

Guidebook Launch

Key takeaways and next steps

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UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

Critical Minerals for the Sustainable Energy Transition A Guidebook to Support Intergenerational Action



The Guidebook is:

- 1) A **UNECE publication** produced by RMYMG;
- 2) a result of collaborative work of **17 co-authors, 4 reviewers, and 2 coordinators from 15 countries**;
- 3) a contribution of young experts to **building capacity and raising awareness among a diverse, non-technical audience** in an accessible manner;
- 4) a contribution of young experts to the **ongoing UN-led work on critical raw materials**, including the Working Group on Transforming the Extractive Industries for Sustainable Development;
- 5) an initiative aimed at **bridging the gap between key stakeholders** along the critical minerals lifecycle.



Guidebook progress timeline



COP27 Side Event, 2022
Critical Minerals for Net Zero: How to Ensure Sustainability and Circularity



UN System Side Event, COP27, 2022
A global sustainability framework for Critical Raw Materials required for low-carbon transitions



UNECE Youth Dialogue, 2022
Breakout Session: The future of energy



UNECE Resource Management Week 2023
Session: Empowering the Next Generation of Sustainable Resource Managers: The Role of Youth in Resource Management



COP28 Side Event, 2023
Responsible and inclusive management of critical energy transition minerals



COP28 Side Event, 2023
Guidebook Pre-launch session



COP28, 2023
RMYMG Meeting with UNECE Executive Secretary



UNECE Resource Management Week 2024
Official Guidebook launch

A global challenge

1. It is expected that by 2040, the **demand for critical minerals will increase fourfold** if the world is on track to achieve net zero.
2. Low-carbon energy technologies, such as electric vehicles, battery storage systems, wind and solar power plants, are generally **more mineral-intensive** than their fossil fuel counterparts.
3. **Over 54%** of the critical mineral resource base is located on or near the lands of Indigenous peoples.
4. Strategic importance of critical energy transition minerals (CETMs) for **economic development of resource-rich countries and communities**.
5. The intergenerational implications of how we tackle challenges around CETMs is fundamentally about equity, not least because **the lifespans of a mine can last over a generation's time**.

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Key takeaways

1. The possibility, affordability, and speed of the energy transition will be heavily influenced by the **availability of critical minerals** for clean technologies.
2. **High exploration-to-mine ratio**: on average, for every mine opened, there are over 100 unsuccessful exploration projects.
3. Strategic importance of critical energy transition minerals (CETMs) for **economic development of resource-rich countries and communities**.
4. The intergenerational implications of how we tackle challenges around CETMs is fundamentally about equity, not least because **the lifespans of a mine can last over a generation's time**.
5. Polymetallic nodules found in the Clarion Clipperton zone are estimated to be around **21 billion dry tons** and contain cobalt, nickel, copper, and manganese.
6. The deep sea in international waters is **the last pristine ecosystem in the ocean** which serves as a global carbon reservoir, and even minor disturbances could **disrupt the necessary carbon sequestration cycle**.

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Key takeaways

1. **Criticality assessments are not standardized across regions**, yet many assessment methods share similar indicators, such as economic importance and supply risk.
2. The designation of “critical mineral” is **not necessarily rooted in geological characteristics but rather a political one**.
3. **Almost 10%** of global emissions are caused by energy-intensive processes like exploring, mining, smelting, refining, and transportation of primary raw materials.
4. A lack of secondary raw materials will constrain supply and inflate prices, making the **clean energy transition more expensive**.
5. **Downcycling**, a reduction in the quality of recycled materials, poses a **significant challenge** for circularity.
6. **A 100% fully closed-loop circularity is impossible** due to dissipative losses during all stages of the value chain.

