



Unlocking Potential, Facing Challenges, Achieving Sustainable Value Addition in Critical Minerals Supply Chains

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CRITICAL MINERAL VALUE CHAIN



EXPLORATION AND MINING

Extracting resources demands investment, offers innovation opportunities. Few countries are primary sources, geopolitical risks arise. Environmental and social impacts pose challenges for sustainability.

REFINING AND PROCESSING

Transforming raw materials to intermediate requires advanced skills, know-how, and quality standards. Technological and regulatory gaps pose challenges for some countries.



MANUFACTURING AND ENGINEERING

Manufacturing and engineering of strategic sectors like renewable energy and ICT require innovation, competitiveness, and quality. Challenges include safety hazards, research, critical minerals, and price volatility.



RECOVERY AND RECYCLING

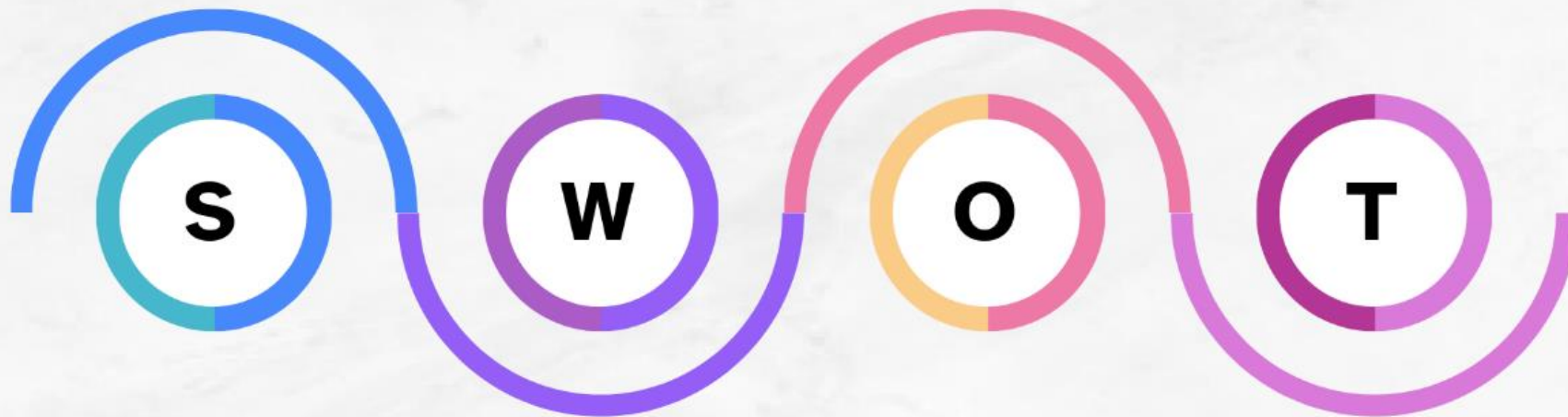
Recovering and recycling raw materials from waste streams reduces environmental impact, but low collection and recycling rates of critical minerals are a challenge. Complex products require costly and sophisticated technologies.

DISTRIBUTION AND TRADE

Efficient logistics, infrastructure, and market access are needed to transport, store, and sell raw materials and their products. Trade barriers and supply chain transparency are challenges for critical mineral trade.



Local Value Addition is Vital for Developing Countries



Strengths

- Abundant and diverse
- Key enablers of the energy transition
- Recyclability, enabling circular economy
- Significant potential for value addition.

Weaknesses

- Infrastructure, human capital, and governance
- High environmental and social impacts and risks
- Low bargaining power and competitiveness of smaller producers.

