



THE ITALIAN CLIMATE CHANGE THINK TANK

DEVELOPING COMMON STANDARDS FOR SECURE AND RESILIENT CRITICAL MINERALS SUPPLY CHAINS

 BRIEFING REPORT

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Summary

Mitigation efforts needed for 1.5°C, net-zero compatible pathways requires a radical transformation of the global energy system, underpinned by renewable energies and the electrification of end-use consumption in all sectors of the economy.¹ The increasing production and the pace of penetration of clean technologies required to this transformation critically depend on the availability of critical minerals.

The high geographic fragmentation of mining activities and the Asian dominance in the processing and refining stages of critical minerals require a progressive diversifying, reshaping and strengthening of the global supply chain structure in order to manage supply risks. This points to the need for globally agreed rules for addressing environmental, social and governance (ESG) metrics in line with qualified technical standards for information disclosure.

Recent years have seen the proliferation of sustainability reporting frameworks, methodologies and metrics to meet the evolving information needs. This is hindering comparability, which together with the lack of reliable and certified data, is affecting market transparency and efficiency. Agreeing on and adopting global standards would allow stakeholders to assess and compare companies' sustainability efforts in a more meaningful, effective and efficient manner.

Several countries are moving in this direction. Italy's Taskforce on Critical Raw Materials aims at strengthening coordination and formulating proposals for the creation of regulatory, economic and market conditions to ensure a safe and sustainable supply. This will inform Italy's priorities in the context of the upcoming EU Critical Raw Material Act.

All G7 countries are part of the multilateral initiative Mineral Security Partnership. In the G7 context, the need to enhance supply chain resilience was identified as a key priority under the UK's Presidency in 2021 and subsequently taken forward by the German presidency in 2022², as recognised in the final Leaders' Communiqué³. The 2023 G7 Japanese Presidency is expected to establish an Experts' Working Group on Critical Minerals to further deepen discussions.

The Italian 2024 G7 Presidency could be an opportunity to bring forward the G7 work on supply chain resilience.

¹ [Net Zero by 2050 – Analysis - IEA](#)

² [G7 can help build resilient and secure supply chains | Chatham House – International Affairs Think Tank](#)

³ [2022-07-14-leaders-communication-data.pdf \(g7germany.de\)](#)

Critical minerals for clean technologies

Over the coming decades and in the context of reaching national and global net-zero targets, demand of clean technologies, such as solar PV, wind turbines, microchips, digital meters and batteries, is set to grow exponentially. And so is the demand for the basic materials required for their production, including copper, lithium, cobalt, nickel, graphite, manganese, platinum, as well as the 17 chemical elements known as rare earths.⁴ There are not only critical for the energy transition but also for the strategic role they play in other sectors - from the automotive to electronics and aerospace.

Critical Minerals enabling the clean energy transition

	Copper	Cobalt	Nickel	Lithium	REEs	Chromium	Zinc	PGMs	Aluminium
Solar PV	●	●	●	●	●	●	●	●	●
Wind	●	●	●	●	●	●	●	●	●
Hydro	●	●	●	●	●	●	●	●	●
CSP	●	●	●	●	●	●	●	●	●
Bioenergy	●	●	●	●	●	●	●	●	●
Geothermal	●	●	●	●	●	●	●	●	●
Nuclear	●	●	●	●	●	●	●	●	●
Electricity networks	●	●	●	●	●	●	●	●	●
EVs and battery storage	●	●	●	●	●	●	●	●	●
Hydrogen	●	●	●	●	●	●	●	●	●

Relative importance of minerals for a particular clean energy technology: High: ● Moderate: ● Low: ●

Source: International Energy Agency

Against this backdrop, managing the supply risks becomes a key strategic objective. Accessing secure and resilient supply chains of these materials is now a major global challenge with wider geopolitical implications.⁵ The growing competition for their supply, the high geographic fragmentation for extraction⁶ and the substantial Asian dominance in the processing and refining phases, require a reshaping of the global

