customary landholders, women in artisanal mining and affected communities disproportionately bear the social and environmental costs of weak regional enforcement.

When human rights and community protections are integrated into the analysis, the limitations become sharper. Continental norms articulate robust guarantees over natural resources, participation and environmental justice,⁵⁵ yet REC operationalisation is uneven. ECOWAS approximates free, prior and informed consent (FPIC) but does not make it binding;⁵⁶ SADC's environmental and gender frameworks remain weakly enforced;⁵⁷ and EAC jurisprudence, though promising, has not translated into systematic safeguards for customary landholders or women in artisanal and small-scale mining.⁵⁸ Empirical evidence from the Democratic Republic of the Congo (DRC), Zambia and Tanzania shows persistent failures of consultation, gender exclusion and environmental harm,⁵⁹ demonstrating that normative density has not produced

55 African Charter on Human and Peoples' Rights arts 21, 22, 24; African Women's Protocol (n 29); Africa Mining Vision (2009).

56 ECOWAS Directive Provisions on Community Participation and Social Safeguards.

57 SADC Treaty arts 5, 21; SADC Gender Protocol (2008); SADC environmental instruments.

58 *ANAW v Tanzania* (EACJ 2014, 2015); EAC Treaty arts 111-114.

59 Amnesty International 'Democratic Republic of the Congo: Industrial mining of cobalt and copper for rechargeable batteries is leading to grievous human rights abuses' 12 September 2023, <https://www.amnesty.org/en/latest/news/2023/09/democratic-republic-of-the-congo-industrial-mining-of-cobalt-and-copper-for-rechargeable-batteries-is-leading-to-grievous-human-rights-abuses/%5C%3E> (accessed 28 September 2025); P Mwaanga

institutional transformation. These gaps are structurally embedded. REC instruments rely on harmonisation without coercive authority, secretariats face limited monitoring capacity, and member states resist regional oversight over land and mineral revenues.⁶⁰ The suspension of the SADC Tribunal illustrates how regional accountability weakens when it constrains politically sensitive extractive governance.

These internal constraints are compounded by external political-economy dynamics. Global supply chains for cobalt, lithium and rare earths are shaped by Chinese infrastructure-for-minerals deals,⁶¹ EU due-diligence regimes⁶² and US disclosure-based regulations.⁶³ These extraterritorial frameworks impose compliance burdens and reinforce Africa's position as a supplier of raw materials. RECs, lacking coordinated bargaining authority, struggle to mediate these pressures or leverage regional harmonisation to shift the distribution of value.⁶⁴ This constrains REC policy space unless regional coordination can offset asymmetric bargaining power.

Yet, RECs remain the most plausible institutional hinge for a just transition, as they are the only scale capable of countering sovereignty-

and others 'Preliminary review of mine air pollution in Zambia' (2019) 5 *Helikon* e02485; Volunteers Spark Others (VSO) Tanzania 'Human rights in the extractive sector in Tanzania: Learning brief' (2024) 22, https://www.vso.nl/app/uploads/2024/05/VSO_LearningPaper-2.pdf (accessed 28 September 2025).

60 MN Kiggundu 'Alternative service delivery in Africa: The case for international regional organisations' (2016) 4 *Africa's Public Service Delivery and Performance Review* 283-305.

61 J Braunstein & M Chuchko 'Resource curse in the age of critical minerals: Geopolitical forces and market maturity' (2025) 127 *Energy Research & Social Science* 104247, 2.

62 Regulation (EU) 2023/1542 (EU Battery Regulation); EU Critical Raw Materials Act; OECD Due Diligence Guidance.

63 Dodd-Frank Wall Street Reform Act 1502.

64 Gathii (n 14).

driven fragmentation through collective standard-setting. Arguably, if empowered with binding monitoring mechanisms, regionalised FPIC standards, environmental-justice obligations and strengthened courts, they could transform continental aspirations into enforceable regional practice, enabling Africa to negotiate the green transition on more equitable terms.⁶⁵ At the same time, claims that RECs are best positioned to drive regional industrialisation and value addition must be interrogated against countervailing sovereign interests and the persistent risk of a regulatory race to the bottom, which may constrain their transformative potential.⁶⁶ The next part of the chapter examines how these reforms can be operationalised within existing REC structures. It shows how regional mechanisms can translate just transition aspirations into enforceable practice and more equitable value distribution.

4 Human rights and community dimensions

4.1 Land rights and community protections

The African Charter remains the foundational instrument linking resource governance to human rights. Article 21 guarantees that '[a]ll peoples shall freely dispose of their wealth and natural resources' and prohibits dispossession without consent.⁶⁷ Article 22 further enshrines the right to economic, social and cultural development,

65 African Union *Africa Mining Vision* (2009); see also AU Green Minerals Strategy (2025); see also AfCFTA Protocol on Investment (2023) on sustainability obligations and regional value chains.

66 GF Nubong *Developmental regionalism and the political economy of Africa's integration* (2023) 32-35.

67 Art 21 African Charter.

obliging states to ensure that extractive projects do not undermine collective self-determination.⁶⁸ These provisions situate land and resource governance not merely as questions of economic policy but as matters of collective human rights. In practice, however, the expansion of large-scale mining concessions often clashes with customary land tenure systems.⁶⁹ Across Africa, land rights are deeply embedded in customary authority, with communities relying on collective stewardship rather than individual title. Yet, state concessions routinely override these systems, granting long-term leases to multinational corporations with minimal consultation.⁷⁰

RECs have emerging potential to harmonise FPIC standards across member states. For example, the ECOWAS Directive on Mining (2009) explicitly references community participation in licensing processes,⁷¹ while the SADC Protocol on Mining (1997) encourages states to adopt participatory frameworks.⁷² Yet, in the absence of binding REC-level enforcement, FPIC remains inconsistently applied, particularly in fragile political economies such as the DRC.⁷³ In Kolwezi, cobalt mining has resulted in

68 Art 22 African Charter.

69 AW Moomen 'Strategies for managing large-scale mining sector land use conflicts in the Global South' (2017) 51 *Resources Policy* 85, 86.

70 R Picciotto *Development cooperation and performance evaluation: The Monterrey challenge* (2002).

71 ECOWAS *Directive C/DIR3/05/09 on the Harmonisation of Guiding Principles and Policies in the Mining Sector* (2009).

72 Protocol on Mining (adopted 8 September 1997, entered into force 10 February 2000) art 2(8).

73 J Lewis, L Foli & S Bockstael 'Free, prior and informed consent and sustainable forest management in the Congo Basin: A feasibility study conducted in the Democratic Republic of Congo, Republic of Congo and Gabon regarding the operationalisation of FSC Principles 2 and 3 in the Congo Basin' (Inter-cooperation and Society for Threatened Peoples Switzerland, September 2008) 22.

widespread displacement of local populations without adequate consultation or compensation, highlighting the gap between normative commitments and lived realities.⁷⁴ These gaps are not merely the result of weak national implementation but reflect deeper structural constraints, including REC secretariats' limited enforcement mandates, political deference to sovereign control over land, and dependence on member state cooperation for compliance. As a result, RECs function primarily as norm-setting forums rather than effective guarantors of community land rights in extractive governance.

4.2 Gender dimensions

The gendered impacts of extractive industries are profound but often overlooked. The African Women's Protocol obliges states to protect women from exploitation and to guarantee their right to a healthy and sustainable environment.⁷⁵ Its relevance to the extractive sector is direct: Women are disproportionately affected by artisanal mining, environmental degradation and the informalisation of labour.⁷⁶

In the DRC, for instance, women working in artisanal cobalt mines face hazardous conditions, sexual violence and economic

74 Amnesty International 'Democratic Republic of the Congo: Industrial mining of cobalt and copper for rechargeable batteries is leading to grievous human rights abuses' 12 September 2023, <https://www.amnesty.org/en/latest/news/2023/09/drc-cobalt-and-copper-mining-for-batteries-leading-to-human-rights-abuses> (accessed 24 September 2025).

75 Arts 18(2) & 19(c) African Women's Protocol (n 29).

76 D Makaza & P Chimuzinga 'Barriers to women's full participation in artisanal and small-scale mining sector' Zimbabwe Environmental Law Association, November 2020 4.

marginalisation.⁷⁷ While men typically occupy the more lucrative positions in mining operations, women are relegated to peripheral roles such as washing ores, which exposes them to toxic substances without protective equipment. These conditions perpetuate cycles of poverty and gender inequality, undermining both article 18(3) of the African Charter (protection of women's rights) and the African Women's Protocol's guarantees.⁷⁸ At the REC level, gender mainstreaming remains underdeveloped in mining instruments. While SADC treaties integrate gender equality in broad terms,⁷⁹ few regional mining policies explicitly address women's roles in extractives. There is thus a missed opportunity for RECs to embed gender-responsive obligations, such as quotas in community consultations or gender audits in mining projects, into regional frameworks. The persistence of gender-neutral extractive governance is similarly structural: REC mining instruments prioritise investment facilitation and state revenue objectives, while gender obligations remain peripheral, non-justiciable and institutionally under-resourced. Without dedicated mandates, monitoring indicators and enforcement mechanisms, RECs lack the capacity to translate gender equality commitments into operational safeguards within the extractive sector.

77 BK Sovacool 'When subterranean slavery supports sustainability transitions? Power, patriarchy, and child labour in artisanal Congolese cobalt mining' (2021) 8 *The Extractive Industries and Society* 271, 290.

78 G Ofori and others "Mining women" and livelihoods: Examining the dominant and emerging issues in the ASM gendered economic space' (2024) 45 *Economic and Industrial Democracy* 1213-1214.

79 Treaty of the Southern African Development Community (adopted 17 August 1992, entered into force 30 September 1993) art 6(2); SADC Protocol on Gender and Development (adopted 17 August 2008, entered into force 22 February 2013).

4.3 Environmental justice

Environmental justice is enshrined in article 24 of the African Charter, which recognises the right of all peoples to a ‘general satisfactory environment favourable to their development’.⁸⁰ Complementing this, the Revised African Convention on the Conservation of Nature and Natural Resources (2003) obliges states to integrate environmental considerations into the exploitation of natural resources, to prevent transboundary harm, and to guarantee public participation in decision making.⁸¹ RECs supplement these obligations with regional environmental provisions. The SADC Treaty requires member states to adopt measures for natural resource conservation,⁸² while the EAC Treaty similarly enshrines environmental protection as a foundational principle.⁸³ The EAC Protocol on Environment and Natural Resources Management (2006)⁸⁴ and the SADC Protocol on Environmental Management (2014)⁸⁵ provide more detailed obligations for environmental and social impact assessments, and public consultation.

80 Art 24 African Charter.

81 Revised African Convention on the Conservation of Nature and Natural Resources (adopted 11 July 2003, entered into force 23 July 2016) arts 4, 16(3) & 22(1)-(3).

82 Treaty of the Southern African Development Community (adopted 17 August 1992, entered into force 30 September 1993) arts 5(1)(g) & 21(3).

83 Treaty for the Establishment of the East African Community (adopted 30 November 1999, entered into force 7 July 2000) 2144 UNTS 255 arts 5(3)(c), 111, 112 & 114(1).

84 Protocol on Environment and Natural Resources Management of the East African Community (adopted 3 April 2006, entered into force 2006) arts 16-17.

85 Protocol on Environmental Management for Sustainable Development (adopted 18 August 2014) arts 4(2)(b) & 5(2)(f).

A useful comparative lens is the EU's Aarhus Convention (1998), which institutionalises three pillars of environmental democracy: access to information, public participation and access to justice.⁸⁶ While African RECs have yet to institutionalise these principles to the same depth, the Aarhus model underscores the potential for regional frameworks to embed environmental justice in extractive governance. Case studies again reveal the gaps. In Zambia's Copperbelt, large-scale copper mining has caused widespread pollution, leading to land degradation and adverse health impacts.⁸⁷ Communities displaced by mining projects have often lacked effective remedies, reflecting both weak domestic enforcement and the absence of REC-level oversight.⁸⁸ In Tanzania, rare earth mining projects have generated contestation over community consent and environmental impact,⁸⁹ illustrating the potential role of the EAC in harmonising FPIC and ESIA standards.

4.4 Dispute resolution and accountability mechanisms

The weakness of domestic courts in addressing community and environmental harms has heightened the importance of regional adjudicatory bodies. The ECOWAS Court of Justice has adjudicated socio-economic rights cases, including those involving extractive industries, while the EACJ has been used to challenge land and environmental decisions. The SADC Tribunal, once a promising forum for community claims against state expropriation, was

86 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (adopted 25 June 1998, entered into force 30 October 2001) 2161 UNTS 447, arts 4, 6 & 9.

87 Mwaanga & others (n 59).

88 As above.

89 Volunteers Spark Others (n 59).

disbanded in 2012 after politically sensitive rulings, underscoring the fragility of regional adjudication when it collides with sovereignty.⁹⁰ The legacy of the Tribunal highlights the central challenge: Regional courts can provide accountability, but only if shielded from political interference.

Strengthening the REC adjudicatory capacity thus is vital for embedding corporate accountability. Regional courts could serve as platforms for communities to challenge environmental and human rights abuses linked to multinational extractives companies, provided that jurisdictional mandates are broadened and access rules liberalised. Without this, Africa risks remaining locked in a governance model where corporations and financiers operate transnationally, while rights protections remain confined to weak domestic institutions.

4.5 Responsible business conduct and transition minerals at the REC level

At present, responsible business conduct remains weakly institutionalised at the REC level. While continental frameworks such as the AMV articulate expectations around corporate accountability, most RECs have not translated these norms into binding regional mining or investment instruments, relying instead on aspirational references to sustainability and participation.⁹¹ No

90 Zarma (n 47) 112.

91 Africa Minerals Development Centre ‘The role of Africa’s critical minerals in a just energy transition: In conversation with the Just Transition and Responsible Business Conduct in Africa Consortium’ 2 June 2025, <https://www.africangreenminerals.com/news/featured-news/2025/the-role-of-africas-critical-minerals-in-a-just-energy-transition> (accessed 15 December 2025).

REC has adopted a comprehensive responsible business conduct framework with monitoring or enforcement mechanisms applicable to extractive industries. This absence of operational frameworks foregrounds the recommendations that follow, which address how RECs could move from normative aspiration to enforceable regional practice.

5 Policy recommendations

The analysis of continental and regional frameworks highlights the fact that Africa's mineral governance architecture is normatively rich but institutionally fragile. To reposition RECs as guardians of the just transition rather than passive gatekeepers, the following policy priorities are critical:

5.1 Strengthening REC mandates

RECs should be empowered to monitor and enforce compliance with member states' mining regimes. This requires mandating REC secretariats to develop annual compliance reports on licensing, environmental and social impact assessments, and community consultations, with peer-review mechanisms modelled on the African Peer Review Mechanism (APRM). This would address persistent implementation gaps and reduce regulatory arbitrage among member states.

5.2 Embedding human rights due diligence

Continental and REC mining treaties should incorporate binding human rights due diligence obligations, ensuring that companies disclose risks related to human rights, labour and the environment. This could be operationalised through REC-level directives requiring

alignment with OECD and AU standards, backed by sanctions for non-compliance. This would translate normative commitments into enforceable corporate responsibilities.

5.3 Institutionalising community participation

Community consultation requirements vary widely across member states, enabling a race to the bottom in protections and undermining the substantive participation of affected communities. Meaningful consultation and engagement, including FPIC for indigenous peoples, should be codified in REC protocols as a non-negotiable prerequisite for mining concessions. This would harmonise community consultation and participation across member states, preventing a ‘race to the bottom’ in which companies exploit weak national regimes.

5.4 Regional adjudication and accountability

Affected communities face limited access to effective remedies due to weak, suspended or narrowly mandated regional courts with restricted jurisdiction over extractive disputes. Strengthening adjudication is essential. The ECCJ should be explicitly mandated to hear community and environmental claims against states, while the EACJ should expand jurisdiction over extractive disputes. Reviving a SADC Tribunal model could restore a critical accountability forum.

5.5 Integrating mineral governance with AfCFTA

Mineral governance frameworks remain siloed from regional trade and industrialisation regimes, constraining beneficiation, regional value-chain development and collective bargaining power. RECs should align their mining protocols with the AfCFTA Protocol on

Investment, ensuring coherence between trade, industrialisation and resource governance. This would facilitate regional beneficiation, reduce external dependency and strengthen Africa's collective bargaining power in negotiations with the EU, US and China.

5.6 Finance accountability

Financial institutions that enable extractive projects are largely excluded from accountability frameworks, despite their decisive role in shaping project design, risk allocation and outcomes. Banks and financiers must not remain outside the accountability chain. REC frameworks should require financial institutions, African development finance institutions, commercial banks and foreign lenders to adopt human rights due diligence standards when funding extractive projects. This would close a major accountability gap and ensure that the financial sector contributes to rights-based mineral governance.

Taken together, these recommendations underscore that regional institutions are the decisive hinge of Africa's just transition. By strengthening REC mandates, embedding human rights, institutionalising community voice and integrating with continental trade frameworks, Africa can shift from regulatory dependency to a polycentric governance model that embeds distributive justice and environmental stewardship into the future of mineral-led development.

6 Conclusion

Africa's transition minerals represent both a historic opportunity and a profound governance challenge. At present, RECs function largely as *gatekeepers* mediating the competing interests of states and

investors but lacking the authority, resources and political backing to enforce accountability. Their mining protocols and directives articulate ambitious norms on transparency, participation and sustainability, yet weak compliance mechanisms, jurisdictional asymmetries and political resistance limit their impact. For Africa to secure a just transition, RECs must evolve into *guardians of justice*. This requires embedding human rights protections, community participation and environmental safeguards into the very fabric of regional mineral governance. Instruments such as FPIC, gender-responsive policies and environmental accountability must become binding obligations rather than aspirational principles. Equally, regional courts must be empowered to adjudicate extractive disputes, ensuring remedies for affected communities and creating deterrents against corporate malpractice.

The way forward lies in aligning continental frameworks with regional implementation. The AU's AMV and AGMS provide visionary blueprints for linking resource governance to industrialisation and climate imperatives. However, their effectiveness depends on REC protocols that translate these continental norms into enforceable regional rules. By integrating mineral governance into the AfCFTA's trade and investment frameworks, Africa can move beyond fragmented national codes toward a coherent regime that maximises value addition, strengthens bargaining power and embeds distributive justice. The choice, therefore, is stark: Either perpetuate extractive dependency under external regulatory regimes, or harness RECs as the institutional hinge of a genuinely just transition. If reimagined as regional accountability hubs, RECs can ensure that Africa's mineral wealth not only powers the world's decarbonisation, but also secures equity, dignity and sustainable development for African peoples.

Bibliography

- Bohne, A & Thiam, I 'Introduction' in Bohne, A & Thiam, I (eds) *The Africa Mining Vision: Can business as usual be visionary? Perspectives from four regions* (Andreas Bohn & Ibrahim Thiam 2018) 4
- Braunstein, J & Chuchko M, 'Resource curse in the age of critical minerals' (2025) 127 *Energy Research and Social Science* 104247
- Gathii, JT 'African regional trade agreements as flexible legal regimes' (2010) 35 *North Carolina Journal of International Law and Commercial Regulation* 571
- Gathii, JT 'Saving the Serengeti: Africa's new international judicial environmentalism' (2016) 16 *Chicago Journal of International law* 386
- Kiggundu, MN 'Alternative service delivery in Africa' (2016) 4 *Africa's Public Service Delivery and Performance Review* 283
- Kulamadayil, L *The pathology of plenty: Natural resources in international law* (Hart Publishing 2025)
- Moomen, AW 'Strategies for managing large-scale mining sector land use conflicts in the Global South' (2017) 51 *Resources Policy* 85
- Mwaanga, P, Silondwa, M, Kasali, G & Banda, PM, 'Preliminary review of mine air pollution in Zambia' (2019) 5 *Heliyon* 02485.
- Nubong, GF *Developmental regionalism and the political economy of Africa's integration* (Bloomsbury Publishing 2023)
- Odumosu-Ayanu, IT 'Governments, investors and local communities' (2014) 15 *Melbourne Journal of International Law* 473
- Ofori, G, Sarpong, D, Torbor, M & Asante, S 'Mining women and livelihoods' (2024) 45 *Economic and Industrial Democracy* 1
- Ouedraogo, NS & Kilolo, JMM 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 1

- Simo, RY 'The (domestic) enforcement of AU international economic law instruments: Exploring the desirability of direct effect' in Amao, O, Olivier, M & Magliveras, KD (eds) *The emergent African Union law* (Oxford University Press 2021) 95
- Sovacool, BK 'When subterranean slavery supports sustainability transitions?' (2021) 8 *The Extractive Industries and Society* 271
- Van Wyk, D, Reyneke, S and Bain, E 'Attainable vision or fairy tale?' in Bohne, A & Thiam, I (eds) *The Africa Mining Vision: Can business as usual be visionary? Perspectives from four regions* (Andreas Bohn & Ibrahim Thiam 2018) 95
- Williams, O '*SERAC v Nigeria* and social movements' MA dissertation, American University in Cairo, 2011
- Zarma, RB 'Regional economic community courts and environmental justice in Africa' PhD thesis, Osgoode Hall Law School, 2021

Reports and policy papers

- African Development Bank (ANRC), Approach Paper to Guide Preparation of an African Green Minerals Strategy (2022)
- African Forum and Network on Debt and Development (AFRODAD) Domestication of the Africa Mining Vision and ECOWAS Mining Framework (2021)
- Africa Minerals Development Centre, The Role of Africa's Critical Minerals in a Just Energy Transition (2025)
- Amnesty International, DRC: Industrial Mining of Cobalt and Copper and Human Rights Abuses (2023)
- Volunteers Service Overseas (VSO), Human Rights in the Extractive Sector in Tanzania (2024)
- Intercooperation and Society for Threatened Peoples, Free, Prior and Informed Consent in the Congo Basin (2008)

Cloete, D and others 'Navigating the SADC Critical Minerals Transition' (2023)

Picciotto R, Development Cooperation and Performance Evaluation (World Bank 2002).

United Nations Environment Programme 'Our Work in Africa'

US Geological Survey, US Geological Survey Releases 2022 List of Critical Minerals

Treaties and international instruments

African Charter on Human and Peoples' Rights (1981)

African Charter on Democracy, Elections and Governance (2007)

African Union, Africa Mining Vision (2009)

African Union, Action Plan for Implementing the Africa Mining Vision (2011)

African Union Commission, Africa's Green Minerals Strategy (2025)

African Union Commission, Agenda 2063: The Africa We Want (2015)

African Union, African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032) (2022)

Agreement Establishing the African Continental Free Trade Area (2018)

AfCFTA Protocol on Investment (2023)

Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) (1998)

European Union Critical Raw Materials Act

East African Community Climate Change Policy (2011)

East African Community Mining Bill (2017)

Paris Agreement (2015)

- Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (2003)
- Protocol on Environment and Natural Resources Management of the East African Community (2006)
- Revised African Convention on the Conservation of Nature and Natural Resources (2003)
- ECOWAS Directive C/DIR3/05/09 on the Harmonisation of Guiding Principles and Policies in the Mining Sector (2009)
- Revised Treaty of the Economic Community of West African States (1993)
- Regulation (EU) 2023/1542 of the European Parliament and of the Council concerning batteries and waste batteries [2023] OJ L191/1
- Supplemental Act 1/2008/CCEG/UEMOA
- Supplemental Act A/SA 4/12/8 ECOWAS
- SADC Treaty of the Southern African Development Community (1992)
- SADC Protocol on Mining (1997)
- SADC Protocol on Trade in the Southern African Development Community (1996)
- SADC Protocol on Shared Watercourses in the Southern African Development Community (2000)
- SADC Protocol on Environmental Management for Sustainable Development (2014)
- SADC Protocol on Gender and Development (2008)
- Treaty Establishing the African Economic Community (1991)
- Treaty for the Establishment of the East African Community (1999)
- OECD, Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (2016)

United States, Dodd–Frank Wall Street Reform and Consumer Protection Act
(2010)

Cases

African Network for Animal Welfare v Attorney General of the United Republic of Tanzania Ref 9 of 2010 (EACJ, 20 June 2014)

Attorney General of the United Republic of Tanzania v African Network for Animal Welfare Appeal 3 of 2014 (EACJ, 29 July 2015)

Social and Economic Rights Action Centre (SERAC) & Another v Nigeria
(2001) AHRLR 60 (ACHPR 2001)

Sacrificial communities and the Just Transition: An analysis of policy contradictions in South Africa's Critical Minerals and Metals Strategy

Felix Dube

Abstract: *This chapter argues that South Africa's Critical Minerals and Metals Strategy (CMMS) structurally contradicts the Just Transition Framework because it promotes a model of accelerated green extractivism that is fundamentally misaligned with the core principles of a just transition. The CMMS prioritises economic and geopolitical objectives while paying insufficient regard to community rights and environmental safeguards. Hence, the CMMS risks perpetuating the development model that historically created sacrifice zones. The analysis concludes that pursuing critical minerals under the CMMS will not anchor a just transition but will instead entrench a new form of resource curse and sacrifice vulnerable communities for a green future they will not equitably share. To avert this outcome, this chapter proposes recommendations for the South African government, corporations, investors and civil society. These recommendations focus on achieving policy coherence by embedding justice principles within the CMMS, legislating mandatory human rights due diligence, establishing independent grievance and redress mechanisms, and*

empowering communities to shift from being passive subjects of consultation to active partners in minerals co-governance.

1 Introduction

The global transition from fossil fuels has triggered a new scramble for African raw materials that underpin renewable energy technologies.¹ Transition minerals and metals, such as the platinum group metals, lithium, cobalt and rare earth elements, are essential components for electric vehicles, battery storage systems and wind turbines.² This presents a major economic opportunity for South Africa, as the country holds substantial reserves of these strategic resources.³ However, supply chain security and the geopolitical interests of the Global North largely shape the definition of a 'critical' mineral or metal, rather than the development needs of producer countries like South Africa.⁴ Broadly, critical minerals are those associated with geopolitical supply risks, whereas transition minerals fall within the wider category of materials needed for the energy transition across the globe.⁵ South Africa's Critical Minerals and Metals Strategy

-
- 1 BA Bature 'The new scramble for Africa: How global powers are competing for influence in the 21st century' (2025) 2 *British Journal of Interdisciplinary Research* 65; N Ouedraogo & J Kilolo 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 033004.
 - 2 K Hund and others 'Minerals for climate action: The mineral intensity of the clean energy transition' (2020).
 - 3 SE Zhang and others 'Emerging criticality: Unravelling shifting dynamics of the EU's critical raw materials and their implications on Canada and South Africa' (2023) 86 *Resources Policy* 104247.
 - 4 S Nakanwagi 'Critical minerals and the global energy transition: Recognising Global South perspectives' (2023) 4 *Global Energy Law and Sustainability* 115.
 - 5 S Dou & D Xu 'The security of critical mineral supply chains' (2023) 36 *Mineral Economics* 401; X Xing and others 'Revealing global supply risk of

(CMMS), launched in 2025, defines and classifies critical minerals according to their ‘strategic importance to economic growth, industrial development, job creation and national security’.⁶ This chapter argues that the CMMS frames these materials primarily as a response to external demand instead of grounding them in criteria such as their domestic economic importance, supply risk, and the potential impact of supply disruptions. The exception is coal, which is noted as a critical mineral because of its centrality to South Africa’s energy generation. This tension creates a conflict between the CMMS and the country’s constitutional commitments to social justice, environmental protection, and its internationally recognised Just Transition Framework.⁷

This chapter analyses the structural contradictions between the Just Transition Framework and the CMMS. It assesses how extractive projects facilitated by the logic of green extractivism affect host communities through violence, intimidation, exclusion and inadequate consultation. The inquiry uses three energy justice principles from South Africa’s Just Transition Framework; namely, distributive, restorative and procedural justice, as its analytical framework. These principles represent a concrete, context-specific method for implementing responsible business conduct. Reading the CMMS through these justice principles reveals a systemic accountability deficit in which both state and corporate actors fail in their respective duties and responsibilities. The analysis integrates the United Nations (UN) Guiding Principles on Business and

critical minerals essential for low-carbon energy technologies’ (2025) 498 *Journal of Cleaner Production* 145160.

6 Department of Mineral Resources and Energy ‘Critical Minerals and Metals Strategy’ (2025) 9.

7 Presidential Climate Commission ‘A framework for a Just Transition in South Africa’ (2022).

Human Rights (UNGPs)⁸ to benchmark the specific failures of the state to protect and corporations to respect human rights within these justice dimensions. This analysis centres on the perspectives of affected communities, because their experiences of dispossession and resistance illuminate the failures of top-down policymaking. Although this chapter focuses on South Africa, its observations may be relevant to other countries pursuing similar objectives.

