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G20 and Africa's Critical Minerals: Pathways to Sustainable Global Energy Transition

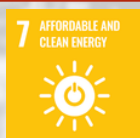
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Abstract

Africa holds abundant reserves of critical minerals crucial for renewable technologies but faces challenges, including inadequate infrastructure, geopolitical tensions, and social and environmental concerns. This policy note outlines G20's increasing role in renewable energy and critical minerals, demonstrated through initiatives across different G20 presidencies aimed at enhancing supply chain resilience and promoting sustainable development. It recommends that the G20 address investment gaps, cut capital costs, create innovative financial mechanisms, align ESG standards, enhance access for emerging economies, and strengthen supply chain resilience. Collaboratively, the G20 can promote a sustainable and equitable energy transition by leveraging Africa's mineral wealth to drive economic growth, environmental sustainability, and social inclusivity.



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Introduction

Africa's abundant reserves of critical minerals such as lithium, cobalt, copper, nickel, and rare-earth elements (REEs) have increasingly centralised the global urgency for sustainable energy transition. These minerals are essential for manufacturing renewable energy technologies, including solar panels, wind turbines, and electric vehicles (EVs). They also play a pivotal role in combating the climate crisis and achieving Sustainable Development Goal (SDG) 7, which targets “affordable, reliable, sustainable and modern energy for all” by 2030.

Despite holding over 30% of the world's reserves of these critical resources, significant barriers hinder Africa's potential to become a global supplier and beneficiary of the renewable energy market. The International Energy Agency (IEA) projects an increased demand for lithium, which is essential for battery storage and EVs, of over 40 times by 2040, highlighting the scale of both challenges and opportunities. Similarly, Africa, particularly the Democratic Republic of Congo, supplies over 60% of the world's cobalt, which is crucial for high-density battery storage. However, inadequate infrastructure, geopolitical tensions, corruption and mismanagement, political instability, and social and environmental concerns impede the full participation of resource-rich countries in the global value chain.

Moreover, the IMF Regional Outlook indicates that revenues from critical minerals could significantly increase Africa's GDP by 12% or more by 2050 if adequately harnessed. However, the continent's role is confined to the early stages of the value chain, exploration, and extraction, with limited progress toward downstream processing and value addition. This situation is further exacerbated by geopolitical competition, notably from global powers such as China, the United States, and the European Union, further hindering Africa's role in the critical minerals market.

The G20's pivotal influence in global economic governance presents an optimistic platform to address these challenges. Collaborative efforts can unlock Africa's potential in the critical mineral sector, fostering not only achieving sustainable energy transition globally but also driving economic growth, environmental sustainability, and social inclusivity across the continent. This policy brief examines the opportunities and challenges in leveraging Africa's critical minerals for a sustainable energy future and provides recommendations that could guide G20 initiatives in this crucial area.

The Role of the G20 in Promoting Sustainable Critical Minerals

G20 countries, as both producers and consumers, actively engage in economies of critical minerals, spanning from the initial processing to manufacturing stages, including cathode and anode production. China dominates the market, processing 40% of global copper, 35% of nickel, 65% of cobalt, 58% of lithium, and 87% of REEs. Other G20 members also contribute to the sector: Japan processes 6% of the world's copper and 8% of nickel; Indonesia handles 15% of global nickel processing; EU countries collectively process 15% of cobalt; and Argentina processes 10% of lithium.[1] The prominent position of G20 countries in the critical minerals industry underscores the necessity for coordinated efforts to improve supply security and accelerate the global energy transition.

[1] IEA. (2024). Global Critical Minerals Outlook <https://iea.blob.core.windows.net/assets/ee01701d-1d5c-4ba8-9df6-abeeac9de99a/GlobalCriticalMineralsOutlook2024.pdf>.

In recent years, the G20 has increased its attention to renewable energy and critical minerals. Following the 2015 Paris Agreement, the G20 climate and energy discussions initially concentrated on broader issues, including emission reductions, reforms to fossil fuel subsidies, and climate finance. Under Turkey's presidency, the inaugural G20 Energy Ministers endorsed efforts to achieve universal clean energy access, particularly in Africa. However, the significance of renewable energy supply chains was only briefly acknowledged in the 2021 Rome Leaders' Declaration.

Under the Indonesian G20 Presidency 2022, the G20 notably shifted its focus to energy supply chains, making a pivotal change in climate and energy discourse. This shift was mainly in response to energy price hikes from Russia's invasion of Ukraine and growing concerns over the availability of critical minerals for renewable energy technologies. The G20 ratified two initiatives: it advocated for strengthening and diversifying supply and value chains through the Bali Compact and outlined strategies for resilient and sustainable clean energy supply chains in the Bali Energy Transitions Roadmap. The latter outlined strategies to foster resilient and sustainable clean energy supply chains, including promoting open trade environments and supporting the establishment of global Environmental Social Governance (ESG) standards. [2]

Under India's 2023 G20 Presidency, the Energy Transitions Working Group highlighted energy security and supply chain diversification as key focus areas. The declaration also underscores the importance of reducing potential adverse effects on people and the environment as well as fostering multilateral cooperation among member nations to tackle these complex challenges.[3]

The 2024 Brazil G20 Presidency focused on sustainable fuels and addressed the social and environmental impacts of energy policies, particularly for vulnerable communities. Brazil's energy policy acknowledged the challenges faced by developing countries in promoting energy transition. It emphasised the need to catalyse investment from all financial sources, especially in developing countries, to bridge the funding gap for energy transitions.