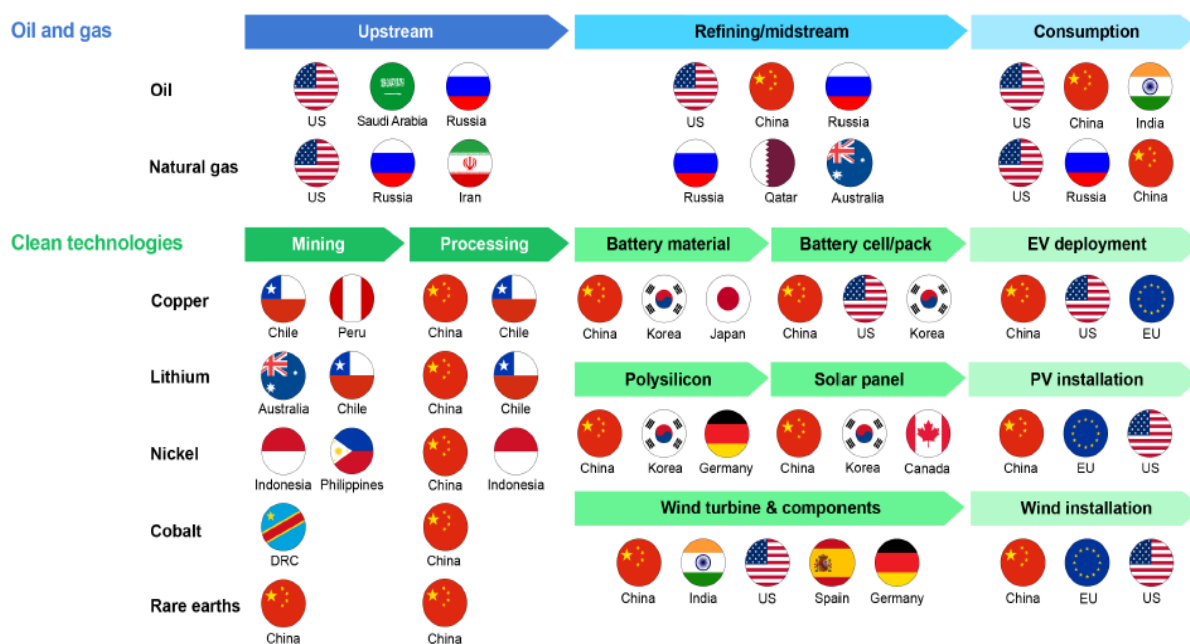
⁴ [Mineral requirements for clean energy transitions – The Role of Critical Minerals in Clean Energy Transitions – Analysis - IEA](#); For a full EU assessment, see [CRMs for Strategic Technologies and Sectors in the EU 2020.pdf \(europa.eu\)](#)

⁵ [China, the United States, and competition for resources that enable emerging technologies | PNAS](#)

⁶ For details of the current distribution, production, and potential reserves of critical materials see [Mineral Resources Online Spatial Data \(usgs.gov\)](#) and [Mineral Commodity Summaries 2022 \(usgs.gov\)](#).

structure of the value chains, new ways of cooperation and greater transparency of the markets.

Main supply chains of oil and gas and selected clean energy technologies



Source: International Energy Agency⁷

Among the influencing factors of this path of decentralisation of supply sources with a view to global resilience and competitive rebalancing, a relevant aspect concerns international cooperation for the modernisation of critical minerals supply chains in a governance framework based on principles of transparency and sustainable development.

Common standard development

Failure to address environmental, social and governance (ESG) issues in the extractive industry sectors can limit the supply of minerals and metals critical to the energy transition. Many of these materials are found in high-risk areas, and without reliable supply chains it will not be possible to scale up clean energy deployment in a timeframe compatible with meeting global climate goals.

⁷ [The Role of Critical Minerals in Clean Energy Transitions – Analysis - IEA](#)

Addressing and mitigating the environmental and social damage caused by industrial operations promotes acceptance by local communities beyond what is required by legal agreements. A stronger social license to operate makes supply chains more reliable by reducing risks to long-term investments and short-term supply disruptions.⁸

As such, businesses are under the spotlight and the demand for transparency is growing. Increasingly, key stakeholders – including investors, customers, employees and non-governmental organisations – are calling upon companies to evaluate the impact of their activities on the planet.