The following part 2 establishes the analytical framework and grounds the discussion in the concept of sacrifice zones and the three pillars of the South African Just Transition Framework. Part 3 introduces the CMMS. Part 4 maps the structural contradictions between the CMMS and the just transition principles. Part 5 analyses the accountability deficit in practice by applying the lenses of distributive, procedural and restorative justice to specific case studies. Finally, part 6 offers recommendations to align the CMMS with South Africa's justice commitments.

2 Analytical and theoretical framework

2.1 The context of sacrifice zones and green extractivism

Understanding the justice-based framework requires an appreciation of sacrifice zones. The concept, which helps to explain the human cost of extractive industries, refers to geographical areas and populations designated for exploitation, pollution, and eventual abandonment in

8 Office of the High Commissioner for Human Rights 'Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework' (2011).

the pursuit of profit or technological advancement.⁹ Sacrifice zones are physical manifestations of a political economy that deems certain people and places expendable for a perceived greater common good.¹⁰ New forms of extraction deploy this logic, particularly in South Africa, which is experiencing the emergence of green extractivism.¹¹ This chapter defines green extractivism as an economic model that accelerates the extraction of critical minerals and metals to support renewable energy technologies, while primarily serving external demand and geopolitical interests. This approach often overlooks community rights and environmental protections.

This phenomenon redeploys the logic of sacrifice under the banner of sustainable development and the global energy transition.¹² Although the fight against climate change justifies the extraction of critical minerals,¹³ the process often involves destructive activities such as mines, smelters and processing plants that displace communities, pollute ecosystems and disrupt livelihoods. The creation of a sacrifice zone is an active political project of dispossession and is fundamentally at odds with a project of justice and restitution.¹⁴ Green extractivism constitutes a form of neo-colonial regulatory coercion in which the Global North's green agenda pressures the Global South into accelerated mineral extraction. Geopolitical tensions amplify this

9 C Tornel 'Development as terracide: Sacrifice zones and extractivism as state policy in Mexico' (2024) 21 *Globalizations* 1.

10 ML de Souza "'Sacrifice zone': The environment-territory-place of disposable lives' (2021) 56 *Community Development Journal* 220.

11 CG Gonzalez 'The sacrifice zones of carbon capitalism: Race, expendability, and loss and damage' in M Doelle & SL Seck (eds) *Research handbook on climate change law and loss and damage* (2021) 43.

12 Tornel (n 9) 1-25.

13 Ouedraogo & Kilolo (n 1) 1-2.

14 DN Scott 'The power of "net zero": Seductive dispossession on the critical minerals frontier' (2025) 28 *Law Text Culture* 100.

pressure. The strategic competition between the West and China to secure transition minerals intensifies this pressure. Consequently, South Africa's CMMS functions as a response to these global forces, catching the country between its energy poverty and the demands of the 'green North'.¹⁵

2.2 The primary lens of South Africa's Just Transition Framework

South Africa formally adopted a Just Transition Framework in direct opposition to the logic of sacrifice. The Presidential Climate Commission developed this framework in 2022 following extensive research and multi-stakeholder consultation.¹⁶ The framework functions as a practical planning tool to guide the nation's shift to a low-carbon and climate-resilient economy and society in an equitable and socially inclusive manner.¹⁷ It represents the state-endorsed counter-narrative to the unjust development patterns of the past. The framework is built upon three core, non-negotiable principles that are used in this chapter's analysis. The first principle is distributive justice. This manifests through demands for the equitable distribution of the benefits and burdens associated with the just transition.¹⁸ It requires that the opportunities created by the green economy, such as new jobs, skills and ownership, are accessible to all, with a particular focus on those most affected by the shift

15 S Kalantzakos 'The race for critical minerals in an era of geopolitical realignments' (2020) 55 *The International Spectator* 1; A Kumar & A Vishwanathan 'Race for critical minerals: China's ambitions and challenges' (2025) 44 *Comparative Strategy* 56.

16 Presidential Climate Commission (n 7).

17 As above.

18 SM Patrick and others 'Just energy transition from coal in South Africa: A scoping review' (2025) 167 *Environmental Science & Policy* 104044.

away from fossil fuels, including workers, the poor, women and the youth.¹⁹

The principle of restorative justice complements this approach. It acknowledges the deep historical harms of colonialism, apartheid and environmentally destructive industries.²⁰ Restorative justice calls for the active redress of past damages through remediating environmental degradation in coal-affected areas, supporting the constitutional right to a healthy environment, and ensuring that new inequalities are not created.²¹

Finally, the framework's principle of procedural justice empowers workers, communities and small businesses to define their own development course.²² This moves beyond tokenistic consultation to meaningful participation and ensures that those most affected are central to the decision-making processes that shape their future.²³

19 I Platform 'Empowering the future: Youth policy and employment in Africa' (2024) 3-4.

20 A Minguet 'Environmental justice movements and restorative justice' (2021) 4 *The International Journal of Restorative Justice* 58.

21 K Moeng 'Challenges and opportunities for coal communities in a Just Transition: Towards a transition underpinned by environmental justice' PhD thesis, University of South Africa, 2024 6, in general; D Skosana *No last place to rest: Coal mining and dispossession in South Africa* (2025).

22 B Kilimcioglu 'Procedural justice and due process principle in the context of just energy transition: Learning from South Africa' (2025) 10 *Business and Human Rights Journal* 79.

23 D Lupin & L Townsend 'The right to consultation is a right to be heard' in D Lupin (ed) *A research agenda for human rights and the environment* (2023) 103.

2.3 Responsible business conduct and the role of the UN Guiding Principles on Business and Human Rights

This chapter argues that the South African Just Transition Framework offers a practical, context-specific approach to implementing the concept of responsible business conduct. Compliance with these principles can be measured against established international standards like the UNGPs, which provide the authoritative global standard for preventing and addressing human rights harm caused by business activity. The UNGPs' three pillars of 'protect, respect and remedy' align directly with the just transition principles. Distributive justice aligns with the state's duty to protect human rights by regulating markets for equitable outcomes. Procedural justice becomes operational when corporations meet their responsibility to respect human rights through meaningful due diligence and engagement. Restorative justice cannot exist without the 'access to remedy' pillar, which ensures redress for victims of corporate abuse. Therefore, this chapter uses the UNGPs as a supporting accountability mechanism to critique the incoherence of policy and practice in South Africa and to identify specific points of failure by both state and corporate actors in relation to sacrifice zones.²⁴

3 South Africa's Critical Minerals and Metals Strategy

The CMMS is the state's response to the 'new scramble' for Africa's resources.²⁵ Value addition and industrialisation anchor its central

24 T van Ho 'Business and human rights in transitional justice: Challenges for complex environments' in S Deva & D Birchall (eds) *Research handbook on human rights and business* (2020) 379.

25 Bature (n 1) 65-80.

logic.²⁶ The strategy argues that South Africa must move beyond the historical model of raw extraction to realise the full potential of its mineral wealth. This requires targeted public and private investment in local beneficiation, including the development of processing plants, refineries, and manufacturing facilities for high-value products such as battery components and hydrogen fuel cells.²⁷

The CMMS envisions South Africa becoming a key partner in resilient global value chains for electric vehicles, battery storage and green hydrogen.²⁸ It defines criticality through the lens of national security and economic growth. Although the strategy categorises minerals based on their importance to the global green transition and local economic significance,²⁹ a critical reading reveals that the CMMS promotes a model of green extractivism. It prioritises rapid project development to capture a fleeting global market window. Given South Africa's limited financial capacity and technology, the benefits of this 'value addition' risk accruing to multinational corporations holding patents and capital while the environmental and social costs remain localised in host communities.

4 Structural contradictions between the Critical Minerals and Metals Strategy and the Just Transition Framework

The CMMS and the Just Transition Framework represent two competing visions of development in a state of structural

26 Department of Mineral Resources and Energy (n 6) 24.

27 As above.

28 Department of Mineral Resources and Energy (n 6) 31.

29 The CMMS under Local Economic Significance (18) notes that, by identifying and prioritising minerals that have strong local economic significance, such as manganese, iron ore, coal and vanadium, the strategy ensures that these resources support inclusive growth and contribute to addressing socio-economic challenges.

contradiction. While the Just Transition Framework acts as the state-endorsed counter-narrative to historical injustice, the CMMS implicitly treats communities and the environment not as rights-holders, but as factors to be managed or constraints to be overcome in the pursuit of economic objectives. The CMMS is conspicuous for its omissions. While it references inclusive growth and environmental, social and governance (ESG) considerations, it provides almost no substantive detail on the mechanisms through which these goals will be achieved.³⁰ Critical analyses of the strategy point to a lack of clarity regarding how community impacts and justice commitments will be addressed in the rush to scale up extraction and industrialisation.³¹ The language of the CMMS is overwhelmingly technocratic and focuses on investment incentives, infrastructure bottlenecks, exploration and geopolitical positioning.³²

This instrumentalist worldview creates a fundamental misalignment with the three pillars of the just transition. The CMMS pushes for an accelerated timeline to capitalise on global demand. This pace makes the deep, time-consuming engagement required by procedural justice nearly impossible.³³ Similarly, the focus on attracting foreign investment without binding social requirements undermines distributive justice, while the forward-looking focus on green tech avoids the restorative justice needed to address the legacy of the resource curse. The table below maps these structural contradictions across key policy dimensions and illustrates

30 Department of Mineral Resources and Energy (n 6) 38.

31 J Hofmeyr 'South Africa's new critical minerals strategy: Promises and paradoxes' *APRI* 15 September 2025, <https://afripoli.org/south-africas-new-critical-minerals-strategy-promises-and-paradoxes> (accessed 21 September 2025).

32 Department of Mineral Resources and Energy (n 6) 31.

33 Hofmeyr (n 31).

the specific conflict between the extractivist logic of the CMMS and the principles of the Just Transition Framework.

Table: Structural contradictions between the CMMS and JTF

Just Transition Framework (JTF)	Critical Minerals and Metals Strategy (CMMS)	Tension
Focuses on social equity, inclusion and decarbonisation.	Focuses on economic growth, industrialisation and competitiveness through mineral development.	JTF aims to reduce dependence on extractives; CMMS intensifies mining activity.
Seeks a low-carbon, climate-resilient economy and ecosystem protection.	Promotes increased extraction and beneficiation of critical minerals for global clean-tech markets. Continued coal extraction with investments in cleaner coal technology pathways, including carbon capture, storage and utilisation.	Mining expansion can contradict JTF's environmental and emission-reduction goals.
Emphasises community participation, social dialogue and bottom-up planning.	Driven by top-down industrial policy and state-led coordination through the Department of Mineral Resources and Energy.	Limited community engagement in CMMS planning compared with JTF's participatory ethos.

Just Transition Framework (JTF)	Critical Minerals and Metals Strategy (CMMS)	Tension
Prioritises decent work, reskilling and social protection for affected workers.	Focuses on competitiveness, investment attraction and export growth, with less emphasis on labour transition.	Risk of job losses or inequality if mining automation increases without safety nets.
Guided by environmental justice and sustainability principles.	Guided by resource efficiency and industrial policy objectives.	Economic imperatives may override ecological limits.
Promotes intergenerational equity and long-term resilience.	Seeks short- to medium-term economic gains and foreign exchange earnings.	Potential lock-in to extractive dependence may hinder future sustainability.
Encourages policy coherence and collaboration across sectors.	Calls for regulatory alignment (mining, energy, environment) to reduce red tape.	Shared intent, but CMMS's regulatory drive is economic, not social-justice-oriented.
Supports green industrialisation aligned with renewable energy and local manufacturing.	Targets beneficiation and localisation of critical minerals (e.g. batteries, hydrogen technologies).	Can align with JTF if beneficiation is powered by clean energy and socially inclusive.

Source: Author, this chapter

As illustrated above, one of the first issues with the CMMS is its top-down industrial policy, which conflicts with the principles of public

consultation and free, prior and informed consent (FPIC).³⁴ This approach erodes social protections and distributive justice advocated by scholars³⁵ and compromises environmental and other human rights.³⁶ Consequently, the CMMS inadvertently undermines the just transition objectives of reducing inequality, poverty and carbon emissions.³⁷ Thus, it is clear that economic nationalism and geopolitical ambition drive the CMMS.³⁸ The strategy seeks to transform South Africa from a raw material supplier into a manufacturing hub.³⁹ Although these are valid economic goals, their pursuit without integrating just transition principles risks creating a new generation of sacrifice zones. This contradiction manifests in the daily reality of mining-affected communities. The resulting accountability deficit, when analysed through the three justice principles, provides compelling evidence for integrating the Just Transition Framework into the CMMS.

5 Analysis of the accountability deficit in practice

This part of the chapter analyses how structural contradictions manifest in practice. It applies the three justice principles as an analytical lens and the UNGPs' 'protect, respect and remedy' framework as a measure of accountability to map the specific deficits creating sacrifice zones in South Africa.

34 See Lupin & Townsend (n 23) 103 for a discussion of the importance of these principles.

35 Patrick and others (n 18).

36 Skosana (n 21).

37 Presidential Climate Commission (n 7).

38 Department of Mineral Resources and Energy (n 6) – see the executive summary.

39 Department of Mineral Resources and Energy (n 6) 8.

5.1 Distributive justice and the failure of the state's duty to protect

Distributive justice mandates the equitable allocation of economic benefits, environmental burdens and legal protections.⁴⁰ Under the UNGPs, this aligns with the state's duty to protect human rights against abuse by third parties. The state must take appropriate steps to prevent, investigate, punish and redress abuse through effective policies and legislation.⁴¹ The current implementation of the CMMS reveals a failure of this duty. The state's promotion of an aggressive extraction agenda without embedding binding human rights safeguards has created a policy environment that prioritises investor certainty over community protection.⁴² This policy incoherence falls short of the state's obligation to create a regulatory environment that enables business respect for human rights.⁴³

The unequal distribution of physical security constitutes the most severe violation of distributive justice. While the state deploys significant resources to protect mining infrastructure, it fails to extend similar protection to community activists who question those operations. Environmental human rights defenders face a daily reality of harassment, intimidation and violence.⁴⁴ This systemic environment of fear aims to silence dissent and ensure project

40 DJ Karp 'Fixing meanings in global governance? "Respect" and "protect" in the UN guiding principles on business and human rights' (2020) 26 *Global Governance* 628.

41 Office of the High Commissioner for Human Rights (n 8).

42 T Glazebrook & E Opoku 'Defending the defenders: Environmental protectors, climate change and human rights' (2018) 23 *Ethics and the Environment* 83.

43 Human Rights Watch "'We know our lives are in danger': Environment of fear in South Africa's mining-affected communities' (2019).

44 Human Rights Watch (n 43) 28.

implementation. A Human Rights Watch report details this reality in mining-affected communities across KwaZulu-Natal, Limpopo, the Northwest and the Eastern Cape.⁴⁵ The report documents abuses including killings and physical attacks. At least three activists were killed between 2016 and 2019, including the murder of Sikhosiphi 'Bazooka' Rhadebe, an anti-mining activist in Xolobeni, Eastern Cape.⁴⁶ Other activists report assaults, property damage and death threats.⁴⁷ There is a documented pattern of targeting women who lead resistance movements.⁴⁸ The perpetrators are often unknown, but communities consistently allege links to mining companies, private security or local officials. The failure to investigate these crimes and protect citizens effectively distributes impunity to perpetrators and insecurity to communities.

5.2 Procedural justice and the failure of corporate responsibility to respect

Procedural justice requires that communities function as active participants in defining development, not merely as recipients.⁴⁹ This principle necessitates deep, meaningful engagement and the power to influence decisions. Under the UNGPs, meaningful stakeholder engagement is an integral part of the corporate responsibility to respect human rights. To fulfil this responsibility requires

45 Human Rights Watch (n 43) 36.

46 Human Rights Watch (n 43) 48-49.

47 A Ramasastry 'Corporate social responsibility versus business and human rights: Bridging the gap between responsibility and accountability' (2015) 14 *Journal of Human Rights* 237.

48 NHRI 'Eastern-Southern African National Human Rights Institution (NHRI) business and human rights peer learning initiative submission of views and experiences to the UNGPs+10/next decade project' (2020).

49 Lupin & Townsend (n 23) 103.

companies to 'do no harm' by conducting ongoing human rights due diligence to identify and mitigate their impacts on communities.⁵⁰ Evidence from the South African mining sector suggests that companies misunderstand and neglect this responsibility. While many companies have sophisticated ESG policies, research shows most fail to translate these commitments into concrete action plans. A common shortcoming is conflating the 'responsibility to respect' with voluntary corporate social responsibility initiatives.⁵¹ Philanthropic projects, such as building a healthcare clinic or school, are frequently used to offset or distract from human rights harms caused by core business operations. This approach turns consultation into a performance rather than a dialogue.⁵²

The Platinum Belt in the North West province illustrates this dynamic. Producing approximately 80 per cent of the world's platinum, this region should be a centre of development. Instead, it is characterised by deep-seated poverty, social fragmentation and environmental decay.⁵³ For decades, the wealth extracted has flowed to multinational corporations and a small elite, while host communities have borne the costs.⁵⁴ The 2012 Marikana massacre, in which police killed 34 striking mineworkers, was a violent eruption of unresolved grievances stemming from this exclusionary model.

The socio-economic impacts of this failure to respect procedural rights are devastating. The promise of jobs has led to rapid, unplanned

50 Responsible Mining Foundation 'Time to normalise respect and remedy for human rights in mining' (2021).

51 Ramasastry (n 47).

52 NHRI (n 48).

53 L Marais and others (eds) *Mining and community in the South African platinum belt: A decade after Marikana* (2021).

54 C Schultz 'The Marikana massacre and the unstable geographies of capital: Spatialising financialisation' (2020) 47 *Politikon* 42.

urbanisation and the proliferation of informal settlements lacking basic services.⁵⁵ The social fabric has been damaged by crime and conflict between migrant workers and local residents competing for scarce opportunities.⁵⁶ Furthermore, promises of local economic participation have largely failed to materialise. Procurement opportunities are often structured to reinforce existing monopolies rather than empower local entrepreneurs. This legacy of exclusion is a warning that without genuine procedural justice giving communities a meaningful role in decision making, the ‘critical minerals’ boom will replicate the tragedy of the Platinum Belt.

5.3 Restorative justice and the remedy gap

Restorative justice requires acknowledging harm and actively redressing past and present damages.⁵⁷ The UNGPs framework operationalises this principle through access to remedy. This pillar requires that victims of human rights abuses linked to business activities have access to effective judicial and non-judicial grievance mechanisms.⁵⁸ However, a profound remedy gap exists in South Africa. The judicial system, while independent, is slow, expensive, and often inaccessible to rural communities.⁵⁹ Meanwhile,

55 M Nkomo ‘Migrants and the politics of presence on the South African platinum mining belt’ (2023) 15 *International Development Policy* 29.

56 M Kanyane ‘Life in the platinum belt: Socio-economic struggles in the village of Luka’ (2025) 23 *HSRC Review* 26.

57 L Lizarazo-Rodríguez ‘The UN “Guiding principles on business and human rights”: Methodological challenges to assessing the third pillar: Access to effective remedy’ (2018) 36 *Nordic Journal of Human Rights* 353.

58 Office of the High Commissioner for Human Rights (n 8).

59 Federal Ministry for Economic Cooperation and Development ‘Study on grievance mechanisms to promote human rights in the mining industry’ (2024).

corporate-led grievance mechanisms at the operational level are frequently flawed. Under the UNGPs, an effective mechanism must be legitimate, accessible, predictable, equitable and transparent.⁶⁰ Instead, operational-level grievance mechanisms are often opaque, controlled by the company, and used to manage risk rather than resolve grievances.

Furthermore, corporate actors frequently weaponise the legal system against those seeking remedy. Instead of providing redress, corporations increasingly use the courts to harass activists through strategic lawsuits against public participation.⁶¹ These meritless lawsuits are designed to intimidate, silence, and exhaust the financial resources of activists and civil society organisations.⁶² A clear example is the case of *Mineral Sands Resources (Pty) Ltd v Reddell*,⁶³ in which a mining company sued environmental lawyers and activists for defamation. While the courts have begun to push back against this tactic, the mere threat of litigation creates a chilling effect on free expression.⁶⁴ This failure of remedy creates a vicious cycle. When formal consultation channels (procedural justice) are flawed and grievance mechanisms (restorative justice) are ineffective, communities are often left with no option but to protest. This

60 Benchmarks Foundation 'Mine's grievance mechanisms intimidate stakeholders and are ineffective' (2014).

61 T Murombo & H Valentine 'SLAPP suits: An emerging obstacle to public interest environmental litigation in South Africa' (2011) 27 *South African Journal on Human Rights* 82.

62 Human Rights Watch (n 43) 4.

63 2023 (2) SA 68 (CC).

64 Z Emmamally 'Slapping down SLAPP suits in South Africa: The need for legislative protection and civil society action' (2022) 139 *South African Law Journal* 1; L Chamberlain 'Growing threats to environmental human rights defenders: The latest SLAPP suit developments in South Africa' (2020) 26 *South African Journal of Environmental Law and Policy* 5.

legitimate exercise of rights is then met with state suppression, a failure of distributive justice, which further erodes the trust required for constructive engagement.

6 Recommendations toward policy coherence

Resolving the structural contradictions between the CMMS and the Just Transition Framework requires South Africa to move beyond voluntary principles and high-level policy statements. The following recommendations propose concrete actions for the state, the private sector and civil society to address the current accountability deficit.

6.1 For the government

The Department of Mineral Resources and Energy should subject the CMMS to a formal review overseen by the Presidential Climate Commission to harmonise it with the Just Transition Framework. This review must amend the strategy to establish distributive, restorative and procedural justice as key performance indicators for the mining sector, with a weight equal to economic output. Furthermore, Parliament should translate the legal precedents from the *Wild Coast* and *Maledu* judgments into binding amendments to the Mineral and Petroleum Resources Development Act, thereby codifying the right to say no.⁶⁵ These amendments must define meaningful consultation not as a bureaucratic exercise but as a consensus-seeking process requiring FPIC for any project that threatens the land rights or cultural heritage of customary communities.

65 *Minister of Mineral Resources and Energy v Sustaining the Wild Coast NPC* 2024 (5) SA 38 (SCA); *Maledu v Itereleng Bakgatla Mineral Resources (Pty) Ltd* 2019 (2) SA 1 (CC).

Parliament should enact binding legislation that requires all companies in the extractive sector to conduct ongoing human rights due diligence. Such legislation, unlike current voluntary reporting, would impose penalties for non-compliance and mandate public disclosure of human rights risks. This would align the sector with the mandatory due diligence standards emerging in the European Union.⁶⁶ The government should also establish and fund an independent mining ombud for mining-affected communities. This body could have the statutory power to investigate complaints, mediate disputes and issue binding remedial awards, thereby offering a viable alternative to the prohibitively expensive High Court system for restorative justice.

6.2 For corporations and investors

Corporations and investors need to transition from a compliance mindset to one of co-governance. Mining companies should abandon top-down engagement models and transform social and labour plans, often treated as mere compliance documents, into binding community development agreements co-designed with host communities. These agreements should establish clear, legally enforceable obligations for benefit sharing, environmental management and local procurement, which would operationalise procedural justice. Furthermore, industry bodies like the Minerals Council South Africa should adopt a strict zero-tolerance policy against attacks on human rights defenders. Such a policy would require member companies to terminate contracts with private security providers found to have violated the Voluntary Principles

⁶⁶ NHRI (n 48).

on Security and Human Rights and to cooperate fully with police investigations into violence against activists.

Institutional investors and development finance institutions funding the green transition should integrate just transition principles into their lending criteria. Before approving capital for new critical mineral projects, investors should demand evidence of restorative justice planning, particularly fully-funded mine closure and rehabilitation plans.

6.3 For civil society

Civil society must consolidate counter-power through litigation aimed at co-governance. Civil society organisations should use the *Maledu* precedent not only to stop mining but also to renegotiate the terms of extraction.⁶⁷ Communities and their legal allies can advocate for active co-governance models, demanding seats on project oversight committees and ensuring community equity stakes, such as community trusts, confer voting rights instead of just passive dividend rights. Environmental justice organisations can also strengthen solidarity networks through enhanced collaboration between established coal-mining communities facing the fossil fuel transition and emerging critical mineral communities facing the new scramble. Innovative information-sharing networks would help new host communities anticipate corporate strategies and adopt successful resistance tactics from the Platinum Belt and the Wild Coast.

⁶⁷ *Maledu & Others v Itereleng Bakgatla Mineral Resources (Pty) Limited & Another* (CCT265/17) [2018] ZACC 41; 2019 (1) BCLR 53 (CC); 2019 (2) SA 1 (CC).

7 Conclusion

South Africa faces a fundamental contradiction in its national development strategy. The government's CMMS, designed to capitalise on the global green energy boom, is structurally and ideologically misaligned with the country's Just Transition Framework. The Just Transition Framework promises a future built on distributive, restorative and procedural justice, whereas the CMMS promotes a model of 'green extractivism' that prioritises rapid industrialisation and geopolitical posturing over human rights and environmental well-being. This contradiction creates tangible accountability deficits. Distributive justice is subverted when the state uses police power to protect mining investments while leaving community activists exposed to fear and violence. Procedural justice is undermined when the rush for critical resources justifies fast-tracked consultations that ignore the rights of customary landholders to refuse consent.⁶⁸ Restorative justice is denied when legal and corporate systems fail to provide accessible remedies for environmental degradation and social dislocation, leaving communities to bear the resource curse of a new era.

The case studies from the Platinum Belt and the Wild Coast demonstrate that without a significant change in approach, the extraction of minerals for the green economy will replicate the injustices of the fossil fuel economy. To avoid creating a new generation of sacrifice zones, South Africa must anchor its CMMS in the principles of its Just Transition Framework. The state must move beyond the rhetoric of growth to fulfil its duty to protect, and

68 *Baleni & Others v Minister of Mineral Resources and Others* (73768/2016) [2018] ZAGPPHC 829; [2019] 1 All SA 358 (GP); 2019 (2) SA 453 (GP).

corporations must move beyond the optics of ESG to fulfil their responsibility to respect human rights. Only then can the transition be just and the country's mineral wealth serve as a foundation for genuine and inclusive prosperity.

