Factsheet: Critical Raw Materials

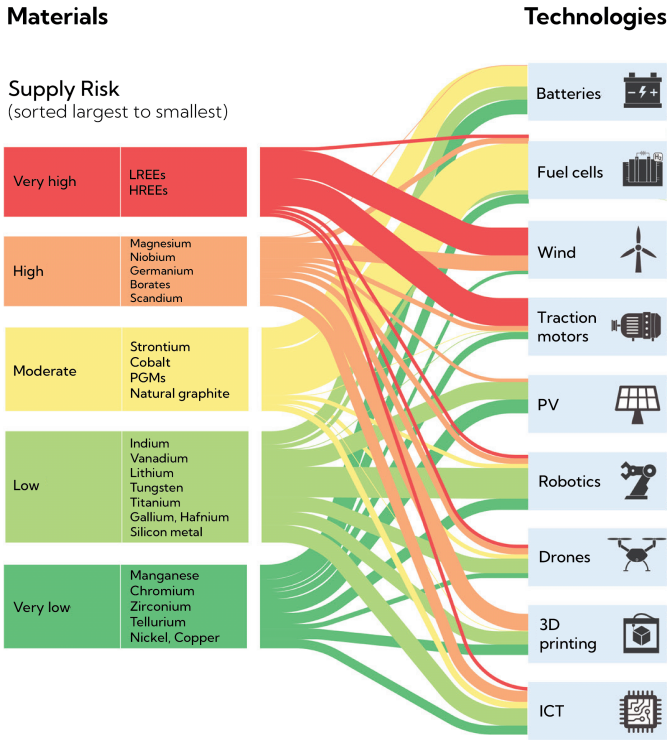
What are Critical Raw Materials?

Raw materials are substances sourced from nature or recycling that serve as essential inputs in the production of goods. Mineral raw materials, including metals, industrial minerals, and energy resources, underpin a wide range of industries and everyday uses. Securing reliable and uninterrupted access to certain raw materials has become an increasing concern for the EU and globally. In response, the European Commission maintains a regularly updated list of non-energy critical raw materials for the EU[1]. These are considered vital to the EU's economy and security while also being exposed to significant supply risks. Raw materials may be designated as strategic when they play a particularly important role in supporting key European industries, advanced technologies, and defence capabilities. The concept of strategic raw materials is closely linked to geopolitical considerations[1].

Why are they important?

Critical raw materials are recognised as a requirement for technological advancement, serving as essential components in cutting-edge industries such as electronics, aerospace, and renewable energy. Their unique properties contribute to the creation of innovative products, driving competitiveness and shaping the trajectory of technological progress. A common smartphone contains almost the whole suite of critical raw materials.

Recycling plays an important role in securing short-term supply needs, but it cannot fully meet demand. Even in the most favourable cases, such as lead with a recycling rate of around 75%, recycling alone is insufficient to satisfy demand[2]. Despite continuous improvements in recovery rates, rapidly growing consumption consistently requires additional primary supply from mining activities. As a result, safeguarding the availability of critical raw materials is becoming an increasingly significant challenge in meeting our expanding societal and industrial needs.



Representation of raw material flows and their associated supply risks for technologies used in the EU's strategic sectors (renewable energy, e-mobility, defence and aerospace). Source: Joint Research Centre.

What is the CRM Act?

The EU Critical Raw Materials (CRM) Act is a European Regulation, entering force May 2024, to strengthen all stages of the European critical raw materials value chain, reduce strategic dependencies, improve capacity to monitor and mitigate risks of disruptions to the supply, and improve circularity and sustainability.

EU EXTRACTION

at least **10%** of the EU's annual consumption from EU extraction

EU PROCESSING

at least **40%** of the EU's annual consumption from EU processing

EU RECYCLING

at least **25%** of the EU's annual consumption from domestic recycling

EXTERNAL SOURCES

no more than **65%** of EU's annual consumption of each strategic raw material at any relevant stage of processing from a single third country

Source: European Commission.

Critical Raw Materials & Society

Why are Critical Raw Materials Relevant to Policy?

The EU has critical raw materials reserves and mine production, for example: copper in Poland, cobalt in Finland, and tungsten in Austria and Spain (potential in Portugal). However, production is not keeping up with ever-increasing demand. As a result, the EU relies heavily on imports, notably from China, South America, North America, and Africa. To secure strategic supplies for its industries, the EU has strengthened international partnerships and adopted the Critical Raw Materials Act, which seeks to ensure a sustainable supply of critical raw materials across the value chain while reducing dependence on external suppliers[3].