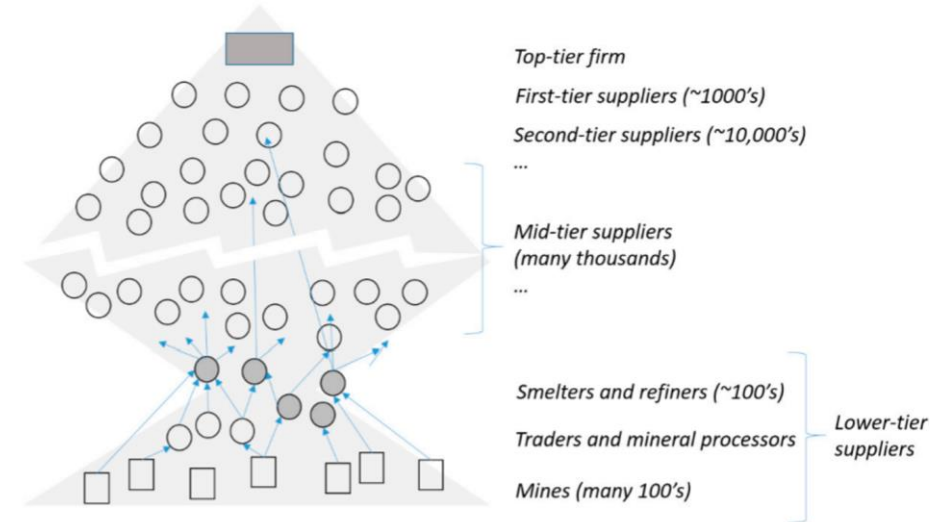
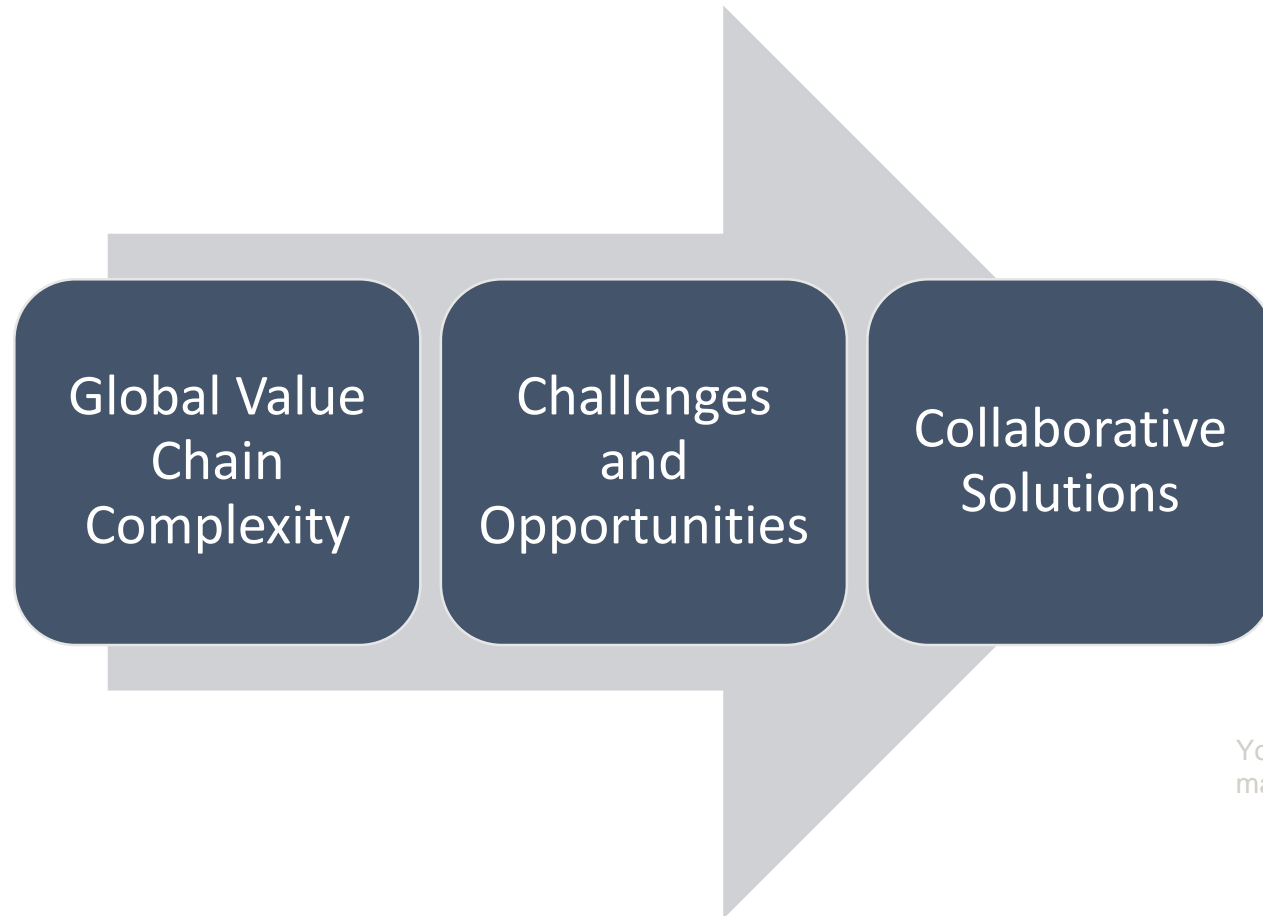
Opportunities

- Growing global demand and prices for critical minerals
- Value-added products and services
- Demand for responsible and low-carbon sourcing
- Emerging regional and international cooperation and dialogue
- Foreign investment, technology transfer, and market access.

Threats

- Volatility and uncertainties
- Competition and conflict
- Regulatory and policy barriers and gaps.

Knowledge of Global Value Chains and Strategic Partnerships are Essential



Young, S. B., Fernandes, S., & Wood, M. O. (2019). Jumping the chain: How downstream manufacturers engage with deep suppliers of conflict minerals. *Resources*, 8(1), 26.

UNRMS Provides a Robust Framework for Sustainable Value Addition

- **Comprehensive Frameworks:** UN Resource Management System (UNRMS) embeds environmental, social, and economic factors in resource management, ensuring a balanced and sustainable approach.
- **Case Studies and Implementation:** Successful implementations in Africa, such as AMREC under PARC, showcase the effectiveness of these frameworks in promoting sustainable development.
- **Driving Sustainable Practices:** By adhering to UNRMS and UNFC, countries can enhance value addition through sustainable and responsible mining and processing practices, aligning with the 2030 Agenda for Sustainable Development.





More about UNFC and UNRMS:

reserves.energy@un.org

<https://unece.org/sustainable-energy/sustainable-resource-management>

Thank you!

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Date 12 | 07 | 2024, Geneva



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