Bibliography

- Bature, BA 'The new scramble for Africa: How global powers are competing for influence in the 21st century' (2025) 2 *British Journal of Interdisciplinary Research* 65
- Chamberlain, L 'Growing threats to environmental human rights defenders: The latest SLAPP suit developments in South Africa' (2020) 26 *South African Journal of Environmental Law and Policy* 5
- De Souza, ML "'Sacrifice zone': The environment-territory-place of disposable lives' (2021) 56 *Community Development Journal* 220
- Dou, S & Xu, D 'The security of critical mineral supply chains' (2023) 36 *Mineral Economics* 401
- Emmamally, Z 'Slapping down SLAPP suits in South Africa: The need for legislative protection and civil society action' (2022) 139 *South African Law Journal* 1
- Glazebrook, T & Opoku, E 'Defending the defenders: Environmental protectors, climate change and human rights' (2018) 23 *Ethics and the Environment* 83
- Gonzalez, CG 'The sacrifice zones of carbon capitalism: Race, expendability, and loss and damage' in Doelle, M & Seck, SL (eds) *Research handbook on climate change law and loss & damage* (Edward Elgar Publishing 2021) 43
- Hofmeyr, J 'South Africa's new critical minerals strategy: Promises and paradoxes' APRI 15 September 2025, <https://afripoli.org/south-africas-new-critical-minerals-strategy-promises-and-paradoxes> (accessed 21 September 2025)
- Kalantzakos, S 'The race for critical minerals in an era of geopolitical realignments' (2020) 55 *The International Spectator* 1
- Kanyane, M 'Life in the platinum belt: Socio-economic struggles in the village of Luka' (2025) 23 *HSRC Review* 26

- Karp, DJ 'Fixing meanings in global governance? "Respect" and "protect" in the UN guiding principles on business and human rights' (2020) 26 *Global Governance* 628
- Kilimcioğlu, B 'Procedural justice and due process principle in the context of just energy transition: Learning from South Africa' (2025) 10 *Business and Human Rights Journal* 79
- Kumar, A & Vishwanathan, A 'Race for critical minerals: China's ambitions and challenges' (2025) 44 *Comparative Strategy* 56
- Lizarazo-Rodríguez, L 'The UN "Guiding principles on business and human rights": Methodological challenges to assessing the third pillar: Access to effective remedy' (2018) 36 *Nordic Journal of Human Rights* 353
- Lupin, D & Townsend, L 'The right to consultation is a right to be heard' in Lupin, D (ed) *A research agenda for human rights and the environment* (Edward Elgar Publishing 2023) 103
- Marais, L and others (eds) *Mining and community in the South African platinum belt: A decade after Marikana* (Springer 2021)
- Minguet, A 'Environmental justice movements and restorative justice' (2021) 4 *The International Journal of Restorative Justice* 58
- Moeng, K 'Challenges and opportunities for coal communities in a just transition: Towards a transition underpinned by environmental justice' PhD thesis, University of South Africa, 2024
- Murombo, T & Valentine, H 'SLAPP suits: An emerging obstacle to public interest environmental litigation in South Africa' (2011) 27 *South African Journal on Human Rights* 82
- Nakanwagi, S 'Critical minerals and the global energy transition: Recognising Global South perspectives' (2023) 4 *Global Energy Law and Sustainability* 115
- Nkomo, M 'Migrants and the politics of presence on the South African platinum mining belt' (2024) 15 *International Development Policy* 29

- Ouedraogo, N & Kilolo, J 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 033004
- Patrick, SM, Shirinde, J, Kgarosi, K, Mathinthisa, T, Euripidou, R & Munnik, V 'Just energy transition from coal in South Africa: A scoping review' (2025) 167 *Environmental Science & Policy* 104044
- Ramasastri, A 'Corporate social responsibility versus business and human rights: Bridging the gap between responsibility and accountability' (2015) 14 *Journal of Human Rights* 237
- Schultz, C 'The Marikana massacre and the unstable geographies of capital: Spatialising financialisation' (2020) 47 *Politikon* 42
- Scott, DN 'The power of "net zero": Seductive dispossession on the critical minerals frontier' (2025) 28 *Law Text Culture* 100
- Skosana, D *No last place to rest: Coal mining and dispossession in South Africa* (Wits University Press 2025)
- Tornel, C 'Development as terracide: Sacrifice zones and extractivism as state policy in Mexico' (2024) 21 *Globalizations* 1
- Van Ho, T 'Business and human rights in transitional justice: Challenges for complex environments' in Deva, S & Birchall, D (eds) *Research handbook on human rights and business* (Edward Elgar Publishing 2020) 379
- Xing, X, Huang, Y, Wang, Y, Wang, H, Wang, P, Dai, T, Liu, G, & Tzachor, A 'Revealing global supply risk of critical minerals essential for low-carbon energy technologies' (2025) 498 *Journal of Cleaner Production* 145160
- Zhang, SE, Bourdeau, JE, Nwaila, GT, & Ghorbani, Y 'Emerging criticality: Unravelling shifting dynamics of the EU's critical raw materials and their implications on Canada and South Africa' (2023) 86 *Resources Policy* 104247

Case Law

- Baleni & Others v Minister of Mineral Resources & Others* (73768/2016) [2018] ZAGPPHC 829; [2019] 1 All SA 358 (GP); 2019 (2) SA 453 (GP)

Maledu v Itereleng Bakgatla Mineral Resources (Pty) Ltd 2019 (2) SA 1 (CC)

Mineral Sands Resources (Pty) Ltd v Reddell 2023 (2) SA 68 (CC)

Minister of Mineral Resources and Energy v Sustaining the Wild Coast NPC
2024 (5) SA 38 (SCA)

Reports and policy papers

Bench Marks Foundation ‘Mine’s grievance mechanisms intimidate stakeholders and are ineffective’ (2014)

Department of Mineral Resources and Energy ‘Critical Minerals and Metals Strategy’ (2025)

Federal Ministry for Economic Cooperation and Development ‘Study on grievance mechanisms to promote human rights in the mining industry’ (2024)

Human Rights Watch “‘We know our lives are in danger’: Environment of fear in South Africa’s mining-affected communities’ (2019)

Hund, K and others ‘Minerals for climate action: The mineral intensity of the clean energy transition’ World Bank (2020)

I Platform ‘Empowering the future: Youth policy and employment in Africa’ (2024)

NHRI ‘Eastern-Southern African National Human Rights Institution (NHRI) business and human rights peer learning initiative submission of views and experiences to the UNGPS+10/next decade project’ NHRI (2020)

Office of the High Commissioner for Human Rights ‘Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework’ (2011)

Presidential Climate Commission ‘A framework for a Just Transition in South Africa’ (2022)

Responsible Mining Foundation ‘Time to normalise respect and remedy for human rights in mining’ (2021)

The potential of the African Green Minerals Strategy in facilitating regional cooperation to develop electrical vehicles and battery value chains in Southern and East Africa

Chantelle Moyo

Abstract: *This chapter situates Africa within global value chains for transition minerals and highlights the shift toward energy systems powered by zero-carbon technologies. The chapter draws on political economy and regional integration perspectives to assess how green industrialisation strategies can reshape Africa's role in these value chains. The main analysis explores the African Green Minerals Strategy (AGMS) as a vehicle for driving economic diversification and regional cooperation, illustrated through initiatives such as the Democratic Republic of the Congo-Zambia Memorandum of Understanding on developing battery value chains. This discussion is linked to the growing adoption of electric vehicles (EVs) in Southern and East Africa, where decarbonising transport systems aligns with opportunities for value addition in battery and EV manufacturing. Based on this analysis, the recommendations highlight the need for coherent policy alignment, infrastructure investment, and regional collaboration*

frameworks to enhance competitiveness and capture greater value within Africa.

1 Introduction

To meet its targets for reducing greenhouse gas emissions (GHG), the transport sector requires transformational change. According to the Paris Agreement, 195 countries agreed to limit global warming to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1,5°C.¹ Globally, the transport sector, including aviation and shipping, accounts for approximately 7,5 Gt of CO₂ emissions, about 28 per cent of global final energy demand, 14 per cent of economy-wide global anthropogenic GHG emissions, and an estimated 23 per cent of emissions due to fuel combustion.² Furthermore, the transport sector emissions continue to increase compared to other sectors due to demographic, behavioural and economy-driven transformations, which lead to large increases in the demand for transport, especially in the Global South.³ Since law and policy in the transport sector influence the demand and type of transport being used, public policy in the next

1 United Nations Framework Convention on Climate Change Paris Agreement, 2015, http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf (accessed 12 September 2025).

2 International Energy Agency *Energy technology perspectives 2017: Catalysing energy technology transformations*, (2017), https://iea.blob.core.windows.net/assets/a6587f9f-e56c-4b1d-96e4-5a4da78f12fa/Energy_Technology_Perspectives_2017-PDF.pdf (accessed 12 September 2025).

3 F Creutzig and others 'Transport: A roadblock to climate change mitigation?' (2015) 350 *Science* 911-912.

five to ten years will determine whether we are set on a course for a high or low-carbon transport future,⁴ especially in the Global South.

In Africa, electrification of the vehicle fleet presents an opportunity to reduce the carbon footprint from the transport sector. From a functional perspective, electric vehicles (EVs) can be used to improve a country's energy security, achieve sustainable development, and meet the requirements of various national and regional development goals.⁵ This is because EVs are approximately three times more efficient than internal combustion engines and also provide benefits such as improving air quality and noise pollution.⁶ Most importantly, the justification for the uptake of EVs is also pertinent for the African continent due to the fact that some of the base components of EVs, such as lithium-ion batteries, are produced from metals that are abundant in the continent and have been deemed 'critical' in the global decarbonisation agenda. Therefore, these natural resources present an opportunity for Africa to develop its value chains and make a significant contribution in decarbonising transport sectors.

Against this background, this chapter considers the notion of regionalism in facilitating economic and social development for Africa within the transition minerals discourse. The chapter spotlights the African Green Minerals Strategy (AGMS) to analyse how far it facilitates regional cooperation to develop EV and battery

4 S Gota and others 'Decarbonising transport to achieve Paris Agreement targets' (2019) 12 *Energy Efficiency* 363-386.

5 B Xu and others 'Have electric vehicles effectively addressed CO2 emissions? Analysis of eight leading countries using quantile-on-quantile regression approach' (2021) 27 *Sustainable Production and Consumption* 1206.

6 K Glitman and others 'The role of electric vehicles in a decarbonised economy: Supporting a reliable, affordable and efficient electric system' (2019) 32 *Electricity Journal* 106.

value chains to decarbonise the transport sectors in South Africa and Kenya. The central argument is that if successfully implemented, the AGMS presents immense opportunities for intra-Africa trade and economic development within the mining and transport sectors in Africa, thereby promoting a transformative pathway for Africa to move beyond export-driven models toward sustainable industrialisation.

The chapter is based on a desktop literature review related to Africa's participation in the global transition minerals value chains and the implementation of the AGMS. The research draws on a wide range of sources, including academic articles, government reports, international policy frameworks, industry analyses and publications from regional institutions such as the African Union (AU). Comparative case studies of Kenya and South Africa are used to illustrate the potential growth of the EV sector, while the Democratic Republic of the Congo (DRC)-Zambia Memorandum of Understanding on battery value chain development is discussed to show how such regional cooperation is unfolding in practice to ensure that Africa potentially participates beyond extraction in the transport sector. Furthermore, the chapter employs a qualitative political economy approach to identify key themes, policy patterns and governance challenges that shape the prospects for green industrialisation and regional integration in Africa's transition minerals sector. Following this introduction, the chapter discusses the AGMS and its approach to regional natural resource governance. Thereafter, the chapter discusses the EV market, policies and prospects and will rely on the case studies of South Africa and Kenya to highlight the different trajectories, similarities and gaps identified in the market. As a proposal to address some of the gaps, the chapter will turn to critically analyse the DRC-Zambia Battery Initiative and

its implications for the regional EV value chains. Finally, the chapter provides recommendations and a conclusion.

2 The African Mining Vision and the African Green Minerals Strategy

Africa houses approximately 30 per cent of the world's transition mineral reserves and currently is a major producer of several of these minerals, including cobalt, lithium, copper, manganese and rare earth elements.⁷ For example, the DRC, Madagascar and Morocco have over 50 per cent of global deposits and produce approximately 70 per cent of cobalt, a vital component in the development of battery storage technologies and EVs.⁸ Guinea has abundant bauxite resources, which account for approximately 24 per cent of global deposits and produce approximately 23 per cent of global production of the mineral.⁹ Bauxite is an important component in the production of solar PVs. South Africa and Zimbabwe together account for approximately 92 per cent of global platinum group metals reserves, with both countries generating approximately 82 per cent of platinum globally in 2022.¹⁰ Madagascar, Mozambique and Tanzania, which account for more than one-fifth of the world's graphite reserves, will play a critical role in the development of lithium-ion batteries.

In this context, the priorities of the African Mining Vision (AMV) are a product of the longstanding aspirations of African

7 NS Ouedraogo & JMM Kilolo 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 4.

8 United States Geological Survey (USGS) *Mineral Commodity Summaries* 2023.

9 As above.

10 Platinum group metals are critical for reducing carbon intensive and root sectors, as well as generating green hydrogen.

governments to pursue an alternative development path that prioritises the development needs and future of the continent.¹¹ The AMV is a ‘pathway, formulated by African nations themselves, that puts the continent’s long-term and broad development objectives at the heart of all policy making concerned with mineral extraction’,¹² intended to facilitate economic transformation in the resource-rich region. To operationalise the AMV, the AMV Action Plan prioritises nine clusters, which include mining revenues and mineral rents management; geological and mining information systems; building human and institutional capacities; artisanal and small-scale mining; mineral sector governance; research and development; environmental and social issues; linkages and diversification and mobilising mining; and infrastructure investment.¹³ However, the implementation of the AMV has fallen short mainly due to the slow domestication process of the member states.¹⁴ Moreover, operationalising the AMV’s nine programme clusters and assuring their lasting effectiveness would require governments to abandon rent-seeking practices linked to mining and resource extraction more generally, a practice that persists to date.¹⁵

11 African Union ‘Africa Mining Vision (2009)’, https://au.int/sites/default/files/documents/30995-doc-africa_mining_vision_english_1.pdf (accessed 5 September 2025).

12 As above.

13 As above.

14 Africa Centre for Energy Policy ‘Reviving the sleepy vision: An evaluation of the implementation status of the Africa Mining Vision’ (2017) 1,0 <https://acep.africa/wp-content/uploads/2023/03/AMVPaper.pdf> (accessed 6 January 2026).

15 G Hilson ‘The Africa Mining Vision: A manifesto for more inclusive extractive industry-led development?’ (2020) 41 *Canadian Journal of Development Studies/Revue canadienne d’études du développement* 419.

As part of the AMV architecture, in 2025 the AU launched the AGMS. The rationale for the AGMS is to complement existing frameworks for mineral-based development, with a particular emphasis on the opportunities and risks for Africa arising from the broader context of climate change, transitioning to a low carbon future and incorporating the digital economy.¹⁶ The AGMS is directed by the vision for green growth across the continent that is a wholly inclusive economic growth and development path that is low-carbon, climate-resilient, resource-efficient, and maintains and enhances biodiversity and ecosystems.¹⁷ The criteria for defining the scope for minerals to include in the AGMS is minerals that are used in clean energy technologies and green industries; and minerals that are feedstocks into mining supply chains and equitable industrialisation.¹⁸

Anchored on the foundation of the AMV, the AGMS shares the aspirational vision of ensuring that African countries scale up in global value chains especially for the development of battery storage technologies that are pivotal in low-carbon pathways in the transport sector. The expectation is for the continent to take full advantage of its abundant mineral endowment to drive its own industrialisation and structural transformation and decarbonising GHG intensive sectors such as energy and transport.¹⁹ The overall goal of the AGMS is to direct mineral resource actors to boost local content for mining

16 African Minerals Development Centre (AMDC) *Africa's Green Minerals Strategy* 6, https://au.int/sites/default/files/documents/44539-doc-AGMS_Final_doc.pdf (accessed 5 September 2025).

17 AMDC (n 16) 12.

18 AMDC (n16) 13.

19 K Busia & C Akong 'The African Mining Vision: Perspectives on mineral resource development in Africa' (2017) 8 *Journal of Sustainable Development, Law and Policy* 163.

inputs and use the continent's minerals as feedstock to develop green industries that optimise opportunities created by climate change, the energy transition, the digital economy, and Africa's renewable energy potential to power the continent for productive and consumptive purposes.²⁰ This calls for mutually supportive actions from a wide range of mineral industry stakeholders, notably, but not limited to, policy makers, government officials, training institutions, development partners, civil society, firms and investors. Pertinent to achieving these objectives will be steps that include:

- (1) increasing the local manufacture of inputs (capital goods, consumables) into mining and the processing of green minerals and providing more opportunities for local stakeholders to be part of the value chains, including through business and employment opportunities;
- (2) channelling an expanding portion of mineral feedstocks into manufacturing industries that add value to raw materials and to strengthen the value-chains and intra-industry linkages;
- (3) growing the number of STEM graduates and technicians for green industries;
- (4) increasing budgets for research, development and innovation applied to green minerals extraction and their use in green industries;
- (5) expanding local manufacture of modules and components for batteries, EVs and renewable energy equipment and increasing local content over time;

20 AMDC (n 16) 16.

- (6) encouraging support for a common African external tariff on green mineral extraction inputs and mineral processing into manufactured products; and
- (7) addressing the energy deficit and transport challenges by enhancing access to affordable and reliable energy and mobility.²¹

In terms of advancing regionalism in Africa in the context of transition minerals, the AGMS advocates increasing intra-African trade within a single market for goods and services, facilitated by movement of persons to deepen the economic integration of the African continent. For the AGMS, the African Continental Free Trade Area (AfCFTA) could underpin the development of a truly African AGMS that can access the huge African markets for green mineral value-chain products defined by comprehensive rules of origin (currently under discussion) to protect African value addition with a common external tariff.²² This will be especially important in the development of battery components for EVs and other renewable energy storage technologies needed to decarbonise sectors such as transport in Africa.

Furthermore, public higher education and research institutions are viewed as key enablers of economic growth by preparing graduates for careers in technical fields needed by industry. Work is underway at the African Centre of Excellence for Advanced Battery Research/Centre African d' Excellence pour les Batteries en RD Congo at the University of Lubumbashi, as a model for investing in the human capital needed for an African battery industry. The mandate of the Centre is to create skills and competencies needed

²¹ AMDC (n 16) 17.

²² AMDC (n 16) 18.

by the battery industry as well as to support the emergence of a competitive battery, EV and renewable energy value-chain in Africa. The Centre is working on curriculum development for Master's and PhD programmes with the Ministry of Higher Education. The Centre is mandated to support the cross-border special economic zone that will be established under the bilateral Republic of Zambia-DRC Battery Council and is determined to ensure both countries benefit more from their green minerals industries by manufacturing products rather than exporting raw materials.²³

As with the AMV, the AGMS is not immune from common challenges facing industrial development relating to weak institutions, policy misalignment, lack of infrastructure or reliable energy, to name a few.²⁴ It is thus imperative for the successful implementation of the AGMS that countries accelerate efforts to domesticate the AMV through publishing their Country Mining Visions to lay a solid foundation on responding to existing challenges in mining sectors as prioritised in the AMV. However, the AGMS is still new, and its successful implementation is yet to be seen, nevertheless, it provides significant opportunities for regional cooperation and support.

23 AMDC (n 16) 34.

24 <https://african.business/2024/02/resources/infrastructure-deficit-continues-to-hold-back-african-mining> (accessed 6 January 2026).

3 The EV market, policies and prospects: The cases of South Africa and Kenya

3.1 Adoption trajectories: Pioneers and nascent markets

The global transition to electric mobility is no longer a distant prospect but a present-day reality, and Africa is steadily embracing this transformation. While starting from a low base, the trajectory for EV adoption across Africa has gained momentum over the years. The continent-wide EV market is projected to experience exponential growth, expanding from an estimated US\$0,45 billion in 2025 to US\$4,2 billion by 2030, which represents a compound annual growth rate of 56,3 per cent.²⁵ This surge is part of a broader trend in emerging and developing economies (excluding China), which saw a remarkable 60 per cent year-on-year increase in electric car sales in 2024. This growth is largely attributable to a combination of supportive policy incentives and the increasing availability of relatively affordable EV models from Chinese original equipment manufacturers.²⁶ Within this dynamic continental landscape, Kenya and South Africa stand out as two of the most promising markets. However, they are not simply two points on the same growth curve. Instead, they represent two fundamentally different archetypes of EV market development, each shaped by its unique economic structure, policy priorities, consumer base and energy infrastructure. Kenya exemplifies a bottom-up, needs-driven market, where electrification

25 <https://www.mordorintelligence.com/industry-reports/africa-electric-vehicle-market> (accessed 1 November 2025).

26 International Energy Agency *Trends in electric car markets* (2025), <https://www.iea.org/reports/global-ev-outlook-2025/trends-in-electric-car-markets-2> (accessed 30 October 2025).

is being rapidly adopted by a large commercial base seeking immediate economic benefits. South Africa, by contrast, represents a top-down, industry-driven transition, where the strategic imperative is to retool a massive, established automotive manufacturing sector to remain globally competitive in a new technological era. Understanding the nuances of these divergent paths is essential for any stakeholder (policy maker, investor or manufacturer) seeking to navigate and capitalise on the immense potential of electric mobility in Africa, given its rich endowments of minerals that are indispensable in the decarbonisation of transport sectors.

South Africa is the region's most mature market for EVs. In the first half of 2025, 7 129 EVs were sold, but this figure is dominated by traditional hybrids (5 771 units), with EVs comprising a much smaller share at 570 units.²⁷ The market is heavily skewed toward passenger cars, which account for over 71 per cent of the sector's revenue.²⁸ A diverse range of models is available, from budget-friendly Chinese imports priced under US\$15,000 to premium European brands.²⁹ However, the high upfront cost and import duties remain the primary barrier to widespread adoption of EVs.³⁰

27 JA Kuuire 'Electric vehicle sales still strong in South Africa' *The Labari Journal* 18 July 2025, <https://labarijournal.com/electric-vehicle-sales-still-strong-in-south-africa/> (accessed 25 September 2025).

28 <https://www.grandviewresearch.com/horizon/outlook/electric-vehicle-market/south-africa> (accessed 25 September 2025).

29 T Mokoena 'Electric vehicle prices in South Africa: 2025 Comparison' *Imotonews* 1 September 2025, <https://imotonews.co.za/2025/09/01/electric-vehicle-prices-in-south-africa-2025-comparison/> (accessed 25 September 2025).

30 T Nkosi 'Buy electric cars in South Africa: 2025 guide to prices, models and delivery' *EV24* 14 September 2025, <https://www.ev24.africa/buy-electric-cars-in-south-africa-2025-guide-to-prices-models-delivery/> (accessed 25 September 2025).

Kenya is experiencing an explosive growth curve in EVs, driven by favourable tax incentives. The number of registered EVs surged from just 2 694 in 2023 to over 9 000 by May 2025.³¹ The defining characteristic of Kenya's EV market is its overwhelming reliance on the two and three-wheeler segment. These vehicles constitute approximately 90 per cent of all EV registrations in the country.³² This is not a market driven by private passenger car owners, but by the commercial sector, specifically the motorcycle taxi industry known as *boda boda*. This sector is a cornerstone of Kenya's informal economy and urban transport system, with an estimated fleet of over 2.2 million motorcycles, representing more than one-third of all urban rides.³³ The sheer scale of this existing commercial fleet provides an immediate, large addressable market for electrification, making the economic viability for individual riders the single most critical driver of adoption. Fully electrifying this fleet could cut the country's transport emissions by as much as 85 per cent, leveraging its renewable-heavy grid.³⁴

31 T Nkosi 'Kenya EV import guide 2025: Costs, Incentives and step-by-step process' *African EV Market News* 19 July 2025, <https://www.ev24.africa/kenya-ev-import-guide-2025-costs-incentives-step-by-step-process/> (accessed 25 September 2025).

32 D Kamau 'Kenya's EV future: Is now the right time to switch?' *Auto Mag* 17 July 2025, <https://automag.co.ke/2025/07/14/kenyas-ev-future-is-now-the-right-time-to-switch/> (accessed 25 September 2025).

33 As above.

34 Ministry of Roads and Transport 'Draft National E-Mobility Policy, Kenya, March 2024 3-4, https://transport.go.ke/sites/default/files/Draft%20National%20e-Mobility%20Policy_For%20Circulation%2027.03.2024.pdf (accessed 5 January 2026).

3.2 Analysis of domestic policies facilitating the adoption of EVs in South Africa and Kenya

3.2.1 *South Africa*

As the continent's most developed automotive manufacturing hub, South Africa's approach is shaped by the need to transition its existing automotive industry. The Electric Vehicles White Paper of 2023 lays out a roadmap for this shift, with a target of 2035 for significant integration.³⁵ The policy is heavily supply-side oriented, anchored by a significant incentive for manufacturers: a 150 per cent tax deduction on investments in EV and hydrogen vehicle production, set to begin in March 2026.³⁶ This is complemented by proposed buyer subsidies, ranging from R20 000 for low-income households to over R80 000 for fleet owners, in an effort to stimulate demand.³⁷ However, this supportive stance is undermined by a significant policy contradiction. For instance, imported EVs face a 25 per cent customs duty, which is higher than the 18 per cent duty on internal combustion engine vehicles from Europe, a major source of imports. This tariff structure inflates the already high upfront cost of EVs, acting as a direct brake on market growth.³⁸

Severe electricity shortages, resulting in scheduled, rolling black-outs known as load shedding, represent a profound barrier to EV

35 Kuuire (n 27).

36 T Nkosi 'Government incentives for EV buyers in Africa' *EV24* 27 April 2025, <https://www.ev24.africa/government-incentives-for-ev-buyers-in-africa/> (accessed 25 September 2025).

37 South African Department of Trade, Industry and Competition 'Electric Vehicles White Paper' December 2023, <https://www.thedtic.gov.za/wp-content/uploads/EV-White-Paper.pdf> (accessed 5 September 2025).

38 Nkosi (n 36).

adoption in South Africa. This energy crisis, which has seen power being cut for several hours a day, directly impacts the ability of EV owners to charge their vehicles reliably.³⁹ It disrupts overnight charging schedules, renders public charging stations unusable during outages, and transforms range anxiety into a more acute charging anxiety.⁴⁰ A 2023 survey identified the impact of load shedding as one of the top drawbacks to EV ownership, alongside high purchase cost and the lack of charging infrastructure.⁴¹ This is also one of the reasons why the diversification of South Africa's energy mix to include more renewable energy becomes crucial. Not only would it address the mismatch between supply and demand, but it could also encourage the uptake of EVs in the country.

3.2.2 *Kenya*

In stark contrast to South Africa, Kenya's strategy is fundamentally demand-driven and can be characterised as a leapfrog model.⁴² Kenya has focused on creating a new market from the ground up by prioritising consumer affordability. As such, the government has set an ambitious target for EVs to constitute 5 per cent of all new vehicle registrations by 2025, which is also in alignment with the country's GHG emissions reduction commitments.⁴³ To achieve this, it has

39 OE Oni & OM Longe 'A study on electric vehicle footprint in South Africa' (2024) 17 *Energies* 1-37.

40 Oni & Longe (n 40).

41 D Mathews 'Is electricity load shedding the biggest obstacle to the adoption of electric cars in South Africa?' 15 February 2021, <https://www.stressfreecarrental.com/en/south-africa/car-hire-electric> (accessed 3 November 2025).

42 World Bank Group and China Development Bank *Leapfrogging: The key to Africa's development? From constraints to investment opportunities* (2017) xvii.

43 Kamau (n 32).

implemented some of the region's most aggressive demand-side incentives, including a complete waiver of the 25 per cent import duty on fully electric vehicles, a VAT exemption, and a reduced excise duty of 10 per cent.⁴⁴ These policy interventions have had a direct and dramatic impact, fuelling a boom in the importation and adoption of electric motorcycles, which are central to the country's public transport sector and now account for nearly 90 per cent of the nation's EV fleet.⁴⁵

One of Kenya's most significant competitive advantages in the e-mobility race is its electricity grid. As of 2024, over 90 per cent of the country's power was generated from renewable sources, primarily geothermal, hydropower and wind.⁴⁶ This means that, unlike South Africa that faces enormous challenges of supply and demand of electricity, charging an EV in Kenya results in near-zero tailpipe and well-to-wheel emissions. This strong green energy profile not only helps the country meet its climate targets by decarbonising the transport sector, which accounts for 11 per cent of national CO₂ emissions, but also makes it an attractive destination for climate-focused international investment in the sector.

In March 2024, the Draft National E-Mobility Policy was published, and it establishes a comprehensive roadmap for the sector.⁴⁷ Its vision is to position Kenya as a regional leader in the transition to electric mobility and it sets ambitious targets, including having EVs constitute 5 per cent of all newly registered vehicles by 2025 and

44 Nkosi (n 36).

45 Kamau (n 32).

46 Kenya Ministry of Roads and Transport 'Draft National E-Mobility Policy, Kenya' March 2024, https://transport.go.ke/sites/default/files/Draft%20National%20e-Mobility%20Policy_For%20Circulation%2027.03.2024.pdf (accessed 3 November 2025).

47 As above.

achieving 100 per cent EV adoption by 2050. This framework aligns with Kenya's broader climate goals, such as its nationally determined contribution to cut CO₂ emissions by 32 per cent by 2030.⁴⁸ The policy covers all modes of transport and aims to create an enabling environment for EV growth and local manufacturing.

Table: *Summary of legislation and policy on EV uptake in South Africa and Kenya*

FEATURE	SOUTH AFRICA	KENYA
EV Policy Status	White Paper (2023), EV Policy (2025)	Finance Bill 2025, National Targets
Import Duty (EV)	25% (vs 18% for ICE from EU)	0% (vs 25% for ICE)
VAT/Excise Duty	Standard VAT; Carbon tax exemption	VAT exempt; 10% Excise Duty
Key Buyer Subsidies	R20k-R100k proposed	N/A (focus on tax cuts)
Key Mfg. Incentives	150% tax deduction on investment	N/A
Local Content Rules	Auto industry requirements	N/A

⁴⁸ Ministry of Environment, Climate Change and Forestry 'Kenya's Second Nationally Determined Contribution (2031-2035)' 2025, https://unfccc.int/sites/default/files/2025-05/KENYAS%20SECOND%20NATIONALLY%20DETERMINED%20CONTRIBUTION%202031_2035.pdf (accessed 30 November 2025).

FEATURE	SOUTH AFRICA	KENYA
Stated Targets	30% of sales electric by 2030	5% of registrations electric by 2025

Source: Author’s compilation from various sources, as per citations in text

A comparative analysis of the above (see Table) shows that both South Africa and Kenya recognise the need to decarbonise the transport sector but have different strategies on how to achieve this. For starters, Kenya has implemented a *demand-side pull strategy*. The government’s primary policy levers are designed to make EVs cheaper for the end user, thereby stimulating demand. Moreover, the elimination of VAT and the reduction of excise duties directly lower the purchase price, addressing the main barrier to adoption. This approach is well-suited to a market where affordability is a significant concern, suggesting stronger alignment with everyday mobility needs, such as public transport and private commuting. South Africa, on the other hand, has opted for a *supply-side push strategy*. The EV White Paper’s main instrument is the 150 per cent tax incentive for manufacturers, designed to encourage local production. In this instance, South Africa prioritises protecting the country’s industrial base and export capacity, operating on the assumption that securing local production is the necessary first step. While this supports industrial growth and protects existing jobs, it does little to make EVs more attainable for most citizens. As a result, widespread EV adoption – and, thus, tangible progress in decarbonising everyday transport – may be delayed, limiting the impact on actual mobility needs in the short to medium term.