Yet businesses face a series of challenges. The large number of different metrics available for measuring and qualifying corporate sustainability performance⁹ creates confusion and increases the risk of greenwashing.¹⁰ In addition, most standards or certifications only apply to specific stages of the value chain. There are further issues regarding data gathering and traceability along the whole value chain, which can span across numerous geographical regions. And companies often have limited capacity to monitor compliance along the value chain – even if the data were available.

Some traceability protocols have already been developed, such as the International Standard Organisation (ISO) requirements for the design and use of a traceability system in a rare earth supply chains.¹¹ However, traceability remains complex to implement and effective regulatory enforcement remains essential. In order to work effectively, standards need to be introduced into regulation worldwide, along with enforcement, monitoring, governance and associated accountability measures, guarantees and training.

EU Policy

The European Commission has published a proposal for a directive on corporate sustainability and due diligence in all value chains.¹² In addition, the EU is preparing a new legislative instrument to ban the sale of products made with forced labour in the single market. This comes on top of guidelines already published that help EU

⁸ [Why is ESG so important to critical mineral supplies, and what can we do about it? – Analysis - IEA](#)

⁹ According to a recent survey of Ernst & Young, over 600 different ESG framework and standards are available in the world [What to watch as global ESG reporting standards take shape | EY - Global](#)

¹⁰ [Green investing: the risk of a new mis-selling scandal | Financial Times \(ft.com\)](#)

¹¹ [ISO 23664:2021\(en\), Traceability of rare earths in the supply chain from mine to separated products](#)

¹² [Corporate sustainability due diligence \(europa.eu\)](#)

companies address the risk of forced labour in their operations and supply chains, in line with international standards.¹³

In addition, the Critical Raw Material Act proposed by the EU Commission will be the overarching legislative reference for the development of EU Members States policies in this field.¹⁴ The Act aims to strengthen international engagement, facilitate extraction (where relevant), processing and recycling of critical materials, while ensuring high environmental standards and continuing research and innovation, e.g. to reduce material use and develop bio-based substitutes.

The Critical Mineral Taskforce in Italy

In response to the EU Critical Raw Material Action Plan presented by the European Commission in September 2020¹⁵, Italy launched a Taskforce on Critical Raw Materials in 2021¹⁶. Under the guidance of the former Ministry of Economic Development¹⁷, the Committee aims at strengthening coordination and formulating proposals for the creation of regulatory, economic and market conditions to ensure a safe and sustainable supply. Attended by academics, experts as well as SMEs, consortia and trade associations, it operates through four thematic Working Groups (WGs) covering different strategic aspects, namely:

1. **Assessing Needs** is coordinated by Confindustria¹⁸ with the objective of estimating future direct and indirect needs for critical raw materials and of analysing the gap between demand and supply.
2. **Mining** is coordinated by ISPRA¹⁹, with the objective of identifying the potential for sustainable primary and secondary mining activities in Italy, including the recovery of raw materials from previously abandoned sites and mining waste.
3. **Eco-design** is coordinated by ENEA²⁰, with the objective of analysing the potential of eco-design to reduce the demand for critical raw materials.

¹³ [New EU guidance helps companies to combat forced labour \(europa.eu\)](#)

¹⁴ [European Critical Raw Materials Act \(europa.eu\)](#)

¹⁵ [Commission announces actions on Critical Raw Materials \(europa.eu\)](#)

¹⁶ [Materie prime critiche \(mise.gov.it\)](#)

¹⁷ Nowadays [Ministero delle imprese e del made in Italy](#), Ministry of enterprises and made in Italy (MIMIT)

¹⁸ [Confindustria](#) is the main association representing manufacturing and service companies in Italy

¹⁹ [ISPRA](#) is the Italian Institute for Environmental Protection and Research

²⁰ [ENEA](#) is the National Agency for New Technologies, Energy and Sustainable Economic Development

4. **Urban mining** is coordinated by ENEA, with the objective of estimating the potential of Urban mining activities, with a focus on Waste from electric and electronic equipment (WEE), and drafting regulatory proposals for simplification following the analysis of best practices at a European and global level.