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Key takeaways

1. **UNFC** integrates social and environmental considerations, ensuring that the production and utilization of resources are **not just economically viable but also socially and environmentally sound**.
2. While previously the top risks in the mining industry were political instability and volatile markets, **today this is environmental and social acceptance**.
3. Multiple **UNFC case studies** (e.g. Argentina, Egypt, Italy, Sweden) show the adaptable nature of UNFC across diverse conditions and help countries customize its application to their specific needs, particularly **in the face of environmental and social constraints**.

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Intergenerational action: key considerations

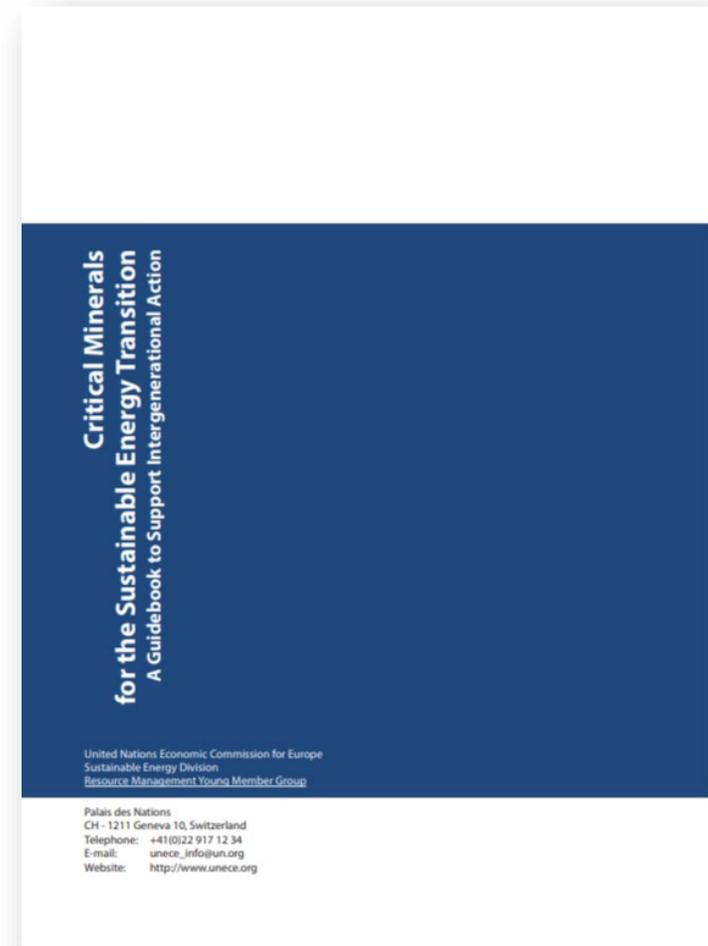
1. **Industry** should engage in meaningful social dialogues with mining and nearby communities, and Indigenous peoples and guarantee community benefits where possible.
2. **Producers** can play a sizeable role in improving the sustainability and resilience of value chains, setting the stage for a balanced convergence of profitability and sustainability.
3. **R&D** should enable, inter alia, more economical and resource efficiency recovery and recycling technologies, and less energy-intensive mining and processing methods.
4. **Governments and policymakers** should foster international collaboration in the global value chain such as through technology transfers and policies for in-country value-addition, especially considering countries that endeavor to move into the processing and manufacturing stage of the value chain.

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Next steps

1. **Publication** on the UNECE website.
2. **Guidebook dissemination** to build capacity and educate young people about key challenges, impacts, and existing tools, especially youth active in the climate and energy space.
3. **Cooperation with other UN regional economic commissions** (ESCWA, ESCAP, ECA, ECLAC) to increase outreach to the younger generation and provide meaningful engagement, including through joint events.
4. **Integration of the youth perspective** into the work of the Working Group on Transforming the Extractive Industries for Sustainable Development and the Panel on Critical Energy Transition Minerals to ensure equal representation of youth.
5. **Mainstreaming** youth participation in multilateral decision-making processes involving critical energy transition minerals, including at UNEP, UNFCCC COP29 and COP30, G20, BRICS.



THANK YOU!

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