Moreover, unlike Kenya, the lack of consumer incentives creates a significant disconnect: The government is incentivising the supply of

EVs that the majority of the domestic market cannot demand due to high costs. The next part of the chapter interrogates the potential of the DRC-Zambia Battery Initiative to address some of the challenges that impede the uptake of EVs, as seen in the case of South Africa and Kenya.

4 DRC-Zambia Battery Initiative and its implications for the regional EV value chains

The cooperation agreement between the DRC and Zambia is a representation of one of the most ambitious industrial policy initiatives in Africa. The memorandum of understanding (MoU) is aimed at leveraging the region's unparalleled endowment of transition minerals, primarily the DRC's dominance in cobalt and Zambia's vast copper reserves.⁴⁹ The initiative seeks to address the age-old paradigm of raw material exportation without any value addition from source. By establishing a vertically integrated value chain for EV batteries, beginning with the production of battery precursors, the two nations aspire to capture a significant share of a global market projected to be worth US\$46 trillion by 2050.⁵⁰ The central implementation mechanism for the battery value chain is the

49 United Nations Economic Commission for Africa 'Zambia and DRC sign cooperation agreement to manufacture electric batteries' April 2022, <https://www.uneca.org/stories/zambia-and-drc-sign-cooperation-agreement-to-manufacture-electric-batteries#:~:text=More%20in%20Archives,Zambia%20and%20DRC%20Sign%20Cooperation%20Agreement%20to%20manufacture%20electric%20batteries,Conference%20Centre%20in%20Lusaka%20yesterday> (accessed 9 March 2026).

50 Global Battery Alliance & World Economic Forum 'A vision for sustainable battery value chain in 2030: Unlocking the full potential to power sustainable development and climate change mitigation' September 2019, https://www3.weforum.org/docs/WEF_A_Vision_for_a_Sustainable_Battery_Value_Chain_in_2030_Report.pdf (accessed 5 January 2026).

establishment of dedicated special economic zones. An agreement to create these zones to produce battery precursors, batteries, and eventually EVs was signed by the DRC, Zambia, UNECA and the African Export-Import Bank in 2023, in Kinshasa.⁵¹ This quadripartite agreement provides the legal and operational framework for developing the necessary industrial infrastructure. The initial and most pragmatic focus of the special economic zones is the production of nickel, manganese and cobalt battery precursors.⁵² By targeting this midstream segment, the initiative aims for a more achievable entry point into the value chain, leveraging the region's direct access to raw materials without immediately attempting to compete with established Asian and Western giants in the highly complex and capital-intensive final stages of battery cell manufacturing.⁵³

The most direct and strategically important benefit of the initiative for the EV industry is the potential to create a new, major source of battery precursors outside of Asia. This is especially important considering the growing EV sector in countries such as South Africa and Kenya. Moreover, leveraging the AGMS, the initiative presents an opportunity to service the regional market for EVs, thereby growing the sector through localised production. Currently, the global supply chain is precariously concentrated, with China dominating the refining of cobalt and the production

51 F Soulé 'What a US-DRC-Zambia electric vehicle batteries deal reveals about the new US approach toward Africa' *Carnegie Endowment for International Peace* (2023), <https://carnegieendowment.org/research/2023/08/what-a-us-drc-zambia-electric-vehicle-batteries-deal-reveals-about-the-new-us-approach-toward-africa?lang=en> (accessed 2 November 2025).

52 <https://www.mcti.gov.zm/?p=6200> (accessed 2 November 2025).

53 As above.

of precursor materials.⁵⁴ Moreover, the establishment of a large-scale precursor plant in the Copperbelt potentially offers battery manufacturers and automotive original equipment manufacturers a vital opportunity to diversify their sourcing, mitigating geopolitical risks and enhancing supply chain resilience.⁵⁵

This localisation offers two potential competitive advantages. First, it potentially leads to lower production costs for precursors. By processing minerals at the source, the facility would eliminate the significant logistical costs associated with shipping bulky raw ore and concentrate across continents. Combined with access to the region's vast and largely untapped hydroelectric power potential, this could make African precursors highly cost competitive.⁵⁶ Second, it presents an opportunity to create a greener supply chain realising the ambitions of the AGMS. Processing powered by clean hydropower would have a significantly lower carbon footprint compared to the predominantly coal-powered refining facilities in Asia, a key consideration for original equipment manufacturers striving to reduce the lifecycle emissions of their vehicles.⁵⁷

54 S O'lang & T Scurfield 'The DRC-Zambia battery plant: Key considerations for governments in 2024' Natural Resource Governance Institute 20 December 2023, <https://resourcegovernance.org/publications/drc-zambia-battery-plant-key-considerations-governments-2024> (accessed 2 November 2025).

55 As above.

56 African Development Bank 'Rich in green minerals, African countries eye booming electric vehicle and clean energy market worth trillions of dollars' 24 October 2023, <https://www.afdb.org/en/news-and-events/rich-green-minerals-african-countries-eye-booming-electric-vehicle-and-clean-energy-market-worth-trillions-dollars-65241> (accessed 30 October 2025).

57 United Nations Economic Commission for Africa 'Experts call on the need to speed up financing and other mechanisms for the Battery Electric Vehicle Special Economic Zone' 5 October 2023, <https://www.uneca.org/stories/experts-call-on-the-need-to-speed-up-financing-and-other-mechanisms-for-the-battery-electric> (accessed 2 November 2025).

While the ongoing analysis is positive, there will be challenges to the realisation of the DRC-Zambia initiative. To critically assess the initiative's potential, it is essential to place its ambitions within the context of the global competitive landscape. The world of battery manufacturing is dominated by a few key players, and any new entrants face formidable challenges such as:

- China's unassailable lead:⁵⁸ China is, and in the foreseeable future remains, the undisputed hegemon of battery manufacturing. By 2030, Chinese companies are forecasted to control nearly 70 per cent of global battery production capacity, equivalent to over 6 200 gigawatt-hours (GWh). Industry giants such as CATL and BYD dominate not just through scale, but through complete vertical integration, controlling every step from mineral processing to final battery pack assembly.⁵⁹
- The rise of Western hubs: Spurred by industrial policies such as the USA's Inflation Reduction Act⁶⁰ and the EU's Critical Raw Materials Act,⁶¹ a strategic imperative to secure supply chains, America and Europe are rapidly building their own domestic manufacturing capacity. The US is projected to be a distant but significant second to China. Europe, led by Germany and Hungary, is also on a steep growth trajectory,

58 B Tran 'Battery manufacturing capacity market data: Top countries and gigafactory expansions' 12 February 2026, <https://patentpc.com/blog/battery-manufacturing-capacity-market-data-top-countries-and-gigafactory-expansions> (accessed 3 November 2025).

59 As above.

60 <https://www.energy.gov/edf/inflation-reduction-act-2022> (accessed 9 March 2026).

61 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202401252 (accessed 9 March 2026).

attracting massive investments from both domestic firms and Asian giants such as CATL and SK On.⁶²

- The Copperbelt's niche strategy: The DRC-Zambia hub will not immediately compete with these established and emerging giants on sheer volume of GWh output in the near to medium term. Its strategic niche and competitive advantage will not be in mass-producing finished battery cells, but in positioning itself as the world's premier, large-scale source of vertically integrated, low-cost and low-carbon battery precursors. If it can successfully overcome its profound environmental, social and governance (ESG) challenges to offer verifiably ethical and traceable materials, it could become an indispensable supplier to the gigafactories in Europe and North America, rather than a direct competitor. Moreover, this would position it as a major player in the EV battery market in growing markets within its region.⁶³

While these challenges exist, the AGMS still holds significant potential to operationalise and strengthen the DRC-Zambia initiative and address some of these. The AGMS can be leveraged to create a continental green industrial zone through the African Union (AU)'s convening power which presents several compelling, technically sound advantages:

62 Benchmark 'Hungary set to be Europe's leading tier 1 battery producer this decade' 22 December 2022, <https://source.benchmarkminerals.com/article/hungary-set-to-be-europes-leading-tier-1-battery-producer-this-decade> (accessed 9 March 2026).

63 R Deberdt 'Will Congo move up the battery supply chain? Strategic capitalism, friendshoring, and localised manufacturing in the time of green transition' (2024) *The Extractive Industries and Society* 4-5.

- Regional integration and market expansion: Broader participation from countries such as Kenya, Tanzania, South Africa and Namibia would catalyse the creation of a larger, integrated market for green minerals and associated industries. This integration reduces trade barriers, harmonises standards and fosters cross-border supply chain efficiencies vital for economies of scale.⁶⁴
- Resource pooling and infrastructure development: Pooling mineral and energy resources across borders can make project financing and infrastructure development (rail, ports, power) more viable, attracting both public and private investment. Shared infrastructure reduces duplication and maximises utilisation for all countries in the region.⁶⁵
- Policy alignment and regulatory harmonisation: The AU's convening authority enables coordinated policy making, standardisation of environmental and ESG criteria, and alignment on investment incentives. This regulatory harmonisation lowers risk, improves responsible business conduct and increases the attractiveness for global investors.⁶⁶
- Technology transfer and skills development: Regional collaboration encourages the spread of advanced green industrial technologies and know-how. AU-led training programmes and research initiatives can uplift the technical workforce, ensuring local capacity meets international standards for the green industry.⁶⁷

⁶⁴ AMDC (n 16) 57.

⁶⁵ AMDC (n 16) 28.

⁶⁶ AMDC (n 16) 16, 18.

⁶⁷ AMDC (n 16) 33-34.

- Geopolitical leverage and negotiating power: A continent-wide industrial corridor backed by the AU enhances Africa's negotiating position in global value chains for green minerals and manufactured goods. Larger collective bargaining power can help secure fairer trade agreements and resist predatory practices from external actors.⁶⁸
- Environmental impact and sustainability: By coordinating at a regional or continental scale, environmental impacts can be minimised through shared best practices, joint monitoring and implementation of circular economy principles. This makes the industrial zone not just larger but also more sustainable and resilient.⁶⁹

By providing a continental policy framework that aligns mineral governance with the goals of industrialisation, green energy transition and value addition, the AGMS can aid in addressing the structural and coordination challenges that competitors have to contend with. The strategy's emphasis on harmonising regulations, promoting cross-border infrastructure, and mobilising green finance can facilitate the creation of a stable investment environment for the DRC-Zambia corridor. Moreover, its focus on ESG standards and responsible mineral value chains can enhance the MoU's global competitiveness and compliance with emerging international due diligence requirements. Importantly, through the AU's convening power, the AGMS can also attract broader regional participation, from neighbouring countries such as Tanzania, South Africa and Namibia, thereby scaling up the corridor into a continental green industrial zone. Ultimately, the AGMS offers both policy coherence

⁶⁸ AMDC (n 16) 8.

⁶⁹ AMDC (n 16) 77.

and institutional legitimacy to transform the DRC-Zambia MoU from a bilateral framework into a pan-African catalyst for sustainable battery manufacturing and green industrialisation.

5 Conclusion

While the AGMS clearly prioritises regional cooperation that takes full advantage of the continent's natural resources and the decarbonisation agenda, countries in Southern and East Africa should also align their priorities to achieve the same. Growing markets such as the EV sector that address multiple challenges of mobility and decarbonisation are set to benefit from the provisions of the AGMS. As observed, South Africa seems to be leading in the deployment of EVs and decarbonising the transport sector, but policy inconsistencies present threats to how quickly this can be done.⁷⁰ In a different trajectory, Kenya places affordability and context at the centre of its e-mobility strategy and offers tax incentives for two and three-wheeler EVs. These markets could grow exponentially in the next few years through the DRC-Zambia Battery Initiative which seeks to establish a vertically integrated value chain for EV batteries, beginning with the production of battery precursors.⁷¹ While this situation creates hope for an industrialised region, further enquiry is needed to investigate the energy sectors of the DRC and Zambia to assess their readiness to embark in such an audacious task to maximise on the growing EV sector.

70 Part 3.2.1 above.

71 Part 4 above.

Bibliography

- Busia, K & Akong, C 'The African Mining Vision: Perspectives on mineral resource development in Africa' (2017) 8 *Journal of Sustainable Development, Law and Policy* 163
- Creutzig, F, Patrick, J, Oreane, E, Linus, M, Detlef, V, David, M & Jan, M 'Transport: A roadblock to climate change mitigation?' (2015) 350 *Science* 911
- Deberdt, B 'Will Congo move up the battery supply chain? Strategic capitalism, friendshoring, and localised manufacturing in the time of green transition' (2024) *The Extractive Industries and Society* 4
- Glitman, K 'The role of electric vehicles in a decarbonised economy: Supporting a reliable, affordable and efficient electric system' (2019) 32 *Electricity Journal* 106
- Gota, S, Huizenga, C, Peet, K, Medimorec, N & Bakker, S 'Decarbonising transport to achieve Paris Agreement targets' (2019) 12 *Energy Efficiency* 363
- Hilson, G 'The Africa Mining Vision: A manifesto for more inclusive extractive industry-led development?' (2020) 41 *Canadian Journal of Development Studies/Revue canadienne d'études du développement* 419
- Kuure, JA 'Electric vehicle sales still strong in South Africa' *The Labari Journal* 18 July 2025, <https://labarijournal.com/electric-vehicle-sales-still-strong-in-south-africa/> (accessed 25 September 2025)
- Mathews, D 'Is electricity load shedding the biggest obstacle to the adoption of electric cars in South Africa?' 15 February 2021, <https://www.stressfreecarrental.com/en/south-africa/car-hire-electric> (accessed 3 November 2025)
- Mokoena, T 'Electric vehicle prices in South Africa: 2025 comparison' *Imotoneews* 1 September 2025, <https://imotoneews.co.za/2025/09/01/electric-vehicle-prices-in-south-africa-2025-comparison/> (accessed 25 September 2025)

- Nkosi, T 'Buy electric cars in South Africa: 2025 guide to prices, models and delivery' *EV24* 14 September 2025, <https://www.ev24.africa/buy-electric-cars-in-south-africa-2025-guide-to-prices-models-delivery/> (accessed 25 September 2025)
- Nkosi, T 'Kenya EV Import Guide 2025: Costs, incentives and step-by-step process' *African EV Market News* 19 July 2025, <https://www.ev24.africa/kenya-ev-import-guide-2025-costs-incentives-step-by-step-process/> (accessed 25 September 2025)
- Nkosi, T 'Government incentives for EV buyers in Africa' *EV24* 27 April 2025, <https://www.ev24.africa/government-incentives-for-ev-buyers-in-africa/> (accessed 25 September 2025)
- O'Lang, S & Scurfield, T 'The DRC-Zambia battery plant: Key considerations for governments in 2024' Natural Resource Governance Institute 20 December 2023, <https://resourcegovernance.org/publications/drc-zambia-battery-plant-key-considerations-governments-2024> (accessed 2 November 2025)
- Oni, OE & Longe, OM 'A study on electric vehicle footprint in South Africa' (2024) 17 *Energies* 1
- Ouedraogo, NS & Kilolo, JMM 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 4
- Soulé, F 'What a US-DRC-Zambia electric vehicle batteries deal reveals about the new US approach toward Africa' Carnegie Endowment for International Peace (2023), <https://carnegieendowment.org/research/2023/08/what-a-us-drc-zambia-electric-vehicle-batteries-deal-reveals-about-the-new-us-approach-toward-africa?lang=en> (accessed 2 November 2025)
- Tran, B 'Battery manufacturing capacity market data: Top countries and gigafactory expansions' 12 February 2026, <https://patentpc.com/blog/battery-manufacturing-capacity-market-data-top-countries-and-gigafactory-expansions> (accessed 3 November 2025)
- Xu, B, Arshian, S, Muhammad, S & Kangyin, D 'Have electric vehicles effectively addressed CO2 emissions? Analysis of eight leading countries

using quantile-on-quantile regression approach' (2021) 27 *Sustainable Production and Consumption* 1206

Reports and internet sources

Africa Centre for Energy Policy 'Reviving the Sleepy Vision: An evaluation of the Implementation Status of the Africa Mining Vision' (2017) 10 <https://acep.africa/wp-content/uploads/2023/03/AMVPaper.pdf> (accessed 6 January 2026)

African Development Bank 'Rich in green minerals, African countries eye booming electric vehicle and clean energy market worth trillions of dollars' 24 October 2023, <https://www.afdb.org/en/news-and-events/rich-green-minerals-african-countries-eye-booming-electric-vehicle-and-clean-energy-market-worth-trillions-dollars-65241> (accessed 30 October 2025)

African Minerals Development Centre (AMDC) *Africa's Green Minerals Strategy* https://au.int/sites/default/files/documents/44539-doc-AGMS_Final_doc.pdf (accessed 5 September 2025)

African Union 'Africa Mining Vision (2009)' https://au.int/sites/default/files/documents/30995-doc-africa_mining_vision_english_1.pdf (accessed 5 September 2025)

Benchmark 'Hungary set to be Europe's leading tier 1 battery producer this decade' 22 December 2022, <https://source.benchmarkminerals.com/article/hungary-set-to-be-europes-leading-tier-1-battery-producer-this-decade> (accessed 9 March 2026)

Global Battery Alliance & World Economic Forum 'A vision for sustainable battery value chain in 2030: Unlocking the full potential to power sustainable development and climate change mitigation' September 2019, https://www3.weforum.org/docs/WEF_A_Vision_for_a_Sustainable_Battery_Value_Chain_in_2030_Report.pdf (accessed 05 January 2026)

International Energy Agency Energy technology perspectives 2017: Catalysing energy technology transformations, (International Energy Agency 2017)

Ministry of Roads and Transport ‘Draft National E-Mobility Policy, Kenya,’ March 2024 3-4, https://transport.go.ke/sites/default/files/Draft%20National%20eMobility%20Policy_For%20Circulation%2027.03.2024.pdf (accessed 5 January 2026)

Ministry of Environment, Climate Change and Forestry ‘Kenya’s Second Nationally Determined Contribution (2031-2035)’ 2025, https://unfccc.int/sites/default/files/2025-05/KENYAS%20SECOND%20NATIONALLY%20DETERMINED%20CONTRIBUTION%202031_2035.pdf (accessed 30 November 2025)

South Africa Department of Trade, Industry and Competition, ‘Electric Vehicles White Paper’ December 2023, <https://www.thedtic.gov.za/wp-content/uploads/EV-White-Paper.pdf> (accessed 5 September 2025)

United Nations Economic Commission for Africa, ‘Zambia and DRC Sign Cooperation Agreement to manufacture electric batteries’ April 2022 <https://www.uneca.org/stories/zambia-and-drc-sign-cooperation-agreement-to-manufacture-electricbatteries#:~:text=More%20in%20Archives,Zambia%20and%20DRC%20Sign%20Cooperation%20Agreement%20to%20manufacture%20electric%20batteries,Conference%20Centre%20in%20Lusaka%20yesterday> (accessed 9 March 2026).

United Nations Economic Commission for Africa, ‘Experts call on the need to speed up financing and other mechanisms for the Battery Electric Vehicle Special Economic Zone’ 5 October 2023, <https://www.uneca.org/stories/experts-call-on-the-need-to-speed-up-financing-and-other-mechanisms-for-the-battery-electric> (accessed 2 November 2025)

United States Geological Survey (USGS) Mineral Commodity Summaries (USGS 2023)

World Bank Group and China Development Bank, *Leapfrogging: The Key to Africa’s Development? From constraints to investment opportunities* (World Bank Group 2017)

Laws and policies

United Nations Framework Convention on Climate Change Paris Agreement
(United Nations 2015)

Value addition, beneficiation, and transition minerals-led industrialisation in Ghana and Nigeria

Michael Addaney

Abstract: *This chapter explores how Ghana and Nigeria can leverage their transition mineral endowments to achieve sustainable industrialisation during the global energy transition. It examines the opportunities and constraints facing resource-based industrialisation (RBI) in both countries, drawing on comparative policy and thematic content analysis of national frameworks. The analysis reveals that despite abundant reserves of bauxite, manganese and lithium, both countries face severe governance deficits, infrastructure gaps and energy constraints. Nigeria demonstrates success in leveraging conditional access to resources to attract foreign direct investment for local processing, while Ghana faces economic viability challenges in domestic refining. The chapter's contribution lies in identifying five strategic priorities if transition minerals are to contribute to meaningful industrialisation in the countries: developing comprehensive transition minerals strategies; strengthening legal and fiscal governance; increasing geoscience funding; investing in clean energy infrastructure; and utilising regional integration through the African Continental Free Trade Area (AfCFTA). These*

interventions are essential to promote responsible business conduct in transition-minerals contexts and to prevent the energy transition from perpetuating resource-curse dynamics and global inequality.

1 Introduction: Setting the context for minerals-led industrialisation

The unprecedented increase in demand for transition minerals is being driven by global commitments to mitigate climate change through the energy transition.¹ The transition away from fossil fuels depends on these minerals, which are necessary building blocks for low-carbon technologies such as solar panels, wind turbines, electric vehicles (EVs) and battery storage systems. Between 30 and 40 per cent of the world's transition mineral reserves are in Africa, making it a strategically important region.² Mineral-rich African countries such as Ghana and Nigeria have a unique opportunity to leverage their mineral wealth, including substantial deposits of lithium, cobalt, manganese and rare earth elements, to drive socio-economic development and resource-based industrialisation (RBI).³

-
- 1 A Joseph 'Navigating governance challenges in African transition mineral supply chains' SAIIA Policy Insights 151 May 2024, <https://saiia.org.za/research/navigating-governance-challenges-in-african-critical-mineral-supply-chains/> (accessed 8 January 2026); International Energy Agency (IEA) 'The role of critical minerals in clean energy transitions' (2021) 5, available at <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions> (accessed 8 January 2026).
 - 2 NS Ouedraogo & JMM Kilolo 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 1-14.
 - 3 P Amoako-Arhen & J Nyame 'Mineral resource potential of Ghana: A review' (2023) 43 *Journal of African Earth Sciences* 215, 220-222; M Farooki *The diversification of the mineral economies: A review of the main issues and options*

In the past, African countries' participation in international mineral supply chains has typically been limited to exporting raw minerals.⁴ As a result, they have been unable to enrich their mineral value chains by fully utilising past commodity booms.⁵ The resulting systemic vulnerability often leaves African economies overly reliant on raw-material exports and highly sensitive to commodity price fluctuations.⁶ Breaking this trend by directing mineral feedstocks into domestic industries is now essential to support comprehensive, sustainable growth.⁷ Reducing reliance on the export of raw materials has long been a goal of continental frameworks. For instance, the African Union (AU) adopted the African Mining Vision (AMV) in 2009 as a framework to encourage policy coherence for the sustainable development of Africa's natural resources, with a focus on industrialisation and local value addition (beneficiation).⁸

in P Haslam & P Heidrich (eds) *The political economy of natural resources and development* (2016) 71-88.

- 4 UNCTAD 'Commodities and Development Report 2023: Critical minerals for the energy transition' (2023) UN publication 45-48, <https://unctad.org/publication/commodities-and-development-report-2023> (accessed 8 January 2026).
- 5 TT Kola 'Mineral beneficiation: A continuing African paradox or a panacea for economic growth and skills development' Master's dissertation, University of Pretoria, 2019; M Farooki & R Kaplinsky *The impact of China on global commodity prices: The global reshaping of the resource sector* (2012) 78-92.
- 6 JD Sachs & AM Warner 'The curse of natural resources' (2001) 45 *European Economic Review* 827; MJ Watts 'Resource curse? Governmentality, oil and power in the Niger Delta, Nigeria' (2004) 15 *Geopolitics* 50.
- 7 L Jentel & D Cloete 'Digging deeper: Embedding minerals sovereignty in Africa's mining value chains' South African (Institute of International Affairs Policy Insights February 2025 161, <https://saiia.org.za/wp-content/uploads/2025/02/PI-161-FP-Jentel-Cloete-CORRECTED-VERSION.pdf> (accessed 25 November 2025).
- 8 African Union Africa Mining Vision (February 2009), https://au.int/sites/default/files/documents/30984-doc-africa_mining_vision_english.pdf (accessed 8 January 2026); see also AU Assembly Decision Assembly/AU/Dec.224(XII) (February 2009); JJ Hinshaw 'A review of the African Mining

The intense geopolitical competition, especially between China and Western powers (the UK, EU and USA), all of which are attempting to diversify their transition-minerals supply chains, is now a defining feature of the growing global demand to secure transition minerals.⁹ This dynamic enables mineral-rich African countries to demand significant investment in regional manufacturing infrastructure and local beneficiation in exchange for access to resources.¹⁰ Despite having transition minerals, Ghana and Nigeria are at a crossroads, facing persistent challenges in governance, infrastructure and implementation.¹¹

This chapter serves three interconnected purposes. First, it provides a comprehensive diagnostic assessment of the current

Vision' (2010) 43 *Journal of Energy and Natural Resources Law* 153; MK Mathe and others 'Africa's potential in processing critical mineral' Proceedings of the 2nd Battery Materials Conference, The South African institute of mining metallurgy, Mbombela, Mpumalanga, 6-7 August 2024, <https://www.saimm.co.za/Conferences/files/battery-materials-2024/Battery%20Materials%202024%20-%20Proceedings%20Book.pdf#:~:text=The%20Arena%2C%20Emnotweni%20Casino%2C%20Mbombela%2C%20Mpumalanga%2C%206%20%E2%80%93%207%20August%202024&text=Africa's%20potential%20in%20processing%20critical%20minerals%20can%20be%20realised> (accessed 8 January 2026).

9 Regulation (EU) 2024/1252 of the European Parliament and of the Council of 11 April 2024 establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, (EU) 2018/1724); United States Inflation Reduction Act, Pub L No 117-169 (2022); Export Control Law of the Peoples Republic of China, Law 58 of 2020.

10 G Gereffi & K Fernandez-Stark *Global value chain analysis: A primer* (2016) 5-12.

11 African Continental Free Trade Area Agreement, done at Kigali, 21 March 2018 (entered into force 30 May 2019), <https://au.int/en/treaties/agreement-establishing-african-continental-free-trade-area> (accessed 8 January 2026); see T Fessehaie & L Rustomjee's 'Resource-based industrialisation in Southern Africa: Domestic policies, corporate strategies and regional dynamics' (2018) 49 *Development Southern Africa* 616.

state of transition minerals governance and industrialisation efforts in Ghana and Nigeria, identifying both successful initiatives and persistent barriers. Second, it develops an analytical framework grounded in RBI theory and the principles of the AMV to evaluate policy coherence and implementation gaps. Third, and most critically, it generates evidence-based, context-specific recommendations to guide policymakers, industry stakeholders and development partners in formulating strategic interventions that can unlock the industrialisation potential of transition minerals while avoiding the pitfalls of resource curse dynamics. The recommendations emerging from this analysis aim to be actionable, addressing three distinct levels: (1) immediate reforms to legal and fiscal frameworks; (2) medium-term investments in infrastructure and institutional capacity; and (3) long-term strategic positioning within continental frameworks such as the African Continental Free Trade Area (AfCFTA). By anchoring its recommendations in a comparative analysis of what has worked (and failed) in both countries, the chapter provides practical pathways for translating mineral wealth into sustainable industrial development.

The chapter proceeds as follows. Part 2 establishes the theoretical and methodological foundation. Part 3 provides a comprehensive overview of the current landscape, examining Africa's transition-mineral endowment, the economic imperatives for beneficiation, and the persistent structural constraints that have historically undermined value-addition efforts. Part 4 presents detailed country-specific analyses of Ghana (4.1) and Nigeria (4.2), evaluating their distinct mineral endowments, governance frameworks, policy initiatives and implementation challenges, followed by a systematic comparative analysis (4.3) that identifies divergent approaches, convergent constraints and transferable lessons between both countries. The chapter concludes in part 5 by reflecting on the

critical choices facing both countries and the broader implications for African RBI in the context of the global energy transition.

2 Research design, methods and analytical framework

2.1 Theoretical framework: Resource-based industrialisation in the energy transition era

This chapter is anchored in RBI theory, which posits that resource-rich developing countries can achieve structural economic transformation by strategically leveraging their natural resource endowments to develop downstream industries and technological capabilities.¹² The theoretical framework integrates three complementary analytical lenses. First, the AMV framework provides the normative foundation, emphasising mineral linkages (fiscal, backward, forward, knowledge and spatial) as pathways to equitable RBI. The AMV's vision of 'transparent, equitable and optimal exploitation of mineral resources to underpin broad-based sustainable growth and socio-economic development' directly informs the assessment criteria.¹³ Second, institutional economics and governance theory guide the analysis of

12 M Morris & N Fessehaie 'The industrialisation challenge for Africa: Towards a commodities based industrialisation path' (2014) 1 *Journal of African Trade* 1; United Nations Economic Commission for Africa (UNECA) 'Economic Report on Africa 2013: Making the Most of Africa's Commodities: Industrialising for Growth, Jobs and Economic Transformation' (2013, Addis Ababa).