The role of EuroGeoSurveys

National Geological Survey Organisations play a key role in implementing the CRM Act by providing harmonised data and expert advice to strengthen knowledge of Europe's critical raw materials potential. Contributions include coordinating national exploration programmes, conducting geoscientific surveys to improve understanding of deposits, and supplying information on the location and composition of mining waste, as required under the Act. These activities build on long-standing collaboration through EuroGeoSurveys, including data delivery via the European Geological Data Infrastructure (EGDI) and exchange through the Mineral Resources Expert Group (MREG) and its dedicated National Exploration Programmes working group (MREG-NEP), supporting the National Exploration Programmes required under the CRM Act.

This collaboration is being taken a step further through the GSEU project, which aims to deliver pan-European maps of mineral potential and favourability, update information on mining waste to assess the economic potential of CRM recovery, identify prospective areas and provinces for undiscovered CRM deposits, and support the creation and long-term operation of a European International Centre of Excellence on Sustainable Resource Management (ICE-SMR EU).

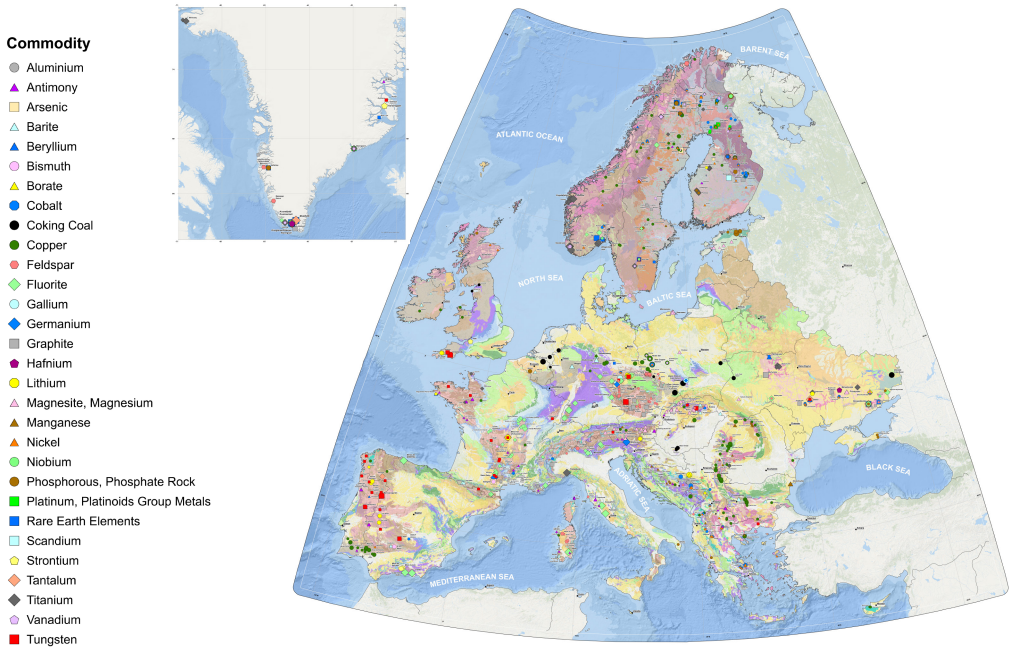
Towards long-term impact

Europe hosts valuable ore deposits of several critical raw materials, although current knowledge indicates that not all of the 34 listed materials occur in economically exploitable quantities. Strengthening the understanding of Europe's geology and mineral potential is therefore essential to support sound strategic decision-making.

Establishing a permanent **Geological Service for Europe** would provide a stable framework for collaboration, data integration, and expertise sharing across countries. This long-term structure would support consistent updates of geological knowledge and ensure that policy and investment decisions on critical raw materials are grounded in robust, comparable scientific evidence.

References:

1. European Commission. Fifth list of critical raw materials for the EU (2023).
2. Directorate-General for Internal Market, I. 3rd Raw Materials Scoreboard: European Innovation Partnership on Raw Materials. Publications Office of the European Union, LU (2021).
3. European Council. An EU critical raw materials act for the future of EU supply chains (2023).



The map of critical raw materials hard rock deposits of Europe by GSEU.

Explore this map in full detail