The African Union (AU) played a significant role in the G20 following its admission, marking a new era of representation in Africa's global governance. The Brazil-Africa Energy Transitions Ministerial Dialogue also provided a platform for African and G20 energy ministers to discuss cooperation, financing, and addressing energy access needs across Africa.[4]

[2] G20. (2022). Decade of Actions - Bali Energy Transitions Roadmap, <https://g7g20-documents.org/database/document/2022-g20-indonesia-sherpa-track-energy-ministers-miscellaneous-decade-of-actions-bali-energy-transitions-roadmap>.

[3] G20. (2023). G20 Energy Transitions Ministers' Meeting Outcome Document and Chair's Summary, Goa, India https://www.bmwk.de/Redaktion/DE/Downloads/E/etmm-outcome-document-and-chairs-summary.pdf?__blob=publicationFile&v=1.

[4] African Union. (2024, 5 October 2025). African Union's Landmark G20 Engagement: Shaping Global Energy Transition and Driving Sustainability <https://au.int/en/pressreleases/20241005/african-unions-landmark-g20-engagement-shaping-global-energy-transition-and>.

Challenges in Achieving a Sustainable Energy Transition

Despite these commitments, the G20 faces challenges in addressing renewable energy supply issues. The first challenge is the gap between supply and demand for critical minerals, which risks price volatility. This volatility can deter investments in renewable technologies essential for a green transition. Secondly, high capital requirements and complex financing landscapes pose significant barriers, especially in developing and emerging economies. These financial hurdles slow down the exploration and development of critical mineral resources necessary for renewable resources. Furthermore, geopolitical tensions and policy coordination complexities complicate the global governance of critical mineral supply chains. This can result in inefficiencies and delays in establishing a sustainable and resilient supply chain framework. Lastly, the lack of innovative financing mechanisms hinders the attraction of private investment to critical mineral sectors. Innovative financial instruments are crucial for mitigating risks associated with critical mineral projects and encourage sustainable investments.

Recommendations for G20 Action

1. **Bridge the investment gap:** The G20 should prioritise addressing the significant investment gap in critical minerals. This should involve collaboration with agencies such as the Multilateral Investment Guarantee Agency to provide additional protection against downside risks. Coordination amongst national and regional banks should also be encouraged to facilitate equity investments in critical mineral projects.
2. **Reduce the cost of capital:** The G20 agenda should focus on reducing the high cost of capital, especially for developing and emerging economies. This involves addressing the issues of rising interest rates and high debt levels, which pose hurdles for project developers.
3. **Develop innovative financing instruments:** The G20 should explore and develop innovative financial instruments and risk-mitigation tools, such as blended finance mechanisms, to make critical mineral projects attractive to investors.
4. **Coordinate ESG standards:** G20 should coordinate efforts to develop and implement ESG standards for critical mineral supply chains.
5. **Improve access for emerging economies:** The G20 should prioritise integrating emerging economies into critical mineral partnerships and alliances, including the Minerals Security Partnership, Sustainable Critical Minerals Alliance, and Critical Minerals Club, to facilitate the transition of green energy.
6. **Strengthening resilience in renewable energy supply chains:** The G20 should work towards diversifying supply chains to tackle issues caused by the geographical concentration of mineral ownership, processing, and exposure to climate risks.

References

African Union. (2024, 5 October 2025). African Union's Landmark G20 Engagement: Shaping Global Energy Transition and Driving Sustainability <https://au.int/en/pressreleases/20241005/african-unions-landmark-g20-engagement-shaping-global-energy-transition-and>.

Cox, A., & Jakob, M. (2023). Resilient Supply Chains for the Energy Transition: Issues for the G20.

G20. (2022). Decade of Actions - Bali Energy Transitions Roadmap <https://g7g20-documents.org/database/document/2022-g20-indonesia-sherpa-track-energy-ministers-miscellaneous-decade-of-actions-bali-energy-transitions-roadmap>.

G20. (2023). G20 Energy Transitions Ministers' Meeting Outcome Document and Chair's Summary, Goa, India https://www.bmwk.de/Redaktion/DE/Downloads/E/etmm-outcome-document-and-chairs-summary.pdf?__blob=publicationFile&v=1.

G20 Brazil. (2024). G20 Energy Transitions Ministerial Meeting: Ministerial Outcome Statement <https://g20.gov.br/pt-br/trilhas/trilha-de-sherpas/transicoes-energeticas/etmm-ministerial-outcome-statement.pdf/@@download/file>.

IEA. (2024). Global Critical Minerals Outlook <https://iea.blob.core.windows.net/assets/ee01701d-1d5c-4ba8-9df6-abeeac9de99a/GlobalCriticalMineralsOutlook2024.pdf>.

Moerenhout, T., Kohli, P., Goel, S., Ray, S., & Janardhanan, N. (2023). Securing Critical Minerals Supply Chains for the Clean Energy Transition.