13 African Union Africa Mining Vision (n 9) 6-9; R Kaplinsky & M Morris 'Do the Asian drivers undermine export-oriented industrialisation in SSA?' (2008) 36 *World Development* 254.

how legal frameworks, regulatory institutions and political economy dynamics enable or constrain industrial transformation.¹⁴

This perspective recognises that resource wealth alone is insufficient; effective governance institutions, transparent fiscal regimes and capable regulatory bodies are prerequisites for translating mineral endowments into industrial development. Third, global value chain analysis illuminates how countries position themselves within increasingly complex, geopolitically contested transition-minerals supply chains.¹⁵ This lens examines issues of value capture, technological upgrading, and the strategic choices between exporting raw materials and processing them domestically. These three theoretical lenses converge to form an integrated analytical framework that evaluates: (1) the alignment between national policies and continental frameworks (AMV/AGMS); (2) the effectiveness of governance institutions in implementing industrialisation strategies; and (3) the strategic positioning of Ghana and Nigeria within global transition minerals value chains.¹⁶

14 DC North *Institutions, institutional change and economic performance* (1990) 1-10; D Acemoglu & JA Robinson *Why nations fail: The origins of power, prosperity, and poverty* (2012) 368-395.

15 G Gereffi and others 'The governance of global value chains' (2005) 12 *Review of International Political Economy* 78; G Gereffi 'Global value chains in a post-Washington Consensus world' (2014) 21 *Review of International Political Economy* 9.

16 UNECA & AMDC 'African Minerals Development Centre: Linkages, investment and diversification Harnessing mineral resources for Africa's transformation' (2017, Addis Ababa) 5-12, https://archive.uneca.org/sites/default/files/PublicationFiles/linkages_brochure.pdf (accessed 8 January 2026).

2.2 Research design and methods

Ghana and Nigeria were selected as comparative cases for three strategic reasons. First, both countries possess significant mineral reserves of transition metals (including bauxite, manganese and lithium), positioning them as potential beneficiaries of the energy transition.¹⁷ Second, they represent contrasting governance contexts and policy approaches, enabling identification of divergent pathways and lessons. Third, both countries have articulated industrialisation ambitions tied to mineral processing, thereby providing concrete policy initiatives for evaluation. Methodologically, this chapter employs a qualitative comparative case study design,¹⁸ combining legal and policy analysis with thematic content analysis. The methodology was implemented in three stages, beginning with a comprehensive document review and data collection examining national legal frameworks, policy documents, governance structures, and implementation records from various sources, including government publications and reports from organisations such as UNECA, the Natural Resource Governance Institute and

17 Ghana Geological Survey Authority 'Mineral deposits of Ghana' (2023), <https://www.gsa.gov.gh> (accessed 8 January 2026); T Acheampong and others 'Ghana's extractive sector: Recent trends and outlook' (2024) *OECD Development Centre Policy Brief* 3-6; Adeleke and others (n 4) 108-112; Geological Survey of Nigeria, Mineral Resources Map of Nigeria (2022).

18 RK Ying *Case study research and applications: Design and methods* (2018) 3; see also B Flyvbjerg 'Five misunderstandings about case-study research' (2006) 12 *Qualitative Inquiry* 219; CG Ragin *The comparative method: Moving beyond qualitative and quantitative strategies* (1987) 1-11.

AMDC.¹⁹ The second stage employed thematic content analysis.²⁰ Five key themes emerged: (1) economic viability and value capture of local processing versus exports; (2) governance effectiveness and institutional capacity; (3) infrastructure and energy constraints; (4) policy coherence between national and continental strategies; and (5) implementation track records of industrial transformation efforts. Finally, the third stage comprised a comparative analysis of findings from Ghana and Nigeria to identify patterns of similarity and difference, successful strategies versus ongoing challenges, and context-specific constraints relative to broader lessons,²¹ ultimately supporting the development of both country-specific and overarching recommendations.

2.3 Analytical framework for recommendations

The recommendations developed in this chapter are designed to bridge the gap between policy ambition and implementation reality. Drawing on an analytical framework that combines RBI theory, institutional economics, and the pillars of the AMV, each recommendation addresses specific governance failures, infrastructure constraints, or policy incoherence identified through

19 Ghana Minerals Commission 'Mining Sector Support Programme' (2022); Government of Ghana 'Ghana National Export Development Strategy' 2024-2028 (2024); Federal Ministry of Solid Minerals Development 'Roadmap for the Development of Nigeria's Solid Minerals and Metals Sector' 2016-2025 (2016); Nigerian Minerals and Mining Act, 2007 (as amended).

20 V Braun & V Clarke 'Using thematic analysis in psychology' (2006) 3 *Qualitative Research in Psychology* 77; M Attride-Stirling 'Thematic networks: An analytic tool for qualitative research' (2001) 1 *Qualitative Research* 385.

21 P Collier & A J Venables *Plundered nations? Successes and failures in natural resource extraction* (2011) 33.

thematic analysis.²² The purpose of these recommendations is threefold: (1) to provide actionable guidance for immediate legal and policy reforms; (2) to identify strategic investment priorities that address structural constraints; and (3) to position both countries to leverage regional integration mechanisms. Rather than offering generic best practices, the recommendations are tailored to the specific political economy contexts, institutional capabilities and resource endowments of Ghana and Nigeria, recognising that pathways to minerals-led industrialisation must be context-specific rather than one-size-fits-all.

2.4 Limitations

This analysis is primarily based on policy documents and publicly available data; it does not include primary interviews with government officials or industry stakeholders. The focus on legal and policy frameworks means that informal practices and political economy dynamics are inferred rather than directly observed. Additionally, the rapidly evolving nature of transition minerals markets means that economic viability assessments may shift as technologies mature and market prices fluctuate.

3 The current landscape: Opportunities, constraints and governance deficits

Africa's economic potential in the energy transition is based on its vast mineral endowment.²³ Local beneficiation allows mineral-rich

22 World Bank 'Leveraging Local Content Decisions for Industrial Development: Mining and Oil and Gas' (2020, Washington DC) 25-45.

23 N Mutemeri *Mineral resource governance in Africa: A comparative study*, International Institute for Democracy and Electoral Assistance (2024) 8;

countries to capture significantly higher rents. Currently, battery materials account for only 10 per cent of the supply chain value due to low processing levels.²⁴ This value capture gap underscores the economic imperative for domestic processing.²⁵ For instance, alumina production from bauxite refining is estimated to be 9.4 times more valuable to Ghana than raw bauxite exports.²⁶ As one moves up the value chain, more tax revenue is collected, exposure to commodity price fluctuations decreases, economic diversification is encouraged and long-term job opportunities are created.²⁷ The strategy for achieving value addition places a strong emphasis on strengthening several economic ties between the extractive industry and the broader economy.²⁸

The following figure demonstrates the dramatic disparity in value capture and tax revenue generation across different stages of

African Development Bank Group 'Critical minerals for Africa's inclusive growth and development' (May 2025, Abidjan) 8-15; African Development Bank 'African Economic Outlook 2024' (2024) 89-112.

- 24 KC Barron and others 'Value addition for whom? Challenges to local participation in downstream critical mineral ventures in Zambia (2024) 20 *The Extractive Industries and Society* 101554.
- 25 UNCTAD Commodities and Development Report 2023 (n 5) 52-54.
- 26 African Union 'African Green Minerals Strategy 2025-2040' adopted by AU Assembly Decision Assembly/AU/Dec.1056(XLII) (February 2025). The AGMS identifies five strategic pillars: (1) improving geological knowledge and data; (2) developing human capital and technology; (3) building mineral value chains; (4) ensuring mineral stewardship and governance; and (5) fostering innovation and research; M Muller and others 'Green minerals and the African energy transition' (2025) 65 *Resources Policy* 104.
- 27 T Acheampong & M Tyce 'The politics of creating markets for localisation: Insights from the Ghanaian downstream petroleum sector' (2019) 164 *World Development* 104; Barron & others (n 24) 5-8.
- 28 G Campbell (ed) *Mining in Africa: Regulation and development* (2009) 35-58; AU Commission Agenda 2063: The Africa We Want – Framework Document' (2015) 45-48; African Minerals Development Centre 'Annual Report 2023' (2024) 8-15.

the transition minerals value chain. Using lithium as a representative example, this analysis shows how African countries that export raw minerals capture only a small fraction of the total value created. In contrast, countries with downstream processing capabilities retain significantly higher economic benefits.

Figure 1: Value Distribution Across the Lithium Value Chain

Value Chain Stage	Processing Activity	Added (% of Final Product)	Typical Location	Tax Revenue per Ton (USD)
Stage 1: Mining	Extraction of raw lithium ore (spodumene, lepidolite)	5-10%	Ghana, Nigeria, Zimbabwe, Mali	\$500-800
Stage 2: Concentration	Crushing, grinding, and flotation to produce lithium concentrate (6% Li ₂ O)	10-15%	Australia, Chile, China	\$1,200-1,800
Stage 3: Refining	Chemical processing to produce lithium carbonate or lithium hydroxide (battery grade)	25-35%	China (60%), Chile, Argentina	\$3,500-5,000
Stage 4: Component Manufacturing	Production of cathodes, anodes, electrolytes, and battery cells	50-65%	China (75%), South Korea, Japan	\$8,000-12,000

Stage 5: Battery Pack Assembly	Integration of cells into battery modules and complete EV battery packs	80-90%	China, USA, Europe, South Korea	\$15,000- 20,000
Stage 6: Final Product	Electric vehicle manufacturing and sales	100%	Global (China, USA, Germany, Japan)	\$25,000- 35,000

Value distribution estimates are based on: Benchmark Mineral Intelligence lithium market analysis (2024); UNCTAD Commodities and Development Report (2023); African Development Bank Critical Minerals Study (2025); and Natural Resource Governance Institute analysis of lithium value chains. Tax revenue calculations incorporate typical mining royalties (3-5%), corporate income tax (25-30%), VAT/GST (5-15%), export duties (0-5% for raw materials, waived for processed goods), import duties on equipment and inputs, and employment-related taxes. Figures represent 2024 market conditions for lithium carbonate equivalent (LCE) pricing.

Key Findings: The Cost of Raw Material Exports

VALUE CAPTURE GAP Currently, African mining countries capture only 5-10% of the final product’s value through raw-material exports. This means countries with processing capabilities capture 90-95% of the value.	TAX REVENUE MULTIPLIER Tax revenue increases 30-40x from mining stage (US\$500-800/ton) to final battery manufacturing (US\$25,000-35,000/ton). This multiplier is the economic rationale for beneficiation.
--	--

GEOGRAPHIC CONCENTRATION China controls 60-75% of the global lithium refining and battery manufacturing market. This concentration means African countries have limited bargaining power when exporting raw materials.	OPPORTUNITY COST Ghana and Nigeria forgo approximately US\$20,000 to US\$30,000 per ton in potential tax revenue by exporting raw lithium rather than developing integrated value chains.
---	--

Note: This illustration uses lithium as a representative transition mineral. Similar value chain dynamics apply to other transition minerals, including cobalt, manganese, nickel and rare earth elements.

The forward (downstream) linkages entail transforming minerals into semi-manufactured, manufactured and refined metals for industrial applications, such as feedstocks for steel and aluminium or battery components (cathodes, precursors).²⁹ The backwards (upstream) linkages comprise creating regional supply chains for the commodities and services that mining operations need, such as capital goods, consumables and services. Currently, 80 per cent of Ghana's mining procurement requirements are met through imports.³⁰ Additionally, the knowledge linkages include building

29 N Mutemeri 'Mineral resource governance in Africa: A comparative study' (International Institute for Democracy and Electoral Assistance, 2024) 45-78; Natural Resource Governance Institute '2021 Resource Governance Index results; Africa Regional Report' (2021) 12-25, https://resourcegovernance.org/sites/default/files/documents/2021_resource_governance_index.pdf (accessed 20 January 2026).

30 United Nations Economic Commission for Africa (UNECA) 'Scaling up value creation and local development in the mining sector in Ghana. Addis Ababa, Ethiopia' (Economic Commission for Africa, 2018).

institutional capacity, human resources (including STEM skills), and research and development. These are essential for innovation and technology transfer.³¹ Finally, the spatial and fiscal linkages focus on developing vital infrastructure (power, transportation and water) that benefits the mining industry and the broader economy, as well as on the transparent and efficient collection of resource rents.³²

To effectively utilise these minerals, Ghana and Nigeria must strategically prioritise value chain segments, such as rare-earth refining and battery precursor production. The objective of the African Green Minerals Strategy (AGMS) is to support equitable RBI through mineral value chains.³³ Adopting ethical and sustainable supply chain governance practices is essential to achieving the developmental benefits of transition minerals. However, transition mineral supply chains in Africa are currently beset by a serious lack of accountability and transparency, which undermines the industry's ability to contribute to sustainable development.³⁴ Governance issues and widespread corruption are already linked to the extraction of transition minerals. Through mechanisms such as profit shifting and illicit financial flows, poor governance, corruption and rent-seeking behaviour, revenue from resource extraction within formal channels

31 C Lanzano and others 'Yesterday mineral supplier, tomorrow battery producer: How green industrialisation can push Africa's economies up the global value chains' (The Nordic Africa Institute, Policy Notes, 2024) 2.

32 As above.

33 Through the realisation of all the mineral linkages (fiscal, knowledge, spatial, backwards, forward, etc) to support equitable resource-based industrialisation and sustainable development, Africa can maximise the developmental impacts of extraction, as per the AMV, thanks to the new investments in the mining and processing of green minerals.

34 T Oluwatola 'Developing Nigeria's critical minerals industry to support the global energy transition' (Africa Policy Research Institute, January 2025), <https://afripoli.org/developing-nigerias-critical-minerals-industry-to-support-global-energy-transition> (accessed 8 January 2026).

of the economy is lost, while wealth remains concentrated among elites.³⁵ For example, jurisdictional disputes between the federal and state governments in Nigeria complicate governance and increase investor uncertainty.³⁶ Ghana is also at risk of increased corruption, particularly in the new mineral development licensing process.³⁷ The state's negotiating position is further weakened by inadequate geological data, resulting in less favourable fiscal terms.

Furthermore, industrialisation efforts are hampered by significant bottlenecks. Extraction and processing are severely hampered by low infrastructure stock levels and inadequate maintenance, particularly in water, transportation and power.³⁸ For energy-intensive downstream beneficiation, a steady and dependable power supply is essential; its absence is a significant deterrent to foreign investors. Additionally, Africa frequently relies on foreign direct investment for technology and capital, which can impede value-chain development because high-level research and development and dividends tend to leave the host country. The research and development capacity required for advanced processing and manufacturing is underfunded, and qualified personnel are in short supply.³⁹ Strategic planning is hampered, and investors who rely on reliable data for risk assessment are deterred by the lack of comprehensive geoscience data in Ghana and Nigeria, which is necessary for the precise evaluation of key mineral deposits.

Against this backdrop of continental ambitions constrained by structural realities, the following section examines how Ghana and

35 Jentel & Cloete (n 7).

36 Oluwatola (n 34).

37 Acheampong and others (n 17).

38 African Development Bank Group (n 24).

39 Kola (n 6).

Nigeria, two mineral-rich West African countries with contrasting governance contexts, are navigating the opportunities and challenges of transition minerals-led industrialisation.

4 Case studies: Progress and challenges in Ghana and Nigeria

This section provides country-specific analyses of mineral endowments, policy frameworks, governance effectiveness and implementation track records in both countries. Then it develops a systematic comparative analysis that illuminates divergent strategic approaches, persistent convergent challenges, and actionable lessons for achieving sustainable value addition in the transition minerals sector.

4.1 Ghana's path to beneficiation

Ghana's Integrated Aluminium Industry initiative, pursued intermittently since the 1960s, has repeatedly failed due to energy constraints, funding shortfalls and changing political priorities.⁴⁰ Recent attempts under the Sinohydro barter agreement have stalled, illustrating persistent implementation challenges despite policy commitment.⁴¹ At an estimated 900 million tons (Mt), the country currently possesses the second-largest bauxite reserves in Africa.⁴² With the establishment of the Ghana Integrated Aluminium Development Corporation in 2018 (Act 976),

40 T Acheampong & M Tyce 'Navigating the energy transition and industrial decarbonisation: Ghana's latest bid to develop an integrated bauxite-to-aluminium industry' (2024) 107 *Energy Research and Social Science* 103337.

41 Ghana Geological Survey Authority 'Annual Report 2023' (2024) 12-18.

42 As above.

successive governments have sought to revive the Integrated Aluminium Industry initiative vision.⁴³ To produce 20 Mt of bauxite per year, Ghana Integrated Aluminium Development Corporation's Masterplan calls for establishing four mining concessions, two refineries and two smelters.⁴⁴ It is anticipated that maintaining the entire value chain will result in significant value creation. Although bauxite is normally sold for US\$40 to US\$60 per metric ton (MT), it can fetch over US\$400 per MT when processed into alumina, and over US\$2,000 per MT when smelted into aluminium metal.⁴⁵ An estimated 9.4 times as much value is produced by converting bauxite to alumina alone as by exporting raw bauxite.

Similarly, with the recent flagship Ewoyaa Lithium Project, which is high-purity and low in contaminants, Ghana is also poised to become a producer of lithium.⁴⁶ Atlantic Lithium Limited has raised the mineral resource estimate for Ewoyaa by almost 50 per cent, to 21.3 Mt at 1.31 per cent Li_2O .⁴⁷ The first lithium project with favourable fiscal terms, such as a 10 per cent royalty rate (instead of the usual 5 per cent) and a 13 per cent state equity stake (instead of the usual 10 per cent under legislation), was secured when the government issued

43 K Anyemedu 'The politics of industrialisation in Ghana: The aluminum industry' (1993) 20 *African Review of Political* 2001, Third World Network-Africa 23-35; Acheampong & Tyce (n 40) 71; T Akabzaa & A Darimani 'Impact of mining sector investment in Ghana: A study of the Tarkwa mining region' (Draft report prepared for SAPRI, 2001).

44 Acheampong & Tyce (n 40).

45 T Acheampong 'The energy transition and critical minerals in Ghana: Diversification opportunities and governance challenges' (The Extractive Industries Transparency Initiative EITI, May 2022).

46 Atlantic Lithium Ltd 'Ewoyaa lithium project definitive feasibility study' (October 2023), <https://atlanticlithium.com.au> (accessed 8 January 2026).

47 T Scurfield & DS Adjee 'Refining the strategy: The economics of lithium value addition in Ghana' (Natural Resource (Governance Institute, March 2025).

a 15-year mining permit.⁴⁸ The business must assess the feasibility of a refinery as part of the project. Compared with competitors globally, the ambition to refine its hard-rock (spodumene) lithium concentrates domestically is hindered by challenging economic conditions. Due to cost advantages and concentrated technical know-how, China currently accounts for between 93 and 94 per cent of the world's capacity to convert spodumene concentrate into lithium chemicals.⁴⁹

Based on thorough modelling, the proposed lithium carbonate refinery in Ghana is unlikely to benefit Ghanaians much if it is constructed in the coming years.⁵⁰ The refinery, for example, would incur high operating and capital costs. The modelled refinery only breaks even if it buys Ghana's mined concentrate at below-market prices. Otherwise, it incurs a loss on each metric ton of lithium carbonate produced if it pays the market price for the required spodumene concentrate feedstock. Ghana makes more money exporting unrefined concentrate to China, the top buyer, than refining it domestically in a medium-price scenario. Estimates suggest that over the life of the Ewoyaa mine, the government could lose about US\$500 million in revenue from domestic refining, more than half of Ghana's total mining revenue in 2022.⁵¹ For lithium, experts advise Ghana to take a 'mine-and-monitor' strategy. This strategy entails ensuring that the Ewoyaa mine begins production as soon as possible, while monitoring the dynamic market, technological and geopolitical landscape to assess whether conditions change (for

48 J Bofo, S Dotsey & R Spencer 'Energy transition diplomacy: The EU's pursuit of Africa's critical minerals for renewable energy at whose expense?' (2025) 127 *Energy Research and Social Science* 104213.

49 Scurfield & Adjei (n 47).

50 As above.

51 As above.

example, if a sufficient premium of at least US\$3,000/t emerges for non-Chinese supply).

Furthermore, Ghana has been using its substantial medium-grade manganese reserves at Nsuta in the Western Region since 1916.⁵² Manganese production reached 840 kt (4.2 per cent of global production) in 2023,⁵³ while the country's reserves are estimated to be 13 Mt (0.7 per cent of global reserves).⁵⁴ The Ghana Manganese Company's goal of increasing output was reflected in a 18 per cent increase, from 4.6 Mt in 2018 to 5.4 Mt in 2019.⁵⁵ Manganese dioxide battery raw materials and electrolytic manganese metals used in stainless steel can be produced from the medium-grade Nsuta deposit. By building a manganese dioxide facility domestically, Ghana could increase its value capture, thereby positioning itself to supply Europe's expanding battery market and reducing its reliance on South Africa and China for this material.

The country faces several interrelated obstacles that prevent effective beneficiation, notwithstanding these endowments and

52 Acheampong and others (n 17).

53 According to the AMDC, approximately 65% of world production for manganese originates in Africa. The estimated 2023 production and production shares are as follows: South Africa, 7.2 Mt (36%); Gabon, 4.6 Mt (23%); Ghana, 840 kt (4.2%); Côte d'Ivoire, 390 kt (1.9%). South Africa's reserves stand at 600 Mt (32%), Gabon's at 61 Mt (3.2%), and Ghana's at 13 Mt (0.7%).

54 Acheampong and others (n 17).

55 Ghana Extractive Industry Transparency Initiative (GHEITI)'s latest report shows that manganese production increased from 4.6 million tonnes in 2018 to 5.4 million tonnes in 2019, and bauxite production improved from 1.0 million tonnes in 2018 to 1.1 million tonnes in 2019. The 18% increase in manganese production by the Ghana Manganese Company mirrored the firm's objective of ramping up production. See, Ghana Extractive Industries Transparency Initiative report on mining sector (2021-2022) June 2024, <https://eiti.org/sites/default/files/2021%202022%20GHEITI%20Mining%20Report.pdf?hash=1773745200> (accessed 12 January 2026).

aspirational plans. The competitiveness of regional industries is undermined by the country's ongoing structural flaws, including high energy prices, poor infrastructure and high transaction costs.⁵⁶ Ghana's plans to finance its energy transition and industrial decarbonisation are seriously threatened by its high level of public debt, which stands at 83.60 per cent of GDP.⁵⁷ To reach net-zero energy-related carbon emissions by 2060, the country's National Energy Transition Investment Plan calls for an estimated US\$562 billion in total investment.⁵⁸ Project delays and a slow transition process can result from limited funding.⁵⁹

The historical failure to extract the maximum value from these transition minerals is demonstrated by the disclosed revenue data (2004–2019), which show that bauxite and manganese produced meagre returns compared with gold and oil/gas.⁶⁰ Ghana relies on the current royalty-tax (concession) system rather than having a separate fiscal regime for transition minerals. This system has several rigid components that make it difficult to deliver sufficient value to the state. The regime should be reviewed by policymakers, who may want to change the state's minimum 10 per cent free equity or consider allowing the Minerals Income Investment Fund to own additional paid interest in proven transition mineral deposits.⁶¹ To transport processed goods to markets, port, rail and road infrastructure must

56 UNECA (n 30).

57 NEL Anku 'A critical review and analysis of opportunities and challenges for just transitions in Ghana' (South to South Just Transitions & Climate Strategies, 2024).

58 Ministry of Energy (Ghana) 'National Energy Transition Framework 2022-2070: Abridged Version' (Ministry of Energy, Accra, 2022).

59 Energy Commission of Ghana *Energy outlook for Ghana* (2024) 45-52.

60 Acheampong and others (n 17).

61 Ghana Extractive Industries Transparency Initiative (GHEITI) 'Report on Mining Sector 2021-2022 (June 2024)' 28-35; J Hilson & G Hilson

be developed. For example, latent infrastructure that connects components of the aluminium and bauxite value chain hinders VALCO's ability to operate effectively. In 2016, Ghana's Logistics Performance Index did not compare well with the top performers in Africa and globally.⁶²

In terms of local content and industrial policy, Ghana has implemented a series of strategies to maximise local participation. Still, it has not succeeded in creating broad economic ties commensurate with its mineral wealth. The majority of the country's mining procurement needs are still met through imports, and its mineral output is integrated into global value chains as lower-value crude ores or concentrates, with value addition and job creation occurring abroad.⁶³ The government established specialised state entities, the Ghana Integrated Aluminium Development Corporation and GIISDEC, to concentrate on value chain opportunities for iron ore and aluminium, respectively. The mining sector also lacks understanding of how the energy transition can influence the creation of vital mineral supply chains.⁶⁴

4.2 Nigeria: Leveraging conditional access and diversification

Nigeria possesses strategically important reserves of transition minerals, positioning it as a potential hub for battery and renewable energy manufacturing in West Africa.⁶⁵ The country's geological

⁶² 'Entrepreneurship, poverty and businessification: Youth in contemporary artisanal and small-scale gold mining in Ghana' (2015) 69 *African Affairs* 116.

⁶³ As above.
⁶³ AF Adeleke and others 'Assessment of Nigeria's mineral resources potential for sustainable development' (2022) 15 *Resources Policy* 102, 108-110.

⁶⁴ As above.

⁶⁵ Federal Ministry of Solid Minerals Development, Nigeria Mining Cadastre Portal (2024).

endowment includes significant lithium deposits across multiple states, with exploration indicating reserves capable of supporting large-scale processing operations; rare earth elements in several locations with potential for extraction; and other critical minerals such as tin, columbite and tantalite.⁶⁶ Unlike Ghana's more concentrated mineral geography (bauxite in the Western Region, manganese in the Western/Central regions), Nigeria's transition minerals are distributed across multiple geopolitical zones, presenting both opportunities for regional economic development and challenges for coordinated infrastructure investment.⁶⁷ Nigeria is home to more than 40 distinct types of solid minerals, with an estimated value of mineral deposits exceeding US\$700 billion.⁶⁸ For instance, Nigeria is thought to have the world's fifth-largest lithium reserves.⁶⁹ Similarly, the country is endowed with an estimated cobalt reserve of about 700,000 metric tons as well as other strategic minerals such as copper, manganese, nickel and rare earths.⁷⁰ The country's vital mineral resources offer a huge potential for income generation, both for export and domestic use. Exporting 100,000 tonnes a year, or about 14 per cent of the estimated global supply, could generate over US\$2 billion, given the current high prices for essential minerals like lithium carbonate, which have surpassed US\$20,000 per tonne in recent months.⁷¹ Additionally, estimates

66 As above.

67 As above.

68 A Andreonia & E Avenyo 'Critical minerals and routes to diversification in Africa: Opportunities for diversification into mobile phone technologies – The Case of the Democratic Republic of Congo' Background paper commissioned by the UNCTAD secretariat for the 2023 edition of the Economic Development in Africa Report, August 2023.

69 Geological Survey of Nigeria (n 17).

70 As above.

71 Federal Ministry of Solid Minerals Development (n 65).

from across the continent indicate that Africa could boost its annual exports of processed transition minerals by US\$32 billion by capitalising on opportunities to add value to these minerals.⁷²

The mining industry in Nigeria remains undeveloped despite this enormous endowment. Due to historical neglect after the oil boom, the sector's contribution is low. Only around 0.5 per cent to 0.6 per cent of Nigeria's GDP, or US\$1.40 billion, is contributed by this sector.⁷³ At 0.3 per cent of national employment and 0.02 per cent of exports, it represents a negligible share of both.⁷⁴ Since most mineral resources are exported in raw or semi-processed form, the country's current supply chain capabilities for transition minerals are limited. Nigeria (and Africa in general) realises only about 10 per cent of the end-to-end value of the supply chain for materials such as those used in batteries, due to the failure to pursue beneficiation.⁷⁵ Nigeria's institutional architecture for minerals governance presents a complex landscape of overlapping jurisdictions and evolving regulatory structures. The Nigerian Minerals and Mining Act serves as the primary regulatory instrument, but significant gaps exist, particularly regarding transition minerals.⁷⁶ Multiple agencies hold overlapping responsibilities, including the Ministry of Solid

72 D Olawuyi and others 'Beyond just transition: Advancing responsible and rights-based business practices in the energy and extractives sector' (2025) 10 *Business and Human Rights Journal* 1-10.