In February 2023, the government announced a reform of the Taskforce's governance by extending participation to the Prime Minister's Office, the Ministry of Foreign Affairs and International Cooperation and representatives of the European Commission and European agencies. The reform follows Italy's accession to the Minerals Security Partnership (see below), and the foreseen evolution of the European regulations after the EU Commission publication of the Green Deal Industrial Plan.²¹

Within this new regulatory framework, the Taskforce for Critical Raw Materials will aim to formulate proposals for a national strategy for the supply of critical raw materials that includes the exploitation of Italy's resources.²²

The Mineral Security Partnership

The Mineral Security Partnership (MSP)²³ is a multilateral initiative aimed at *“ensuring that critical minerals are produced, processed and recycled in a manner that supports countries in realizing the full economic development potential of their mineral resources”*. The MSP is represented by all G7 countries, the European Union, Australia, Finland, South Korea, and Sweden. Many resource-rich countries, such as Angola, Argentina, Botswana, Brazil, the Democratic Republic of the Congo, Mongolia, Mozambique, Namibia, Tanzania, Uganda, Zambia, have applied for membership or are *de facto* already involved.

In many countries with large critical mineral deposits, the governance of the mining sector remains weak and vulnerable to corruption, partly due to political instability. Without effective policies and well-governed institutions in key producing countries, effective expansion and stable supply will be difficult to achieve.²⁴

Stressing the need for the rapid deployment of clean technologies to meet global climate goals, the MSP recognises that this growth must not be at the expense of the environment, human health, or human and labour rights, and that the guiding

²¹ [The Green Deal Industrial Plan \(europa.eu\)](https://europa.eu)

²² [Chip, via al tavolo interministeriale sulle materie prime critiche - CorCom \(corrierecomunicazioni.it\)](#)

²³ [Minerals Security Partnership Convening Supports Robust Supply Chains for Clean Energy Technologies - United States Department of State](#)

²⁴ [G7 Countries Cannot Secure Critical Minerals Without Tackling Governance and Corruption | Natural Resource Governance Institute](#)

principles for accountability of all activities related to the Partnership's initiatives must be consistent with the OECD and the United Nations guidelines to prevent, address and remedy abuses of human rights committed in business operations.

For projects, the Partnership's guiding principles address both the environmental responsibility dimension – considering impacts on biodiversity, water resources, land use, air quality, greenhouse gas emissions, ecosystem services – and the social dimension. Local communities directly impacted by the projects must be engaged in the consultative processes, especially with regard to land-use change decisions, and they must be given the advantage of participating in the projects, with commercial benefits or through employment as workers, who must be guaranteed ethical, fair and safe conditions. Transparency in communication is also a must, as is extended consultation with institutional, industry and civil society stakeholders.

For government-to-government cooperation, the Partnership supports the right of countries to benefit from their own mineral resources, including the opportunity to develop industrial projects in the upper parts of the supply chains, and encourages the introduction of ESG standards in development project collaborations for mutually strategic critical materials. The Partnership's assurances and demands to governments concern the efficiency and effectiveness of the institutional and regulatory framework relevant to projects, including transparency and timeliness in the issuing of permits for mining projects. These frameworks shall promote social benefit and minimize environmental impact throughout their lifetime.

The economic sustainability of mining projects must be ensured within a fiscal framework that is balanced, transparent and conducive to the development of local communities. Furthermore, consultations on the feasibility and objectives of projects must be extended to all affected communities and the private sector. This must also cover labour contracts in a framework of ethical and transparent business environment adhering to international principles for promoting mining responsibility.

In February 2023, the Principles for Responsible Critical Mineral Supply Chains were adopted.²⁵ These principles refer to a full integration of high ESG standards in every project activity and to the cooperation between governments under the various initiatives.

²⁵ [Minerals Security Partnership Governments Engage with African Countries and Issue a Statement on Principles for Environmental, Social, and Governance Standards - United States Department of State](#)

ECCO is the independent Italian climate think tank. The mission of ECCO's think tank is to work in the public interest to accelerate decarbonisation and build resilience in the face of the climate change challenge. ECCO has a national, European and global reach. ECCO works to develop and promote analyses, proposals and strategies for climate based on facts and science in constant dialogue with experts from the scientific community, policy makers, institutions, civil society, business, trade unions and philanthropy. ECCO is a non-profit organization, unrelated to any private interest and funded exclusively through philanthropic and public resources

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