73 African Energy Chamber 'Africa's critical minerals and the future of the global energy transition' 12 January 2026, <https://energychamber.org/africas-critical-minerals-and-the-future-of-the-global-energy-transition/> (accessed 20 January 2026).

74 Federal Ministry of Solid Minerals Development (n 65).

75 AMDC (n 53).

76 Nigerian Minerals and Mining Act, 2007 (Cap M12 LFN 2004) secs 1-3, 44-50; Nigerian Minerals and Mining Regulations, 2011; CD Ofoegbu 'Legal and institutional framework for solid minerals development in Nigeria' (2015) 8 *Journal of Humanities and Social Science* 46.

Minerals Development, the Nigerian Geological Survey Agency and state-level mining boards, creating jurisdictional ambiguities.⁷⁷ The federal-state division of mineral rights creates ongoing tensions and legal uncertainties. Additionally, Nigeria faces severe infrastructure deficits that systematically undermine industrialisation ambitions. For instance, despite being Africa's largest oil producer, Nigeria suffers from chronic electricity supply challenges.⁷⁸ Moreover, port capacity, rail networks and road connectivity present bottlenecks. Processing facilities require reliable access to water, which constrains location options.

Despite governance challenges, Nigeria has demonstrated strategic success in leveraging conditional access to resources to attract value-adding investments.⁷⁹ For example, Nigeria's rejection of Tesla's 2022 lithium mining proposal exemplifies its firm stance on requiring local processing commitments. Additionally, the government's establishment of six processing plants across geopolitical zones (Bauchi, Oyo, Kano, Ebonyi, Cross River, Kogi) represents concrete progress.⁸⁰ Similarly, recent announcements of lithium processing facilities with integrated power generation demonstrate investor

77 *Attorney-General of the Federation v Attorney-General of Abia State & 35 Others* (2002) 6 NWLR (Pt 764) 542 (SC); O Olaore 'Revisiting the Nigerian minerals and mining sector: An x-ray of the legal and regulatory framework' (2019) 25 *Annual Survey of International & Comparative Law* 197, 210-215.

78 AA Ibrahim and others 'Infrastructure deficit and industrial development in Nigeria' (2023) 18 *African Development Review* 234.

79 NEITI Nigeria Extractive Industries Transparency Initiative Report 2022 (2023) 35-48.

80 Nigerian Investment Promotion Commission 'FG to build 6 solid minerals processing plants' Press Release (19 February 2022), <https://www.nipc.gov.ng> (accessed 8 January 2026).

confidence.⁸¹ President Tinubu's articulated ambition to make Nigeria 'the solar panel and EV battery manufacturing hub of Africa' provides high-level political commitment.⁸² Furthermore, despite policy ambitions and selective successes, Nigeria confronts deep-seated structural constraints that undermine industrial transformation.⁸³ For instance, corruption risks, regulatory capture and weak enforcement mechanisms persist. There are also jurisdictional conflicts. Federal-state tensions over mineral rights create legal uncertainty that deters long-term investments. This is further undermined by implementation capacity. Announced initiatives often face delays or fail to materialise due to inadequate technical capacity and funding. Market access challenges in Nigeria's complex business environment, including foreign exchange restrictions and import/export procedures, increase transaction costs. Nigeria's approach to the industrialisation of transition minerals demonstrates both instructive successes and cautionary failures. The conditional access strategy represents a more assertive stance than Ghana's and successfully leverages access to resources to demand local value addition. However, this policy ambition is undermined by severe governance deficits, infrastructure constraints and implementation capacity gaps that Ghana has partially addressed through more focused initiatives.

81 Advisors Reports 'Nigeria's second lithium factory takes off in Abuja with \$50M investment' (31 July 2024), <https://advisorsreports.com> (accessed 8 January 2026).

82 'Tinubu welcomes Nigeria's largest lithium plant' *Business Day* 31 July 2024, <https://businessday.ng> (accessed 8 January 2026).

83 Federal Ministry of Solid Minerals Development, Nigeria Mineral Sector Development Roadmap 2024 (2024) 18-25.

4.3 Comparative analysis: Divergent pathways and convergent challenges

4.3.1 *Contrasting approaches to value addition*

Ghana and Nigeria have adopted markedly different strategies for the industrialisation of transition minerals, reflecting distinct political-economy contexts, institutional capacities and policy priorities.⁸⁴ Ghana's approach emphasises partnerships with international corporations and the leveraging of existing mining-sector infrastructure, as evidenced by the Integrated Aluminium Industry initiative and ongoing negotiations over lithium projects. This strategy prioritises feasibility and incremental progress, accepting that some processing stages may not be immediately profitable domestically.⁸⁵ In contrast, Nigeria pursues a more assertive, nationalist stance, exemplified by rejecting Tesla's mining-only proposal and mandating local processing requirements.⁸⁶ Nigeria's approach seeks to maximise value capture through conditional access to resources, even at the risk of deterring some investors. Furthermore, Ghana's minerals governance reflects a more consolidated regulatory framework with clearer institutional mandates, though corruption risks persist.⁸⁷ The Minerals Commission and Environmental Protection Authority maintain relatively defined jurisdictions.⁸⁸ Nigeria's fragmented

84 Acheampong & Tyce (n 28) 6-9; O Chukwuma 'Resource nationalism in the 21st century: Nigeria's Minerals Sector' (2024) 15 *Journal of African Law* 234.

85 Acheampong and others (n 17) 8-12.

86 Olawuyi and others (n 72) 5-7.

87 Chukwuma (n 84) 234.

88 Ghana Minerals Commission Act, 1993 (PNDCL 310); Environmental Protection Authority Act, 2025 (Act 1124); N Akabzaa 'Mining in Ghana:

institutional landscape with overlapping federal and state authorities creates jurisdictional ambiguities but also enables policy experimentation across multiple geopolitical zones.⁸⁹ Additionally, both countries face severe energy constraints. Still, Ghana has made more progress in renewable energy deployment (achieving ~42.5 MW solar capacity),⁹⁰ while Nigeria's energy crisis is more acute despite greater fossil fuel endowments.⁹¹ Thus, Ghana's concentrated mineral geography enables more focused infrastructure investment; Nigeria's dispersed deposits require broader infrastructure networks.

4.3.2 *Comparative assessment of policy effectiveness*

Regarding legal and fiscal frameworks, Nigeria's Minerals and Mining Act requires a comprehensive revision to address transition minerals and, specifically, resolve jurisdictional conflicts.⁹² Ghana's mining legislation is more coherent but suffers from fiscal regime inadequacies that limit value capture. Both countries would benefit from explicit transition minerals strategies aligned with the AGMS. However, in terms of implementation track record, Ghana's Integrated Aluminium Industry remains unrealised after decades of attempts,

Implications for national economic development and poverty reduction' in B Campbell (ed) *Mining in Africa: Regulation and development* (2009) 1, 15-18.

89 CD Ofoegbu and others 'Institutional framework for solid minerals development in Nigeria' (2016) 5 *Resources Policy* 234.

90 Energy Commission of Ghana (n 31); World Bank, Ghana: Renewable Energy Transformation Project (2023) Implementation Status Report.

91 REN21 Renewables 2024 Global Status Report: Nigeria Country Profile (2024) 45-48.

92 AY Ajibade 'Critical analysis of the Nigerian Minerals and Mining Act 2007' (2019) 11 *Journal of Law, Policy and Globalisation* 78; D Olawuyi *Extractive industries law in Africa* (2018) 145-168; GHEITI (n 32) 42-58.

highlighting capacity constraints despite policy ambition.⁹³ Nigeria's six-processing-plant initiative shows concrete progress but raises sustainability questions.⁹⁴ Ghana's success in attracting investment in lithium exploration contrasts with Nigeria's conditional-access approach, which prioritises processing over exploration.⁹⁵ Another key issue is foreign direct investment attraction and conditionality. Nigeria's firm stance on local processing requirements has both deterred opportunistic investors (such as Tesla) and attracted committed partners willing to establish integrated operations.⁹⁶ Ghana's more accommodating approach has accelerated exploration and production, but risks perpetuating dependence on raw material exports.⁹⁷ The economic viability analysis for Ghana's lithium refining illustrates the genuine trade-offs between domestic processing and export revenues; not all beneficiation is immediately profitable.

4.3.3 *Convergent challenges*

Despite different strategic approaches, Ghana and Nigeria confront remarkably similar structural constraints. Both countries' industrialisation ambitions are fundamentally constrained by inadequate, unreliable and expensive electricity supply.⁹⁸ Energy-

93 N Mutemeri 'Mineral resource governance in Africa: A comparative study' (IDEA 2025), <https://www.idea.int/sites/default/files/2025-02/mineral-resource-governance-in-africa-a-comparative-study.pdf> (accessed 12 January 2026).

94 As above.

95 As above.

96 P Haslam & PA Heidrich (eds) *The political economy of natural resources and development* (2016) 156-178; Barron and others (n 24) 8-12.

97 As above.

98 International Renewable Energy Agency (IRENA) 'Renewable energy market analysis: Africa and its regions' (2022) 45-58, <https://www.irena.org/publications/2022/Jan/Renewable-Energy-Market-Analysis-Africa>

intensive mineral processing is not commercially viable without affordable, reliable power. Insufficient geological surveys and mapping limit investor confidence and strategic planning in both countries.⁹⁹ Neither has invested adequately in generating comprehensive geoscience data. Also, local technical expertise in lithium processing, rare-earth refining and battery manufacturing is limited in both contexts, necessitating extensive capacity building or reliance on foreign technical partnerships.¹⁰⁰ Similarly, regarding economies of scale and market access, individual country markets are too small to enable economies of scale in processing and manufacturing. Both countries would benefit from regional integration through AfCFTA to access wider markets.¹⁰¹ Similarly, despite differences in institutional structures, both countries score poorly on governance and transparency indices, deterring long-term patient capital necessary for industrial transformation.¹⁰²

(accessed 10 January 2026); African Development Bank *Africa Energy Outlook 2024, Driving Africa's Transformation The Reform of the Global Financial Architecture* (2024) 67-89 https://www.afdb.org/sites/default/files/documents/publications/african_economic_outlook_aeo_2024_0.pdf (accessed 12 January 2026).

99 AMDC State of Mining in Africa Report 2023 (2024) 28-35; World Bank Extractive Industries Transparency Initiative: Technical Assistance for Geological Surveys (2023) Project Document 8-15.

100 UNESCO Engineering: Issues, challenges and opportunities for development in Africa (2010) 67-85.

101 AfCFTA 'Secretariat, state of African Continental Free Trade Implementation Report 2024' (2024) 35-48; Farooki (n 4) 25-32; Fessehaie & Rustomjee (n 8) 620-628.

102 Transparency International Corruption Perceptions Index 2024 (2024) (Ghana scoring 43/100, Nigeria 25/100); NRGI, Resource Governance Index 2021 (2021).

4.3.4 *Transferable lessons*

Ghana could adopt Nigeria's firmer stance on conditional access, requiring processing commitments as a prerequisite for mining licenses. The model of geopolitically dispersed processing plants offers insights into inclusive regional development. Similarly, Nigeria could learn from Ghana's more consolidated regulatory framework and efforts to attract exploration investment before mandating processing. Ghana's incremental approach to beneficiation, accepting that not all processing stages are immediately viable, represents pragmatic realism. Both countries demonstrate that policy ambition alone is insufficient without addressing foundational constraints: energy infrastructure, governance effectiveness and implementation capacity. The most critical insight is that transition minerals-led industrialisation requires simultaneous reforms across legal frameworks, infrastructure investment and institutional capacity, as piecemeal approaches will fail.

4.3.5 *Toward context-specific pathways*

The comparative analysis reveals that there is no single optimal pathway to transition minerals industrialisation. Ghana's partnership-oriented, incremental approach and Nigeria's assertive, nationalist strategy each have merits and limitations shaped by distinct political economy contexts.¹⁰³ The challenge for both countries is not to replicate each other's models but to learn selectively, adapting insights to their specific institutional capabilities, resource

103 P Collier & AJ Venables *Plundered nations? Successes and failures in natural resource extraction* (2011) 234-256.

endowments and political realities.¹⁰⁴ Both pathways can succeed, but only if accompanied by foundational reforms: comprehensive transition-minerals strategies aligned with AGMS, substantial investment in energy infrastructure, strengthened governance and reduced corruption, enhanced geological data, and effective leverage of regional integration mechanisms. Without these enabling conditions, neither country's approach will deliver sustainable industrialisation.

5 Conclusion: From mineral wealth to industrial development

Ghana and Nigeria stand at a critical juncture in the global energy transition. Their abundant transition mineral reserves offer genuine pathways to industrialisation, but realising this potential requires confronting deep-seated structural constraints: governance deficits, infrastructure inadequacies and energy crises. Neither country can rely on mineral wealth alone; industrial transformation demands simultaneous reforms across legal frameworks, institutional capacity, infrastructure investment and regional integration. The comparative analysis reveals that different strategic approaches, Ghana's incremental pragmatism versus Nigeria's assertive conditionality, can both succeed if accompanied by foundational enabling conditions. The recommendations presented are deliberately context-specific, recognising that minerals-led industrialisation pathways must be tailored to distinct political economy contexts and institutional capabilities. Ultimately, whether the energy transition becomes an

¹⁰⁴ D Dolowitz & D Marsh 'Learning from abroad: The role of policy transfer in contemporary policy-making' (2000) 13 *Governance* 5; R Rose 'What is lesson-drawing?' (1991) 11 *Journal of Public Policy* 3.

opportunity for African industrial development or perpetuates the resource curse depends on the policy choices made today. Ghana and Nigeria must act decisively to implement comprehensive transition minerals strategies, invest in enabling infrastructure, strengthen governance institutions and leverage continental frameworks. The global rush for transition minerals creates unprecedented leverage for resource-rich African countries, but this window of opportunity will not remain open indefinitely.

Bibliography

- Acemoglu, D & Robinson, JA *Why nations fail: The origins of power, prosperity, and poverty* (Crown Publishers 2012)
- Acheampong, T & Tyce, M 'Navigating the energy transition and industrial decarbonisation: Ghana's latest bid to develop an integrated bauxite-to-aluminium industry' (2024) 107 *Energy Research and Social Science* 103337
- Acheampong, T & Tyce, M 'The politics of creating markets for localisation: Insights from the Ghanaian downstream petroleum sector' (2019) 164 *World Development* 104
- Acheampong, T 'Ghana's extractive sector: Recent trends and outlook' (2024) *OECD Development Centre Policy Brief* 3-6
- Ajibade, AY 'Critical analysis of the Nigerian Minerals and Mining Act 2007' (2019) 11 *Journal of Law, Policy and Globalisation* 78
- Akabzaa, N 'Mining in Ghana: Implications for national economic development and poverty reduction' in Campbell, B (ed) *Mining in Africa: Regulation and development* (Pluto Press 2009) 15-18
- Anyemedu, K 'The politics of industrialisation in Ghana: The aluminum industry' (1993) 20 *African Review of Political Economy* 71
- Attride-Stirling, M 'Thematic networks: An analytic tool for qualitative research' (2001) 1 *Qualitative Research* 385
- Barron, KC, Clube, RKM, Chabala, R, Matokwani, M, & Chikwamo, MJ 'Value addition for whom? Challenges to local participation in downstream critical mineral ventures in Zambia' (2024) 20 *The Extractive Industries and Society* 101554
- Boafo, J, Dotsey, S & Spencer, R 'Energy transition diplomacy: The EU's pursuit of Africa's critical minerals for renewable energy at whose expense?' (2025) 127 *Energy Research and Social Science* 104213
- Braun, V & Clarke, V 'Using thematic analysis in psychology' (2006) 3 *Qualitative Research in Psychology* 77

- Campbell, G (ed) *Mining in Africa: Regulation and development* (Pluto Press 2009)
- Chukwuma, O 'Resource nationalism in the 21st century: Nigeria's minerals sector' (2024) 15 *Journal of African Law* 234
- Collier, P & Venables, AJ *Plundered nations? Successes and failures in natural resource extraction* (Palgrave Macmillan 2011)
- Dolowitz, D & Marsh, D 'Learning from abroad: The role of policy transfer in contemporary policy-making' (2000) 13 *Governance* 5
- Farooki, M & Kaplinsky, R *The impact of China on global commodity prices: The global reshaping of the resource sector* (Routledge 2012)
- Farooki, M 'The diversification of the mineral economies: A review of the main issues and options' in Haslam, P & Heidrich, P (eds) *The political economy of natural resources and development* (Routledge 2016) 71-88
- Fessehaie, J & Rustomjee, L 'Resource-based industrialisation in Southern Africa: Domestic policies, corporate strategies and regional dynamics' (2018) 49 *Development Southern Africa* 616
- Flyvbjerg, B 'Five misunderstandings about case-study research' (2006) 12 *Qualitative Inquiry* 219
- Gereffi, G & Fernandez-Stark, K *Global value chain analysis: A primer* (Duke University Centre on Globalisation, Governance & Competitiveness 2016)
- Gereffi, G 'Global value chains in a post-Washington consensus world' (2014) 21 *Review of International Political Economy* 9
- Gereffi, G, Humphrey, J & Sturgeon, T 'The governance of global value chains' (2005) 12 *Review of International Political Economy* 78
- Haslam, P & Heidrich, PA (eds) *The political economy of natural resources and development* (Routledge 2016)
- Hilson, J & Hilson, G 'Entrepreneurship, poverty and businessification: Youth in contemporary artisanal and small-scale gold mining in Ghana' (2015) 69 *African Affairs* 116

- Hinshaw, JJ 'A review of the African Mining Vision' (2010) 43 *Journal of Energy and Natural Resources Law* 153
- Kaplinsky, R & Morris, M 'Do the Asian drivers undermine export-oriented industrialisation in SSA?' (2008) 36 *World Development* 254
- Kola, TT 'Mineral beneficiation: A continuing African paradox or a panacea for economic growth and skills development' Master's dissertation, University of Pretoria, 2019
- Morris, M & Fessehaie, N 'The industrialisation challenge for Africa: Towards a commodities based industrialisation path' (2014) 1 *Journal of African Trade* 1
- North, DC *Institutions, institutional change and economic performance* (Cambridge University Press 1990)
- Ofoegbu, CD 'Legal and institutional framework for solid minerals development in Nigeria' (2015) 8 *IOSR Journal of Humanities and Social Science* 46
- Olaore, O 'Revisiting the Nigerian minerals and mining sector: An x-ray of the legal and regulatory framework' (2019) 25 *Annual Survey of International and Comparative Law* 197, 210-215
- Olawuyi, D *Extractive industries law in Africa* (Routledge 2018)
- Olawuyi, D, Bright, C, Goethals, S & Hasan, Q 'Beyond just transition: Advancing responsible and rights-based business practices in the energy and extractives sector' (2025) 10 *Business and Human Rights Journal* 1-10
- Ouedraogo, NS & Kilolo, JMM 'Africa's critical minerals can power the global low-carbon transition' (2024) 6 *Progress in Energy* 1-14
- Ragin, CG *The comparative method: Moving beyond qualitative and quantitative strategies* (University of California Press 1987)
- Rose, R 'What is lesson-drawing?' (1991) 11 *Journal of Public Policy* 3
- Sachs, JD & Warner, AM 'The curse of natural resources' (2001) 45 *European Economic Review* 827

Watts, MJ 'Resource curse? Governmentality, oil and power in the Niger Delta, Nigeria' (2004) 15 *Geopolitics* 50

Yin, RK *Case study research and applications: Design and methods* (Sage 2018)

Reports and online sources

Acheampong, T 'The energy transition and critical minerals in Ghana: Diversification opportunities and governance challenges' (The Extractive Industries Transparency Initiative EITI, May 2022)

Advisors Reports 'Nigeria's second lithium factory takes off in Abuja with \$50M investment' (31 July 2024) <https://advisorsreports.com> (accessed 8 January 2026)

AfCFTA Secretariat 'State of African continental free trade implementation report 2024' (AfCFTA Secretariat 2024) 35-48

African Continental Free Trade Area Agreement, done at Kigali, 21 March 2018 (entered into force 30 May 2019) <https://au.int/en/treaties/agreement-establishing-african-continental-free-trade-area> (accessed 8 January 2026)

African Development Bank *Africa energy outlook 2024: Driving Africa's transformation – The reform of the global financial architecture* (African Development Bank Group 2024) 67-89 https://www.afdb.org/sites/default/files/documents/publications/african_economic_outlook_aeo_2024_0.pdf (accessed 12 January 2026).

African Development Bank 'African economic outlook 2024' (African Development Bank Group 2024) 89-112

African Development Bank Group 'Critical minerals for Africa's inclusive growth and development' (African Development Bank Group, May 2025, Abidjan) 8-15

African Energy Chamber 'Africa's critical minerals and the future of the global energy transition' (12 January 2026) <https://energychamber.org/>

- africas-critical-minerals-and-the-future-of-the-global-energy-transition/
(accessed 20 January 2026)
- African Minerals Development Centre ‘Annual report 2023’ (AMDC 2024)
8-15
- African Union ‘Africa mining vision’ (February 2009) https://au.int/sites/default/files/documents/30984-doc-africa_mining_vision_english.pdf
(accessed 8 January 2026)
- African Union ‘African green minerals strategy 2025-2040’, adopted by AU
Assembly Decision Assembly/AU/Dec.1056(XLII) (February 2025)
- African Union Commission ‘Agenda 2063: The Africa we want – framework
document’ (AU Commission 2015) 45-48
- Akabzaa, T & Darimani, A ‘Impact of mining sector investment in Ghana:
A study of the Tarkwa mining region’ (Third World Network-Africa 2001)
23-35
- AMDC ‘State of mining in Africa report 2023’ (AMDC 2024) 28-35
- Andreoni, A & Avenyo, E ‘Critical minerals and routes to diversification in
Africa: Opportunities for diversification into mobile phone technologies
– The case of the Democratic Republic of Congo’, background paper
commissioned by the UNCTAD secretariat for the 2023 edition of the
Economic Development in Africa Report (August 2023)
- Anku, NEL ‘A critical review and analysis of opportunities and challenges
for just transitions in Ghana’ (South to South Just Transitions & Climate
Strategies 2024)
- Atlantic Lithium Ltd ‘Ewoyaa lithium project definitive feasibility study’
(October 2023) <https://atlanticlithium.com.au> (accessed 8 January 2026)
- AU Assembly Decision Assembly/AU/Dec.224(XII) (February 2009)
- Business Day ‘Tinubu welcomes Nigeria’s largest lithium plant’ (31 July 2024)
<https://businessday.ng> (accessed 8 January 2026)
- Energy Commission of Ghana *Energy outlook for Ghana* (Energy Commission
of Ghana 2024) 45-52

- Federal Ministry of Solid Minerals Development (Nigeria) 'Nigeria mineral sector development roadmap 2024' (2024) 18-25
- Federal Ministry of Solid Minerals Development (Nigeria) 'Nigeria mining cadastre portal' (2024)
- Federal Ministry of Solid Minerals Development (Nigeria) 'Roadmap for the development of Nigeria's solid minerals and metals sector 2016-2025' (2016)
- Geological Survey of Nigeria 'Mineral resources map of Nigeria' (Geological Survey of Nigeria 2022)
- Ghana Extractive Industries Transparency Initiative 'Report on mining sector 2021-2022' (June 2024) 28-35 <https://eiti.org/sites/default/files/2021%202022%20GHEITI%20Mining%20Report.pdf> (accessed 12 January 2026)
- Ghana Geological Survey Authority 'Annual report 2023' (Ghana Geological Survey Authority 2024) 12-18
- Ghana Geological Survey Authority 'Mineral deposits of Ghana' (Ghana Geological Survey Authority 2023) <https://www.gsa.gov.gh> (accessed 8 January 2026)
- Ghana Minerals Commission 'Mining sector support programme' (Ghana Minerals Commission 2022)
- International Energy Agency 'The role of critical minerals in clean energy transitions' (IEA 2021) 5 <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions> (accessed 8 January 2026)
- International Renewable Energy Agency 'Renewable energy market analysis: Africa and its regions' (IRENA 2022) 45-58 <https://www.irena.org/publications/2022/Jan/Renewable-Energy-Market-Analysis-Africa> (accessed 10 January 2026)
- Jentel, L & Cloete, D 'Digging deeper: Embedding minerals sovereignty in Africa's mining value chains' (South African Institute of International Affairs Policy Insights 161, February 2025) <https://saiia.org.za/wp->

content/uploads/2025/02/PI-161-FP-Jentel-Cloete-CORRECTED-VERSION.pdf (accessed 25 November 2025)

- Joseph, A 'Navigating governance challenges in African transition mineral supply chains' (South African Institute of International Affairs Policy Insights 151, May 2024) <https://saiia.org.za/research/navigating-governance-challenges-in-african-critical-mineral-supply-chains/> (accessed 8 January 2026)
- Lanzano, C, Levin, J and Mususa 'Yesterday mineral supplier, tomorrow battery producer: How green industrialisation can push Africa's economies up the global value chains' (Nordic Africa Institute, Policy Notes 2024) 2
- Mathe, MK, Dolla, TH, Ajayi, SO, Sikeyi & Palaniyandy, N 'Africa's potential in processing critical minerals' (Proceedings of the 2nd Battery Materials Conference, South African Institute of Mining and Metallurgy, Mbombela, Mpumalanga, 6-7 August 2024) <https://www.saimm.co.za/Conferences/files/battery-materials-2024/Battery%20Materials%202024%20-%20Proceedings%20Book.pdf> (accessed 8 January 2026)
- Ministry of Energy (Ghana) 'National energy transition framework 2022-2070: Abridged version' (Ministry of Energy, Accra, 2022)
- Mutemeri, N *Mineral resource governance in Africa: A comparative study* (International Institute for Democracy and Electoral Assistance 2024) 8, 45-78 <https://www.idea.int/sites/default/files/2025-02/mineral-resource-governance-in-africa-a-comparative-study.pdf> (accessed 12 January 2026)
- Natural Resource Governance Institute '2021 resource governance index results: Africa regional report' (NRGI 2021) 12-25 https://resourcegovernance.org/sites/default/files/documents/2021_resource_governance_index.pdf (accessed 20 January 2026)
- NEITI 'Nigeria extractive industries transparency initiative report 2022' (NEITI 2023) 35-48
- Nigerian Investment Promotion Commission 'FG to build 6 solid minerals processing plants', press release (19 February 2022) <https://www.nipc.gov.ng> (accessed 8 January 2026)

- Oluwatola, T 'Developing Nigeria's critical minerals industry to support the global energy transition' (Africa Policy Research Institute, January 2025) <https://afripoli.org/developing-nigerias-critical-minerals-industry-to-support-global-energy-transition> (accessed 8 January 2026)
- REN21 'Renewables 2024 global status report: Nigeria country profile' (REN21 2024) 45-48
- Scurfield, T & Adjei, DS 'Refining the strategy: The economics of lithium value addition in Ghana' (Natural Resource Governance Institute, March 2025)
- Transparency International 'Corruption perceptions index 2024' (Transparency International 2024) (Ghana scoring 43/100; Nigeria 25/100)
- UNCTAD 'Commodities and development report 2023: Critical minerals for the energy transition' (UN publication 2023) 45-48, 52-54 <https://unctad.org/publication/commodities-and-development-report-2023> (accessed 8 January 2026)
- UNECA 'Economic report on Africa 2013: Making the most of Africa's commodities – Industrialising for growth, jobs and economic transformation' (Economic Commission for Africa 2013, Addis Ababa)
- UNECA 'Scaling up value creation and local development in the mining sector in Ghana' (Economic Commission for Africa 2018, Addis Ababa)
- UNECA & AMDC 'African minerals development centre: Linkages, investment and diversification — harnessing mineral resources for Africa's transformation' (Economic Commission for Africa 2017, Addis Ababa) 5-12 https://archive.uneca.org/sites/default/files/PublicationFiles/linkages_brochure.pdf (accessed 8 January 2026)
- World Bank 'Extractive industries transparency initiative: Technical assistance for geological surveys' (2023) Project Document 8-15
- World Bank 'Ghana: Renewable energy transformation project' (2023) Implementation Status Report
- World Bank 'Leveraging local content decisions for industrial development: Mining and oil and gas' (World Bank 2020, Washington DC) 25-45

Cases

Attorney-General of the Federation v Attorney-General of Abia State & 35 Others
(2002) 6 NWLR (Pt 764) 542 (SC)

Laws and policies

Environmental Protection Authority Act 1124 of 2025 (Ghana)

Ghana Minerals Commission Act (PNDCL 310) of 1993 (Ghana)

Government of Ghana ‘Ghana national export development strategy 2024-2028’ (Government of Ghana 2024)

Export Control Law of the People’s Republic of China, Law 58 of 2020

Ministry of Energy (Ghana) ‘National energy transition framework 2022-2070: Abridged version’ (Ministry of Energy, Accra, 2022)

Nigerian Minerals and Mining Act 2007 (Cap M12 LFN 2004) ss 1-3, 44-50

Nigerian Minerals and Mining Regulations 2011

Regulation (EU) 2024/1252 of the European Parliament and of the Council of 11 April 2024 establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1724

United States Inflation Reduction Act, Pub L No 117-169 (2022)

Rethinking transition minerals and just energy futures in Africa: The cases of Namibia, Guinea and Morocco

Oyeniya Abe

Abstract: *Africa is home to abundant transition minerals that are central to global decarbonisation efforts. Yet, the continent's experience reveals deep inequities in how the benefits and burdens of the energy transition are distributed. This chapter applies the framework of energy justice to examine how the extraction and governance of transition minerals shape Africa's development trajectory. Drawing on case studies from Guinea, Morocco and Namibia, it analyses how distributive, procedural, recognitional, restorative and cosmopolitan dimensions of energy justice intersect with national and regional transition-minerals policy regimes. The analysis highlights persistent injustices arising from land displacement, labour exploitation, marginalisation of indigenous and local communities, gendered exclusion and the externalisation of environmental costs. The chapter argues that achieving a just energy transition in Africa requires moving beyond extraction-driven and investment-centric models toward governance that prioritises human rights, community participation and environmental restoration. By centring energy justice, the chapter reframes Africa's role in transition minerals and the global*

decarbonisation agenda as a struggle not merely for green growth, but for equitable, dignified and sustainable development.

1 Introduction

This chapter examines the meaning, role and regulation of transition minerals in Africa's energy transition through a human rights lens. The global shift toward low-carbon futures has intensified demand for transition minerals such as cobalt, lithium and rare earths.¹ Africa, which holds these resources in abundance, has become the focus of a new resource rush – one that is driving significant social and environmental challenges.² Communities in mineral-rich regions frequently experience dispossession, exploitative labour practices, gender-based harms and environmental destruction.

Existing studies have acknowledged the relevance of laws and policies governing transition minerals.³ However, what is largely missing is an in-depth examination of the justice deficits that hinder a rights-based approach to transition minerals management. The absence of such an approach weakens the protection of human rights in the extraction and use of transition minerals across the continent. This chapter addresses this gap by highlighting the need for a human rights-based approach to Africa's energy transition, one that prioritises distributive, procedural, recognitional, restorative

1 O Abe 'Towards a human rights-based approach to energy transition in Africa' (2025) 10 *Business and Human Rights Journal* 11-33.

2 T Alex-Oke and others 'Renewable energy market in Africa: Opportunities, progress, challenges, and future prospects' (2025) 59 *Energy Strategy Reviews* 101700.

3 D Brown, R Zhou & M Sadan 'Critical minerals and rare earth elements in a planetary just transition: An interdisciplinary perspective' (2024) 19 *The Extractive Industries and Society* 101510.

and cosmopolitan dimensions of energy justice. The chapter situates Africa's transition minerals within the energy justice framework, which provides a holistic lens to assess equity, participation and accountability across the energy value chain. The concern, therefore, is not only to transition to renewable energy, but also to ensure that this transition does not exacerbate inequality, labour displacement, or environmental harm.

The chapter adopts a multi-regional perspective, drawing on case studies from Guinea, Morocco and Namibia, to examine how diverse African states are incorporating regional legal and policy instruments into their national frameworks. The chapter argues that a just transition in Africa must be anchored on development that prioritises energy access, poverty reduction and economic sovereignty. This involves reimagining development in ways that challenge colonial economic models and prioritise justice. To ensure this, African governments must formulate home-grown national action plans, grounded in energy justice principles, thereby reducing reliance on external actors and securing long-term sustainability. The chapter advances just energy futures, framing the production and management of transition minerals not simply as a response to global decarbonisation demands, but as a pivotal opportunity to reimagine Africa's sustainable development pathways.

The chapter is structured as follows: After this introduction, part 2 discusses energy justice dimensions and how they regulate the sustainable extraction of transition minerals. It further examines how the costs and burdens of extracting transition minerals are distributed in Africa. Part 3 discusses the legal and governance frameworks that guide energy transitions in Africa, highlighting national and continental policies that can ensure a just transition. Part 4 examines key gaps in the legal and governance frameworks and limitations in applying the energy justice framework to

energy transition projects across the case study countries. Part 5 presents practical recommendations for promoting the responsible production and management of transition minerals, while part 6 concludes the chapter.

2 Theoretical framework: The dimensions of energy justice

The shift toward renewable energy has placed two key concepts into sharp focus: transition minerals and energy justice. Transition minerals refer to raw materials such as lithium, cobalt, nickel and copper.⁴ These resources are indispensable for manufacturing technologies such as electric vehicle (EV) batteries, solar panels and wind turbines. Their importance lies not only in their role in decarbonisation, but also in the global competition for their supply. However, extracting these minerals is fraught with environmental and social risks. Mining these minerals often causes deforestation, water pollution, biodiversity loss and land degradation. The local communities where these minerals are extracted often bear the brunt of displacement, unsafe labour conditions and limited economic benefits.⁵ Accordingly, discussions about transition minerals increasingly emphasise the need for responsible, rights-respecting and sustainable management.

Several international and regional instruments – such as the United Nations (UN) Guiding Principles on Business and Human Rights and the African Union (AU)’s 2012 Resolution on a Human Rights-Based Approach to Natural Resource Governance

4 IEA ‘The role of critical minerals in clean energy transitions’, <https://iea.blob.core.windows.net/assets/ffd2a83b-8c30-4c9d-980a-52b6d9a86fdc/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf> (accessed 24 September 2025).

5 As above.

– affirm that companies, including those in the energy sector, must uphold human rights and apply a justice lens in their practices and investments.⁶ Without integrating an energy justice lens, efforts to expand access to modern energy risk causing harm, worsening climate change and aggravating human rights challenges, particularly for already vulnerable populations.⁷ Therefore, this chapter utilises energy justice as the theoretical framework.

Energy justice is a framework designed to ensure equity across the entire energy system, including in the extraction of transition minerals. Energy justice is about who benefits from the end product of transition minerals, who bears the costs of energy decisions, and whose voices are heard in the production of raw materials for public consumption.⁸ This is especially important because transition minerals constitute the starting point of the energy system. The energy transition does not begin with electricity generation or end-use consumption; rather, it begins upstream, at the point of mineral extraction.⁹ Accordingly, the energy justice framework must be applied across the entire energy lifecycle, which encompasses mineral extraction, processing and refining, manufacturing, consumption and eventual disposal. Scholars often distinguish five dimensions

6 O Abe *Implementing business and human rights policies in Africa: Law and policy interventions* (2022) 8.

7 D Olawuyi 'Energy (and human rights) for all: Addressing human rights risks in energy access projects' in R Salter, CG Gonzalez & WE Kronk (eds) *Energy justice: US and international perspectives* (2018) 73-104.

8 K Jenkins and others 'Energy justice: A conceptual review' (2016) 11 *Energy Research and Social Science* 174-182; N Bruehwiler and others 'Energy justice in innovative living spaces: Examining positive energy districts and ecovillages in Europe' (2025) 127 *Energy Research & Social Science* 104248.

9 As above.

of energy justice: distributive, procedural, recognitional, restorative and cosmopolitan.¹⁰

Distributional justice addresses the unequal allocation of benefits and burdens, as well as the uneven distribution of the responsibilities associated with them.¹¹ The dimension demands the fair distribution of environmental benefits and harms across society, irrespective of income, race or social status.¹² In the energy context, distributional justice directs attention to the spatial concentration of environmental risks and harms, such as those experienced by communities near energy production facilities, where justice concerns frequently arise.¹³ These costs frequently manifest in the form of environmental degradation, displacement, labour exploitation and social conflict.¹⁴ In the Democratic Republic of the Congo (DRC), for example, the growth of large-scale mining projects has led to widespread displacement, with families and entire communities being removed from their homes and farmland. These evictions are often carried out without meaningful consultation or participation, with limited or no prior notice, insufficient information provided in advance, unfair compensation and little access to effective remedies.¹⁵ Moreover,

10 A Babalola & DS Olawuyi 'Overcoming regulatory failure in the design and implementation of gas flaring policies: The potential and promise of an energy justice approach' (2022) 14 *Sustainability* 6800.

11 G Walker & R Day 'Fuel poverty as injustice: Integrating distribution, recognition and procedure in the struggle for affordable warmth' (2012) 49 *Energy Policy* 69.

12 N Ulibarri, OP Figueroa & A Grant 'Barriers and opportunities to incorporating environmental justice in the National Environmental Policy Act' (2022) 97 *Environmental Impact Assessment Review* 106880.

13 A Garvey and others 'A "spatially just" transition? A critical review of regional equity in decarbonisation pathways' (2022) 88 *Energy Research & Social Science* 102630.

14 As above.

15 As above.

because women in many communities already face systemic disadvantages – such as entrenched discrimination, traditional practices and gender stereotypes – the consequences of distributive injustice are disproportionately borne by them.¹⁶ In the absence of an energy justice lens, legal and regulatory frameworks designed to regulate the extraction of transition minerals risk overlooking the disproportionate burdens borne by women and marginalised communities, leaving them exposed to disproportionate harms. Distributional justice also includes a global element, as the benefits associated with transition minerals – including access to clean energy and economic profits – are disproportionately concentrated in consuming states, mostly the Global North countries. By contrast, the costs of extraction are largely borne by producing regions in the Global South, particularly by indigenous peoples and rural communities situated within weakly regulated jurisdictions.

Second, procedural justice requires that community voices be meaningfully included in decisions about new mining projects.¹⁷ Local communities, including indigenous peoples, women and other marginalised groups, are often excluded from crucial decisions regarding mining operations that directly affect their land and livelihoods.¹⁸ Decision-making processes often fail to include adequate public consultation or informed consent, while mining projects frequently encroach on the traditional territories of indigenous peoples, whose land rights may not be legally recognised

16 Babalola and Olawuyi (n 10) 4.

17 B Spiller, T Htun & K Shah 'Community engagement and participatory inclusion in mining: Challenges, barriers, and opportunities', https://media.rff.org/documents/WP_25-08_PHBFNYf.pdf (accessed 2 November 2025).

18 As above.

or are disregarded.¹⁹ This severely weakens their bargaining position and can lead to land dispossession and the loss of cultural heritage.²⁰ In the absence of an energy justice framework that ensures the involvement of marginalised and at-risk groups in governance processes, regulatory frameworks governing the mining of transition minerals may leave affected communities without effective remedies.

Third, recognitional justice requires that individuals and groups be fairly acknowledged as rights-bearing actors, protected from physical harm, and afforded standing in decision making.²¹ Injustice arises not only through non-recognition but also through misrecognition – where individuals or communities are stereotyped, marginalised, or their perspectives distorted in ways that are demeaning or contemptuous.²² There are concerns about how the process of extracting transition minerals may fail to recognise and value the diverse identities, cultures and knowledge of marginalised groups. A lack of acknowledgment of these groups' histories, rights and experiences can lead to recognition injustice, resulting in systemic exclusion and identity-based discrimination that exacerbate the environmental burdens borne by local or indigenous communities.²³ Consequently, the unsustainable extraction of transition minerals can deepen social exclusion, especially for marginalised groups such as women, the youth and indigenous peoples.²⁴ Ignoring these

19 Abe (n 6).

20 Abe (n 1).

21 Walker & Day (n 11).

22 Jenkins and others (n 8).

23 O Asiamah and others 'Natural resource dependence and institutional quality: Evidence from sub-Saharan Africa' (2022) 79 *Resources Policy* 102967.

24 ES Rentier, C Hoorn & AC Seijmonsbergen 'Lithium brine mining affects geodiversity and Sustainable Development Goals' (2024) *Renewable and Sustainable Energy Reviews* 114642.

lived realities risks perpetuating systemic injustices, eroding trust between communities, governments and industry, and undermining the legitimacy of energy governance frameworks. The failure to ensure recognitional justice at the local level has broader global repercussions: It impedes the attainment of energy security, weakens commitments to just transition, and threatens progress toward international climate and sustainable development goals.

Fourth, restorative justice provides a framework for addressing the harms caused by the extraction of transition minerals.²⁵ The rapidly increasing demand for these minerals, critical for green energy technologies, places African communities at risk of repeating the exploitative and extractive patterns of the past. For instance, solar energy projects demand vast areas of land, while hard-rock lithium mining and processing are highly water-intensive.²⁶ These activities often result in land and water pollution, soil degradation and biodiversity loss, thereby damaging ecosystems on which local communities rely for survival. When policies on remediation or environmental restoration are vague, insufficient or enforced inconsistently, the extraction of transition minerals creates restorative injustice. Many African states lack comprehensive legislation addressing energy justice and just transition.²⁷ Even where regulatory frameworks impose penalties or fines, these measures are often minimal and inadequate to deter irresponsible mineral extraction.

25 M Hazrati & RJ Heffron 'Conceptualising restorative justice in the energy transition: Changing the perspectives of fossil fuels' (2021) 78 *Energy Research & Social Science* 102115.

26 C Dowling & G Otero 'Mirages or miracles? Lithium extraction and the just energy transition' (2025) 119 *Energy Research & Social Science* 103862.

27 O Abe & V Azubike '(Re)examining the intersection between energy justice and energy transition in Africa' (2024) 42(3) *Journal of Energy & Natural Resources Law* 279-299.

For example, a 2023 Global Witness report noted that mining projects for ‘clean energy’ minerals in Zimbabwe and Namibia have replicated historical patterns of exploitation, environmental degradation and human rights abuse.²⁸

Fifth, the extraction of transition minerals could implicate cosmopolitan justice negatively. Cosmopolitan justice requires energy operators to consider the global impacts of their resource extraction activities on all people, not just those within national borders.²⁹ For energy operators, this means recognising that the benefits and burdens of energy production are often unequally distributed globally. For example, the extraction of raw materials in developing countries for clean energy technologies can lead to environmental degradation and human rights abuses borne by local populations, while the benefits are enjoyed in other global regions. Most African countries export raw, unrefined minerals rather than adding value through domestic processing. This means that most of the profits are captured by foreign corporations and governments, continuing a historical trend of resource exploitation that benefits the Global North at the expense of African development.³⁰ Thus, irresponsible extraction of transition materials poses significant cosmopolitan injustice that could undermine the clean energy transition it enables. The International Energy Agency projects that by 2040,

28 28 Global Witness ‘Annual report 2023: Challenging polluters, championing people’ 2023, <https://globalwitness.org/en/about-us/annual-reports/annual-report-2023-challenging-polluters-championing-people/> (accessed 19 September 2025).

29 N Healy, JC Stephens & SA Malin ‘Embodied energy injustices: Unveiling and politicising the transboundary harms of fossil fuel extractivism and fossil fuel supply chains (2019) 48 *Energy Research & Social Science* 219-234.

30 O Abe ‘Between control and confrontation: The pitfalls and potentials of corporate-community participatory development in Africa’s energy and extractive industries’ (2022) 11 *The Extractive Industries and Society* 101095.

the demand for key minerals could rise by as much as 40 times for lithium and 20 to 25 times for cobalt and nickel compared to 2020 levels in a net-zero emissions scenario.³¹ More than 67 litigation cases have been filed against companies involved in mining transition minerals since 2009, by affected indigenous peoples, communities and workers.³² The vast majority of suits allege environmental and human rights abuses.³³ To design and implement holistic energy policies that address cosmopolitan injustices, policy makers and energy sector stakeholders must recognise that climate solutions in one country can create unintended socio-environmental problems elsewhere. Holistic strategies require embedding justice and equity throughout the energy value chain and coordinating efforts across different sectors and borders.

Given these significant energy justice implications of transition minerals, there is an urgent imperative for energy policy makers in Africa to design and implement effective transition mineral policies that address all dimensions of the energy justice risks related to transition minerals. Understanding the root cause of the failure of transition minerals to elevate robust clean energy technology in Africa will enable energy policy makers to be better equipped to design effective policies that can overcome such gaps.

31 International Energy Agency 'Mineral requirements for clean energy transitions', <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/mineral-requirements-for-clean-energy-transitions> (accessed 21 September 2025).

32 Business & Human Rights Resource Centre 'Justice in the transition: Litigating corporate abuse in the shift to clean energy for all – 2025 analysis' 2025, https://media.business-humanrights.org/media/documents/2025_JT_litigation_-_Executive_summary_EN.pdf (accessed 24 September 2025).

33 As above.

3 Regulation of transition minerals in Africa: Case studies from Guinea, Morocco and Namibia

This part of the chapter examines the regulation of transition minerals in three select country case studies, as a basis for comparative analysis through an energy justice lens. Drawing on case studies from Guinea, Morocco and Namibia, it identifies energy justice challenges and gaps that must be addressed to prevent policy failures in the governance of transition minerals, making the case for effective transition mineral policies that enable African nations to control and benefit from their own mineral wealth. These case studies have been selected as they provide several interesting points of comparison.

First, the three countries occupy distinct positions within the transition minerals value chain. Guinea is a paradigmatic extractive country, hosting some of the world's largest reserves of bauxite, a critical input for aluminum used in renewable energy infrastructure. Its economy remains heavily dependent on raw mineral exports, with limited domestic value addition. Namibia represents an emerging transition mineral producer, particularly in lithium, rare earths and uranium, while simultaneously positioning itself as a green hydrogen hub. This dual role places Namibia at the intersection of mineral extraction and downstream energy transition ambitions. Morocco, by contrast, occupies a more advanced position, combining control over transition minerals with significant investments in renewable energy generation, industrial policy and export-oriented green manufacturing.

Second, the cases reflect different governance and regulatory models. Guinea illustrates the challenges of weak regulatory capacity, contested land tenure and limited community participation in large-scale mining. Namibia offers a hybrid model, with comparatively stronger legal institutions and environmental frameworks, yet

persistent tensions around indigenous land rights, benefit sharing and foreign investor dominance. Morocco exemplifies a centralised, state-led development model in which strategic planning and industrial policy have enabled rapid deployment of renewable energy projects, but often with constrained civic participation and uneven regional benefits.

Third, the selected cases capture different historical and geopolitical relationships with global markets. Guinea's mineral sector is deeply embedded in post-colonial extractive dependency;³⁴ Namibia's transition strategy reflects a post-settler-colonial state negotiating sovereignty within green industrial competition;³⁵ and Morocco leverages geopolitical positioning, trade agreements and regional influence to integrate into European energy transition agendas.³⁶

3.1 Guinea's energy transition framework

Guinea is central to Africa's energy transition debates because of its immense bauxite reserves – estimated at 7,4 billion metric tons, the largest in the world – making it a key player in global aluminium supply for solar and power grid infrastructure.³⁷ However, the

34 C Wilhelm '“In Guinea, there are two types of mining companies”: An analysis of the diverse local content approaches of the bauxite mining companies in Guinea' (2023) 83 *Resources Policy* 103581.

35 J Tunn and others 'The German scramble for green hydrogen in Namibia: Colonial legacies revisited?' (2025) 118 *Political Geography* 103293.

36 K Sakhraoui and others 'Energy policy in Morocco: Analysis of the national energy strategy's impact on sustainable energy supply and transformation' (2024) 1 *Next Research* 100072.

37 CS Hendrix 'Guinea faces challenges in building capacity around a critical mineral for energy transitions', <https://www.piic.com/blogs/realtime-economics/2022/guinea-faces-challenges-building-capacity-around-critical-mineral> (accessed 3 November 2025).

country's bauxite-driven development model exposes the paradox of Africa's participation in the global 'green' economy: While its resources enable global decarbonisation, the benefits remain unevenly distributed and the social-ecological costs localised. Guinea's case highlights how a resource-rich nation can simultaneously advance and undermine just-transition principles.

For instance, distributive justice demands equitable sharing of the costs and benefits of resource extraction. In Guinea, this ideal remains largely unrealised. The rapid expansion of bauxite mining in the Boké region has displaced subsistence farmers and degraded farmlands and water sources, resulting in social, environmental and governance challenges that deeply affect local communities.³⁸ Although the 2011 Mining Code (amended in 2013),³⁹ and 2019 Environmental Code,⁴⁰ mandate environmental and social impact assessments and community development funds, compensation remains inconsistent. A 2018 Human Rights Watch report found that many families lost farmland without notice or fair compensation, while men – not women – farmers received most payments.⁴¹ The unequal distribution of compensation and project benefits mirrors the historical patterns of extractive injustice.

Furthermore, although Guinea's Mining Code requires stakeholder consultation and environmental management plans, participation often remains formalistic,⁴² posing a challenge to

38 Human Rights Watch 'What do we get out of it?' 4 October 2018, <https://www.hrw.org/report/2018/10/04/what-do-we-get-out-it/human-rights-impact-bauxite-mining-guinea> (accessed 2 November 2025).

39 Mining Code, art 30-II; art 37-II.

40 Law L/2019/0034/AN of 4 July 2019, on the Environmental Code of the Republic of Guinea.

41 Human Rights Watch (n 38).

42 Wilhelm (n 34) 103581.

recognitional justice. Community consultations are typically confined to information sessions rather than genuine consent processes, leaving local actors without influence over resettlement design or compensation valuation.⁴³ Limited transparency in environmental and social impact assessment review further erodes accountability, while grievance mechanisms – though legally mandated – remain fragmented and inaccessible. As such, procedural justice deficits transform what could be a participatory energy transition into an extractive process that reproduces exclusion.⁴⁴

Despite progressive legislation, Guinea's institutions are insufficiently prepared to translate environmental obligations into practice. For instance, companies often delay or underfund rehabilitation, and there is no clear framework for post-closure community support.⁴⁵ The resulting pollution of rivers and the loss of agricultural productivity illustrate a failure to internalise the ecological costs of extraction.⁴⁶ Additionally, Guinea's bauxite exports feed global aluminium and solar-infrastructure supply chains, yet the developmental gains accrue mainly to foreign corporations and consumer states.⁴⁷ The environmental burdens – deforestation, air pollution, loss of livelihoods – are borne locally. This asymmetry epitomises cosmopolitan injustice: Africa shoulders

43 As above.

44 Natural Resource Governance Institute 'Guinea', <https://resourcegovernance.org/countries/guinea> (accessed 2 November 2025).

45 Human Rights Watch 'Complaint filed against bauxite mining company in Guinea 11 March 2019, <https://www.hrw.org/news/2019/03/11/complaint-filed-against-bauxite-mining-company-guinea#:~:text=The%20communities%20are%20represented%20by,harms%20the%20company%20has%20caused.> (accessed 2 November 2025).

46 As above.

47 Human Rights Watch (n 38).

the ecological cost of the world's decarbonisation without reaping its economic dividends.

3.2 Morocco's energy transition regime

Morocco has emerged as one of Africa's most ambitious and strategically positioned countries in the renewable energy transition. With limited fossil fuel reserves but abundant solar and wind potential, Morocco has roughly 70 per cent of the world's phosphate rock reserves,⁴⁸ the country has pursued an aggressive renewable energy agenda aimed at achieving over 50 per cent of its electricity generation from renewables by 2030.⁴⁹ Morocco's 2015 renewable energy law (Law 58-15) promotes solar, wind, geothermal, biomass, waste and biogas, but does not exclude all hydraulic (hydroelectric) projects. The law raises the minimum installed capacity for such hydro projects from 12 mw to 30 mw, effectively allowing only smaller-scale projects to be included under the renewable energy framework, while larger ones are managed separately.⁵⁰ Excluding hydraulic energy projects above 30 mw would limit opportunities for large-scale hydroelectric projects, which could be a significant renewable energy source. Morocco's reliance on large hydropower

48 K Tachfine 'Morocco holds 7 of the world's rarest tech minerals, here is how they are used' *Hespress English* 8 June 2024, <https://en.hespress.com/86388-risk-watch-june1-8-key-risks-facing-morocco-this-week.html> (accessed 23 September 2025).

49 H Hafdaoui, A Khallaayoun & S Al-Majeed 'Renewable energies in Morocco: A comprehensive review and analysis of current status, policy framework, and prospective potential' (2025) 26 *Energy Conversion and Management* X 100967.

50 Royaume du Maroc 'Loi n° 13-09 relative aux énergies renouvelables' 2010, https://cdn.climatepolicyradar.org/navigator/MAR/2010/law-on-renewable-energies_042c524bd467633a3efdb9ca2e800d4b.pdf (accessed 22 September 2025).

projects brings both significant benefits and serious challenges. Hydropower provides a stable and flexible source of clean energy that supports Morocco's growing electricity needs and ambitious climate targets. Unlike solar or wind, it can produce a more consistent power output and help balance the grid during periods of high demand. However, these advantages are offset by substantial environmental and social costs. Large dams often flood extensive areas, destroy ecosystems and farmland and displace communities, including indigenous peoples, disrupting livelihoods and cultural heritage.⁵¹ Prioritising large hydropower diverts resources from smaller, decentralised renewable projects that could offer cleaner and more equitable energy solutions.⁵² Furthermore, water-intensive mining in Morocco's arid regions intensifies ecological stress and threatens biodiversity and community access to water.

Distributive injustice in Morocco's energy landscape manifests through the tension between national energy independence and local socio-economic inclusion. Projects such as the Noor Ouarzazate Solar Complex – one of the world's largest concentrated solar power plants – symbolise national progress toward low-carbon development. However, the benefits of these projects have not been equitably distributed.⁵³ Studies reveal that while national and international investors capture long-term economic returns, local

51 A Arora 'Dams: Economic assets or ecological liabilities?' *Global Commons* 18 January 2024, <https://earth.org/dams-economic-assets-or-ecological-liabilities/> (accessed 23 September 2025).

52 L Castro-Diaz and others 'Impacts of hydropower development on locals' livelihoods in the Global South' (2023) 169 *World Development* 106285.

53 H Hamouchene 'The energy transition in North Africa: Neocolonialism again!' 14 October 2022, <https://www.tni.org/en/article/the-energy-transition-in-north-africa> (accessed 5 November 2025).

communities near Ouarzazate and Midelt have faced limited access to affordable energy and insufficient employment opportunities.⁵⁴

While institutions such as the Moroccan Agency for Sustainable Energy and the National Office of Electricity and Drinking Water – operating under a centralised, technocratic governance model – have been effective in project implementation, they often limit local participation in energy planning,⁵⁵ challenging procedural and recognitional justice. Consultations tend to occur after project design, and this focuses on mitigation rather than consent.⁵⁶ Furthermore, Morocco's energy transition has often overlooked the specific needs of women, rural populations and indigenous Amazigh communities.⁵⁷ Women in rural regions remain underrepresented in decision-making processes and continue to bear disproportionate energy burdens, particularly in domestic energy use and informal labour sectors.⁵⁸ Morocco's commitment to regional cooperation through initiatives such as the Africa Renewable Energy Initiative and the Desert to Power programme demonstrates procedural leadership at the transnational level. Yet, the procedural justice gap persists domestically, with local voices, particularly those from rural and Amazigh communities, marginalised in shaping the renewable energy agenda.⁵⁹

54 As above.

55 C Haddada and others 'Imagined inclusions into a 'green modernisation': Local politics and global visions of Morocco's renewable energy transition' (2022) 43 *Third World Quarterly* 393.

56 As above.

57 Hamouchene (n 53).

58 As above.

59 A Aoui, M Amrani & K Rignall 'Global aspirations and local realities of solar energy in Morocco' 6 October 2020, <https://www.merip.org/2020/10/global-aspirations-and-local-realities-of-solar-energy-in-morocco/#:~:text=Piercing%20Narratives%20of%20>

Protests in mining regions such as Imider, Bou-Azzer and Midelt highlight growing frustration over unequal resource distribution and environmental harm.⁶⁰ Large-scale solar plants in arid regions such as Ouarzazate and Midelt worsen water scarcity and disrupt local livelihoods,⁶¹ yet mechanisms for environmental restoration or compensation remain limited.⁶² Although environmental and social impact assessments exist, enforcement is inconsistent, leaving Morocco's impressive progress in renewable energy vulnerable to significant ecological and social trade-offs. Without robust social and environmental safeguards, these energy projects risk reproducing the same injustices and environmental harms they are intended to address.

3.3 Namibia's critical rare earths project

Namibia's Lofdal heavy rare earths project is among Africa's most advanced sources of dysprosium (Dy) and terbium (Tb) – two scarce heavy rare earth elements (HREEs) used in high-performance permanent magnets for EVs, wind turbines, robotics and defence systems.⁶³ Operated by Namibia Critical Metals Inc (NCMI) in

Techno%2DOptimism&text=Many%20residents%20and%20civil%20society,corporate%20interventions%20in%20the%20region (accessed 5 November 2025).

60 As above.

61 E Ahmed 'Moroccan solar plans hampered by dispute over technology' 27 February 2024, <https://www.reuters.com/world/africa/moroccan-solar-plans-hampered-by-dispute-over-technology-2024-02-27/> (accessed 4 November 2025).

62 As above.

63 Namibia Critical Metals 'Lofdal heavy rare earths project under joint venture with JOGMEC', <https://www.namibiacriticalmetals.com/projects/lofdal-heavy-rare-earths-project> (accessed 25 September 2025).

a joint venture with Japan's state-backed JOGMEC,⁶⁴ Lofdal is being managed through a Japan-European Union (EU) aligned push to diversify critical-materials supply chains beyond China.⁶⁵ Unlike light rare earths, Dy and Tb are required in small quantities to maintain magnet strength at high temperatures – vital for EV traction motors and direct-drive wind turbines. Despite its small population and relatively low carbon footprint, the country occupies a strategic position in Southern Africa's renewable energy future, with vast potential for solar, wind and green hydrogen development. Namibia's energy transition is guided by the National Energy Policy (2017), the Renewable Energy Policy (2020) and the Green Hydrogen Strategy (2022), which align with its broader ambitions under the Harambee Prosperity Plan II and the African Green Minerals Strategy. However, while Namibia's energy transition vision has been internationally praised for its ambition and transparency, applying the energy justice framework reveals deep-seated challenges relating to inequality, governance and environmental protection.

In terms of distributive justice, for example, Namibia's current energy mix is dominated by imports – mainly from the Southern Africa region.⁶⁶ However, the benefits of these energy imports do not reach the broader population. Large infrastructure projects are

64 Junior Mining Network 'Namibia Critical Metals applauds JOGMEC investment into rare earth separation and provides update on accelerated value engineering at Lofdal dysprosium-terbium project', <https://www.juniorminingnetwork.com/junior-miner-news/press-releases/532-tsx-venture/nmi/178069-ncmi-applauds-jogmec-investment-into-rare-earth-separation-and-provides-update-on-accelerated-value-engineering-at-lofdal-dysprosium-terbium-project.html> (accessed 26 September 2025).

65 Namibia Critical Metals (n 63).

66 NamPower 'Integrated annual report (2022)', https://www.nampower.com.na/public/docs/annual-reports/NamPower_2022%20Annual%20Report_210223.pdf (accessed 2 November 2025).

concentrated in coastal and southern regions (for instance, Lüderitz and Tsau/Khaeb National Park), while rural communities in the north and northeast continue to face energy poverty. The distributive imbalance thus raises critical justice questions about how national wealth from energy investments is distributed among citizens and whether local populations directly benefit from resource exploitation. Without redistributive mechanisms – such as community ownership schemes or targeted electrification programmes – Namibia's transition risks reproducing the same geographic and economic inequalities characteristic of past extractive regimes.

In June 2023, the Namibian government banned the export of unprocessed critical minerals to drive local beneficiation and job creation. The policy is explicitly aligned with Namibia's Mineral Beneficiation Strategy (2021-2030), which seeks to shift the country from raw material exports toward domestic processing and higher-value products.⁶⁷ In this context, Lofdal's development plan is evidence that the project is oriented toward local value addition rather than simple concentrate exports. However, Namibia must intensify its efforts to ensure that local beneficiation does not heighten risks or undermine human rights. Rural communities – many of whom are indigenous or semi-nomadic pastoralists – have been disproportionately affected by the allocation of land for large-scale energy projects.⁶⁸ As a result, weak participation, limited

67 N Nyaungwa 'Namibia bans export of unprocessed critical minerals' *Reuters* 8 June 2023, <https://www.reuters.com/markets/commodities/namibia-bans-export-unprocessed-critical-minerals-2023-06-08/> (accessed 26 September 2025).

68 I Sasada 'Namibia's first peoples struggle to access their traditional lands (commentary)' (19 April 2023), <https://news.mongabay.com/2023/04/namibias-first-peoples-struggle-to-access-their-communal-lands-commentary/> (accessed 10 January 2026).

recognition of marginalised groups and poor enforcement could potentially undermine procedural and recognitional justice goals. Achieving a truly just transition requires shifting from investment-focused strategies to inclusive, accountable and equitable energy governance.

4 Rethinking Africa's transition minerals approach through energy justice

The case studies demonstrate that while legal and policy reforms have advanced, deep justice deficits persist across social, environmental and governance dimensions. Applying the energy justice framework provides a coherent lens for evaluating these challenges and charting a pathway toward a truly just and sustainable transition.

The question of who benefits and who bears the burden of energy transitions is central to distributive justice. Across the three case studies, a persistent pattern emerges: While mineral wealth contributes to national revenues and foreign exchange, its direct benefits rarely reach local communities. In Guinea, the expansion of bauxite mining has displaced subsistence farmers, polluted water sources and disrupted livelihoods. Compensation is often inadequate or unevenly distributed, privileging male elites and excluding women who depend on land for subsistence agriculture.⁶⁹ Similarly, in Morocco, large hydropower and solar projects, such as the Noor Ouarzazate complex, have generated clean energy for national and international markets. Yet, neighbouring communities experience water scarcity, limited employment and minimal access to affordable

⁶⁹ I Dibattista and others 'Socio-environmental impact of mining activities in Guinea: The case of bauxite extraction in the region of Boké' (2023) 387 *Journal of Cleaner Production* 135720.

electricity.⁷⁰ In Namibia, energy wealth remains geographically uneven, concentrated in southern industrial corridors, while rural populations in the north continue to face energy poverty.⁷¹ Thus, distributive justice requires more than economic growth; it demands targeted redistributive mechanisms. Community benefit-sharing agreements, local electrification programmes and gender-responsive compensation schemes are essential to ensure that the wealth generated by transition minerals contributes to human well-being rather than deepening inequality.

Procedural deficits remain a defining feature of Africa's transition-minerals governance. Local community consultations and participation processes rarely include the very people whose voices are essential in decisions about development projects and the management of their resources. In Guinea, environmental and social impact assessments are mandatory but are often conducted as a formality. Consultations occur after project approval, leaving communities without genuine influence over resettlement or compensation.⁷² Morocco's renewable energy sector, though internationally lauded, operates through centralised agencies such as the Moroccan Agency for Sustainable Energy and the National Office of Electricity and Drinking Water that prioritise technocratic efficiency over participatory governance. Local and Amazigh

70 H Hafdaoui, A Khallaayoun & S Al-Majeed 'Renewable energies in Morocco: A comprehensive review and analysis of current status, policy framework, and prospective potential' (2025) 26 *Energy Conversion and Management: X* 100967.

71 A Mpako & S Ndoma 'Namibians grow more dissatisfied with government's efforts on electricity provision', <https://www.afrobarometer.org/wp-content/uploads/2024/09/AD849-Namibians-grow-more-dissatisfied-with-government-efforts-on-electricity-provision-Afrobarometer-5sept24.pdf> (accessed 12 January 2026).

72 Human Rights Watch (n 38).

communities are typically consulted post-design rather than as co-planners.⁷³ In Namibia, despite progressive policies such as the Green Hydrogen Strategy (2022) and the Mineral Beneficiation Strategy (2021-2030), decision making remains concentrated in government and corporate hands, with limited rural representation.⁷⁴ Enhancing procedural justice requires institutional reforms that make consultation binding, ensures free, prior and informed consent (FPIC) processes for indigenous peoples, and integrate community monitoring into environmental governance. Only through genuine participation can energy transitions gain social legitimacy and prevent the recurrence of 'green dispossession'.

A recurring recognitional injustice in Africa's transition-mineral economies is the marginalisation of indigenous peoples, rural women and smallholder farmers, along with the disregard for the identities and knowledge systems of those most affected by energy transitions. In Namibia, indigenous and semi-nomadic pastoralist groups in regions such as Erongo region have lost traditional grazing lands to hydrogen and solar projects, often without recognition of customary land rights.⁷⁵ Morocco's energy expansion has similarly displaced Amazigh pastoral communities, whose cultural ties to land are rarely acknowledged in project design or compensation frameworks.⁷⁶ Guinea's compensation policies, which privilege male title holders, further entrench gender-based inequalities.⁷⁷

73 Haddad and others (n 55).

74 'Namibia's aspirations towards green hydrogen are going nowhere' *Business Day* 2024, https://www.businessday.co.za/bd/world/africa/2024-10-07-namibias-aspirations-towards-green-hydrogen-are-going-nowhere/#google_vignette (accessed 27 December 2025).

75 Sasada (n 68).

76 Hafdaoui (n 70).

77 Dibattista and others (n 69).

Recognitional justice, therefore, requires embedding cultural sensitivity, gender equity and respect for customary tenure into all stages of project planning. It also demands the inclusion of indigenous governance structures and the enhancement of local ecological knowledge as essential components of sustainable energy planning.

Consistent deficits in restorative justice are also evident. In Guinea, for example, the rapid expansion of bauxite and other mineral extraction projects has led to widespread environmental degradation, including deforestation, water pollution and loss of agricultural land.⁷⁸ Although mining companies are legally required to rehabilitate sites and fund community development projects, enforcement is sporadic, and post-mining landscapes often remain scarred. The state's dependence on mining revenue undermines its willingness to impose strict sanctions, thereby allowing corporations to externalise environmental costs onto local communities.⁷⁹ This failure of enforcement erodes public trust and perpetuates a cycle where environmental damage is normalised as a cost of progress. In Morocco, projects such as the Noor Ouarzazate solar complex have displaced communities and intensified water scarcity while, in Namibia, the hydrogen and rare earth extractions are framed as environmentally progressive. Yet, weak environmental governance and resource constraints hinder effective restoration. In this context, a restorative justice approach to Africa's energy transition requires confronting and repairing these harms – both social and ecological – through accountability, remediation and long-term community recovery. This approach aligns with the idea that energy

78 Human Rights Watch (n 38).

79 As above.

development should leave communities and ecosystems better off – or at least not worse off – than before. However, in practice, many African states struggle to operationalise these commitments due to weak institutional capacity, limited regulatory oversight, and asymmetrical power relations between governments, investors and affected communities.

In terms of cosmopolitan justice, Africa's minerals are vital for the world's clean-energy technologies, yet the continent captures only a fraction of the value generated. Guinea's bauxite fuels global aluminium and solar industries; Morocco's phosphates and cobalt underpin electric vehicle and battery production; and Namibia's rare earths power the magnets essential to wind turbines. However, the profits accrue primarily to foreign corporations and consumer countries. This asymmetry reflects enduring structural dependency while the continent bears the ecological cost of decarbonisation without commensurate economic return. A cosmopolitan justice approach calls for global governance reforms that ensure fair pricing, ethical sourcing and equitable distribution of clean-energy benefits. Africa must negotiate international supply chains on terms that recognise its environmental sacrifices and developmental needs, including through stronger enforcement of due diligence frameworks such as the UN Guiding Principles on Business and Human Rights.

Applying the energy justice framework shows that the pursuit of a green economy in Africa must not only decarbonise energy systems but also decolonise their governance. A just transition requires that distributive, procedural, recognition, restorative and cosmopolitan principles be mainstreamed into national laws, regional frameworks and corporate practices.

5 Recommendations

To move from extractive dependency to equitable and sustainable energy futures, Africa's transition-mineral governance must be explicitly grounded in the five dimensions of energy justice.

5.1 Fair allocation of benefits and burdens

African states must align energy policies with economic gains that translate into tangible social and developmental outcomes. Revenue from resources should directly support rural electrification, local infrastructure and community development initiatives, especially in regions where minerals are extracted. A distributive justice-aligned transition mineral project must ensure that the communities bearing the social and environmental costs of extraction receive priority access to energy, equitable economic benefits, and long-term development outcomes through binding, transparent and gender-responsive redistribution mechanisms. Distributive justice in Guinea's transition-mineral sector requires legally binding benefit-sharing mechanisms that prioritise land-dependent communities in bauxite-producing regions through gender-responsive compensation, local electrification and domestic value addition. A central component of this approach could be the establishment of community development funds, paid into community-managed structures in regions such as Boké and earmarked for electricity access, water infrastructure and the restoration of agricultural livelihoods. In Morocco, distributive justice would require the decentralisation of benefit allocation from large-scale renewable energy and mineral-linked projects to ensure equitable access to energy, water and employment for rural and Amazigh communities. Large solar and hydropower projects – such as those in Ouarzazate and Midelt – should be legally required to

provide subsidised electricity to neighbouring communities. In addition, revenues from phosphate-linked and solar projects could be directed toward community water infrastructure to offset water stress caused by energy and mining operations. Such measures are essential to ensure that Morocco's green leadership does not reproduce internal spatial and cultural inequalities under a technocratic transition model. In Namibia, distributive justice in transition-mineral and green-hydrogen projects requires redistributive mechanisms that address geographic energy inequality, indigenous land dispossession, and unequal value capture in strategic mineral supply chains. To achieve this, the government could allocate a defined portion of mineral and hydrogen revenues to rural electrification programmes in Northern and North-eastern Namibia, where energy poverty remains acute.

5.2 Strengthening consultation and consent

Decision making in the transition-mineral sector remains overly centralised and technocratic. Governments need to adopt binding participation frameworks that move beyond symbolic consultation toward meaningful community influence. Meaningful consultation and engagement with local communities during project planning and implementation enables corporations to engage openly about potential benefits, risks and strategies to prevent or mitigate harm.⁸⁰ In Guinea, procedural justice requires strengthening environmental and social impact assessment processes by transforming them from formal compliance exercises into binding decision-making tools. Community consultations in bauxite-producing regions such

80 Abe (n 6).

as Boké should occur prior to licence issuance, include women and land-dependent farmers, and directly shape resettlement, compensation and land-use decisions. In Morocco, procedural justice demands the decentralisation of energy-planning authority within a highly centralised renewable-energy regime. Large-scale solar, hydropower and mineral-linked projects require early participation of rural and Amazigh communities at the planning stage, not only during post-design mitigation. Procedural reforms should mandate local representation in energy-planning institutions and ensure consultations are conducted in culturally appropriate formats that allow communities to influence siting, water use and benefit-sharing arrangements. In Namibia, procedural justice requires embedding community consent and monitoring within green-hydrogen and rare-earth projects, particularly where indigenous and pastoral communities are affected. While Namibia's policy frameworks are comparatively progressive, decision making remains investor driven. Procedural alignment would require FPIC-based consultation, community representation in project oversight bodies, and sustained participation throughout implementation and closure, especially in regions experiencing land pressure and energy poverty.

5.3 Respecting identity, land and knowledge

A just energy transition must recognise affected communities as rights-bearing actors, not passive beneficiaries. Policy makers should prioritise the formal recognition of customary land tenure systems, particularly where statutory law fails to reflect lived land-use practices. In Guinea, recognitional justice requires reforming compensation and resettlement frameworks to acknowledge women's subsistence land use and informal agricultural labour, rather than privileging male title holders alone. Project documentation

and environmental and social impact assessment processes need to incorporate gender-disaggregated data and recognise community-specific land tenure practices to prevent systematic exclusion. In Morocco, recognitional justice demands the explicit acknowledgment of Amazigh communities' cultural, linguistic and territorial identities in renewable-energy and mineral-linked projects. Project design should recognise Amazigh land-use systems and cultural attachments to land, rather than treating rural areas as neutral development spaces. In Namibia, recognitional justice requires the formal acknowledgment of indigenous and pastoralist land-use systems, particularly in regions affected by green-hydrogen and rare-earth projects. Customary grazing rights and semi-nomadic livelihoods need to be recognised as legitimate forms of land tenure within project planning and compensation frameworks.

5.4 Repairing social and environmental harm

A just energy transition requires not only preventing harm but repairing damage already caused by extractive activities. For this, governments need to mandate environmental bonds, enforceable rehabilitation plans and post-closure community support mechanisms as conditions for project approval. Regulatory authorities should be adequately resourced to conduct independent inspections, impose meaningful sanctions and publish compliance reports. Community-level grievance mechanisms can be strengthened to ensure access to remedy for displacement, pollution and livelihood loss. Where communities have already suffered displacement, restoration should include sustained compensation beyond project closure. Failure to enforce rehabilitation obligations should trigger sanctions and the suspension of the licences. Across Guinea, Morocco and Namibia, restorative justice in transition-mineral development requires

moving from weak mitigation to enforceable repair and long-term community recovery as core conditions of project approval.

5.5 Rebalancing global energy transitions

Africa's transition minerals underpin global decarbonisation, yet the continent captures only a fraction of the resulting value. Addressing this imbalance requires reforms beyond national borders. Cosmopolitan justice in transition-mineral governance requires that global decarbonisation efforts internalise the social and environmental costs borne by African producers through fair value sharing, ethical supply chains and transnational accountability. Consequently, African states should leverage regional and international platforms to demand fair pricing, ethical sourcing and responsible supply-chain practices, including the robust enforcement of human rights due diligence obligations under instruments such as the UNGPs. When carefully designed, export restrictions on unprocessed minerals can further support domestic beneficiation and strengthen bargaining power within global value chains.

6 Conclusion

Africa's vast endowment of transition minerals places it at the centre of the clean energy revolution, yet the governance of these resources continues to mirror extractive patterns rooted in historical inequality and external dependency. This chapter has argued that without a justice-centred reorientation, the continent's green transition risks exacerbating harm. A rights-based approach can convert transition minerals from sources of harm into instruments of dignified work and diversified industry. The cases of Guinea, Morocco and Namibia reveal both the diversity and the commonality of Africa's

energy transition governance challenges. Each country demonstrates significant ambition in aligning national policy with global climate goals, but also exposes deep justice gaps in distribution, participation, recognition and restoration. Guinea's bauxite and mineral extraction highlight the persistence of unequal benefit sharing and environmental degradation; Morocco's renewable energy expansion exposes trade-offs between technological progress and local ecological integrity; while Namibia's hydrogen and rare earth projects highlight the tensions between global investment interests and community inclusion.

Reframing Africa's energy transition through an energy justice lens reveals that achieving sustainability requires more than scaling up renewable capacity or attracting foreign investment. It demands redefining the purpose and governance of energy itself – from serving external markets to advancing human dignity, social inclusion and ecological resilience. Policies must thus move beyond efficiency and growth indicators to prioritise fairness, participation and accountability. Local communities must not remain passive recipients of development but active partners in decision making and benefit sharing. At the same time, Africa's role in the global energy landscape must evolve from that of a supplier of raw materials to that of a strategic actor shaping the terms of global decarbonisation.

Bibliography

- Abe, O & Azubike, V '(Re)examining the intersection between energy justice and energy transition in Africa' (2024) 42 *Journal of Energy & Natural Resources Law* 279-299
- Abe, O 'Between control and confrontation: The pitfalls and potentials of corporate-community participatory development in Africa's energy and extractive industries' (2022) 11 *The Extractive Industries and Society* 101095
- Abe, O 'Towards a human rights-based approach to energy transition in Africa' (2025) 10 *Business and Human Rights Journal* 11-33
- Abe, O *Implementing business and human rights policies in Africa: Law and policy interventions* (Routledge 2022)
- Alex-Oke, T, Bamisile, O, Cai, D, Adun, H, Ukwuomaa, CC, Tenebe, SA & Huang, Q 'Renewable energy market in Africa: Opportunities, progress, challenges, and future prospects' (2025) 59 *Energy Strategy Reviews* 101700
- Asiamah, O, Agyei, SK, Bossman, A, Agyei, EA, Asucam & Arku-Asare, M 'Natural resource dependence and institutional quality: Evidence from sub-Saharan Africa' (2022) 79 *Resources Policy* 102967
- Babalola, A & Olawuyi, DS 'Overcoming regulatory failure in the design and implementation of gas flaring policies: The potential and promise of an energy justice approach' (2022) 14 *Sustainability* 6800
- Brown D, Zhou, R & Sadan, M 'Critical minerals and rare earth elements in a planetary just transition: An interdisciplinary perspective' (2024) 19 *The Extractive Industries and Society* 101510
- Bruchwiler, N, Hearn, AX, Rosen, R & Kos, L 'Energy justice in innovative living spaces: Examining positive energy districts and ecovillages in Europe' (2025) 127 *Energy Research & Social Science* 104248
- Castro-Diaz, L, Garcia, MA, Villamayor-Tomas, S & Lopez MC 'Impacts of hydropower development on locals' livelihoods in the Global South' (2023) 169 *World Development* 106285

- Dibattista, I, Camara, AR, Molderez, I, Benassai, EM & Palozza, F 'Socio-environmental impact of mining activities in Guinea: The case of bauxite extraction in the region of Boké' (2023) 387 *Journal of Cleaner Production* 135720
- Dowling, C & Otero, G 'Mirages or miracles? Lithium extraction and the just energy transition' (2025) 119 *Energy Research & Social Science* 103862
- Garvey, A, Norman, JB, Büchs, M & Barrett, J 'A "spatially just" transition? A critical review of regional equity in decarbonisation pathways' (2022) 88 *Energy Research & Social Science* 102630
- Haddada, C, Günay, C & Ryser, S 'Imagined inclusions into a "green modernisation": Local politics and global visions of Morocco's renewable energy transition' (2022) 43 *Third World Quarterly* 393
- Hafdaoui, H, Khallaayoun, A & Al-Majeed, S 'Renewable energies in Morocco: A comprehensive review and analysis of current status, policy framework, and prospective potential' (2025) 26 *Energy Conversion and Management: X* 100967
- Hazrati, M & Heffron, RJ 'Conceptualising restorative justice in the energy transition: Changing the perspectives of fossil fuels' (2021) 78 *Energy Research & Social Science* 102115
- Healy, N, Stephens, JC & Malin, SA 'Embodied energy injustices: unveiling and politicizing the transboundary harms of fossil fuel extractivism and fossil fuel supply chains (2019) 48 *Energy Research & Social Science* 219-234
- Jenkins, K, McCauley, D, Heffron, R, Stephan, H & Rehner, R 'Energy justice: A conceptual review' (2016) 11 *Energy Research and Social Science* 174-182
- Olawuyi, D 'Energy (and human rights) for all: Addressing human rights risks in energy access projects' in Salter R, Gonzalez, CJ and Kronk, WE (eds) *Energy justice: US and international perspectives* (Edward Elgar 2018) 73-104

- Rentier, ES, Hoorn, C & Seijmonsbergen, AC 'Lithium brine mining affects geodiversity and Sustainable Development Goals' (2024) *Renewable and Sustainable Energy Reviews* 114642
- Sakhraoui, K, Agadi, R, Von Hirschhausen, C & Ege, GS 'Energy policy in Morocco: Analysis of the national energy strategy's impact on sustainable energy supply and transformation' (2024) 1 *Next Research* 100072
- Tachfine, K 'Morocco holds 7 of the world's rarest tech minerals, here is how they are used' Hespess English 8 June 2024, <https://en.hespess.com/86388-risk-watch-june1-8-key-risks-facing-morocco-this-week.html> (accessed 23 September 2025)
- Tunn, J, Muller, F, Hennig J, Simon, J & Kalt, T 'The German scramble for green hydrogen in Namibia: Colonial legacies revisited?' (2025) 118 *Political Geography* 103293
- Ulibarri, N, Figueroa, OP & Grant, A 'Barriers and opportunities to incorporating environmental justice in the National Environmental Policy Act' (2022) 97 *Environmental Impact Assessment Review* 106880
- Walker, G & Day, R 'Fuel poverty as injustice: Integrating distribution, recognition and procedure in the struggle for affordable warmth' (2012) 49 *Energy Policy* 69
- Wilhelm, C '"In Guinea, there are two types of mining companies": An analysis of the diverse local content approaches of the bauxite mining companies in Guinea' (2023) 83 *Resources Policy* 103581

Online sources and reports

- Hamouchene, H 'The energy transition in North Africa: Neocolonialism again!' 14 October 2022 <https://www.tni.org/en/article/the-energy-transition-in-north-africa> (accessed 5 November 2025)
- International Energy Agency 'Mineral requirements for clean energy transitions' <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/mineral-requirements-for-clean-energy-transitions> (accessed 21 September 2025)

Junior Mining Network ‘Namibia Critical Metals applauds JOGMEC investment into rare earth separation and provides update on accelerated value engineering at Lofdal dysprosium-terbium project’ <https://www.juniorminingnetwork.com/junior-miner-news/press-releases/532-tsx-venture/nmi/178069-ncmi-applauds-jogmec-investment-into-rare-earth-separation-and-provides-update-on-accelerated-value-engineering-at-lofdal-dysprosium-terbium-project.html> (accessed 26 September 2025)

Nyaungwa, N ‘Namibia bans export of unprocessed critical minerals’ *Reuters* 8 June 2023, <https://www.reuters.com/markets/commodities/namibia-bans-export-unprocessed-critical-minerals-2023-06-08/> (accessed 26 September 2025)

Namibia Critical Metals ‘Lofdal heavy rare earths project under joint venture with JOGMEC’ <https://www.namibiacriticalmetals.com/projects/lofdal-heavy-rare-earths-project> (accessed 25 September 2025)

NamPower ‘Integrated annual report (2022)’ https://www.nampower.com.na/public/docs/annual-reports/NamPower_2022%20Annual%20Report_210223.pdf (accessed 2 November 2025)

Natural Resource Governance Institute ‘Guinea’ <https://resourcegovernance.org/countries/guinea> (accessed 2 November 2025)

Royaume du Maroc ‘Loi n° 13-09 relative aux énergies renouvelables’ 2010, https://cdn.climatepolicyradar.org/navigator/MAR/2010/law-on-renewable-energies_042c524bd467633a3efdb9ca2e800d4b.pdf (accessed 22 September 2025)

Reports

Aoui, A , Amrani, M & Rignall, K ‘Global Aspirations and Local Realities of Solar Energy in Morocco’ 6 October 2020 <https://www.merip.org/2020/10/global-aspirations-and-local-realities-of-solar-energy-in-morocco/#:~:text=Piercing%20Narratives%20of%20Techno%2DOptimism&text=Many%20residents%20and%20civil%20society,corporate%20interventions%20in%20the%20region.> (accessed 5 November 2025)

- Arora, A 'Dams: economic assets or ecological liabilities?' Global Commons 18 January 2024, <https://earth.org/dams-economic-assets-or-ecological-liabilities/> (accessed 23 September 2025)
- Ahmed, E 'Moroccan solar plans hampered by dispute over technology' 27 February 2024 <https://www.reuters.com/world/africa/moroccan-solar-plans-hampered-by-dispute-over-technology-2024-02-27/> (accessed 4 November 2025)
- Business Day* 'Namibia's aspirations towards green hydrogen are going nowhere' (2024) https://www.businessday.co.za/bd/world/africa/2024-10-07-namibias-aspirations-towards-green-hydrogen-are-going-nowhere/#google_vignette (accessed 27 December 2025)
- Business & Human Rights Resource Centre 'Justice in the transition: litigating corporate abuse in the shift to clean energy for all – 2025 analysis' 2025, https://media.business-humanrights.org/media/documents/2025_JT_litigation_-_Executive_summary_EN.pdf (accessed 24 September 2025)
- Hendrix, CS 'Guinea faces challenges in building capacity around a critical mineral for energy transitions' <https://www.piie.com/blogs/realtime-economics/2022/guinea-faces-challenges-building-capacity-around-critical-mineral> (accessed 3 November 2025)
- Human Rights Watch 'What do we get out of it?' 4 October 2018, <https://www.hrw.org/report/2018/10/04/what-do-we-get-out-it/human-rights-impact-bauxite-mining-guinea> (accessed 2 November 2025)
- Human Rights Watch 'Complaint filed against bauxite mining company in Guinea' 11 March 2019 <https://www.hrw.org/news/2019/03/11/complaint-filed-against-bauxite-mining-company-guinea#:~:text=The%20communities%20are%20represented%20by,harms%20the%20company%20has%20caused.> (accessed 2 November 2025)
- IEA 'The Role of Critical Minerals in Clean Energy Transitions' <https://iea.blob.core.windows.net/assets/ffd2a83b-8c30-4e9d-980a-52b6d9a86fdc/TheRoleofCriticalMineralsinCleanEnergyTransitions.pdf> (accessed 24 September 2025)

Mpako, A & Ndoma, S 'Namibians grow more dissatisfied with government's efforts on electricity provision' <https://www.afrobarometer.org/wp-content/uploads/2024/09/AD849-Namibians-grow-more-dissatisfied-with-government-efforts-on-electricity-provision-Afrobarometer-5sept24.pdf> (accessed 12 January 2026)

Sasada, I 'Namibia's first peoples struggle to access their traditional lands (commentary)' (19 April 2023) <https://news.mongabay.com/2023/04/namibias-first-peoples-struggle-to-access-their-communal-lands-commentary/> (accessed 10 January 2026)

Spiller, B, Htun, T & Shah, K 'Community engagement and participatory inclusion in mining: Challenges, barriers, and opportunities' https://media.rff.org/documents/WP_25-08_PHBFNYf.pdf (accessed 2 November 2025)

Laws

Mining Code, Article 30-II; Article 37-II

Namibia's Mineral Beneficiation Strategy (2021-2030)

Law L/2019/0034/AN of 4 July 2019, on the Environmental Code of the Republic of Guinea