



GSEU
GEOLOGICAL SERVICE FOR EUROPE

Bringing the
Subsurface into the
Light – drawing
together the baseline
data and knowledge
needed to manage
Europe's natural
resources and reach
Net Zero



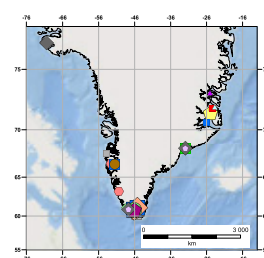
geologicalservice.eu

What role do Geological Surveys play in this story?

For many years, European geological surveys have been collecting data on mineral deposits at national level. However, the challenge extends beyond national borders. The GSEU project is establishing a pan-European advisory and information service that extends national data and expertise across borders. Through the EGD web platform's map viewer, you can explore mineral deposits across Europe – search for familiar mineral resources like copper or discover lesser-known, but equally essential critical raw materials such as lithium and cobalt.

Curious? You can already check out the 'Map of Critical Raw Materials hard rock deposits of Europe' in the Publications section of our website.

The data collected by the GSEU project enhances our understanding of the sources of critical minerals and supports a sustainable, secure, and responsible supply for the future.



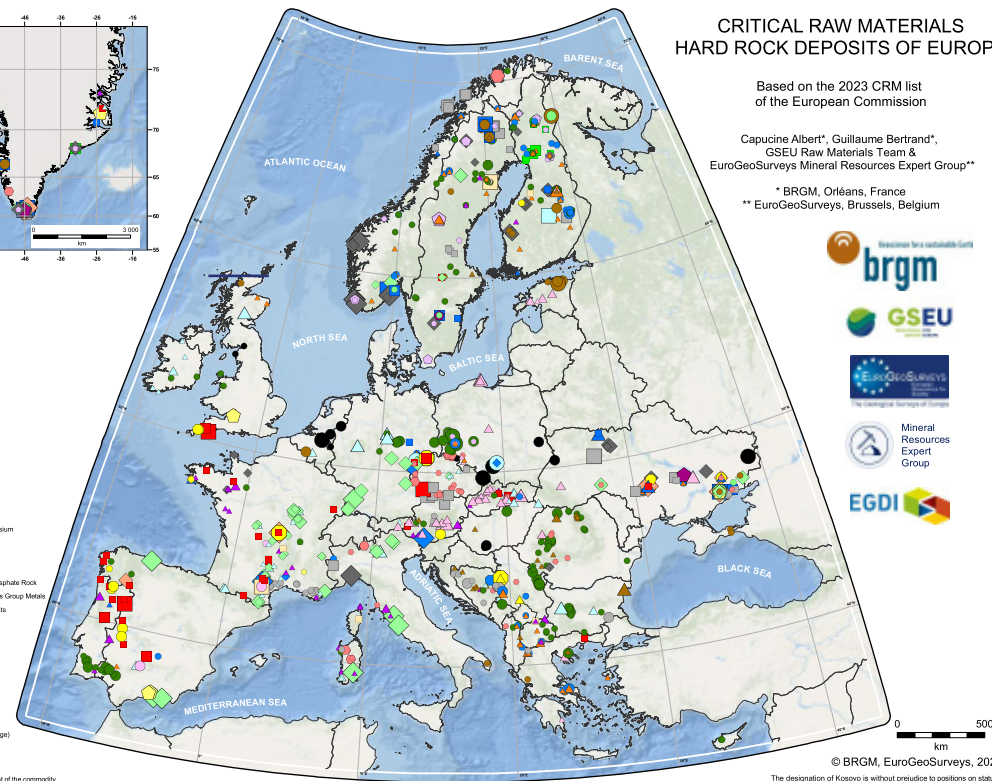
Commodity

- Aluminium
- Antimony
- Antimony
- Bauxite
- Beryllium
- Bismuth
- Boron
- Cobalt
- Coking Coal
- Copper
- Feldspar
- Fluorite
- Gallium
- Germanium
- Graphite
- Indium
- Lithium
- Magnesium
- Manganese
- Nickel
- Niobium
- Phosphorus, Phosphate Rock
- Platinum, Platinoids Group Metals
- Rare Earth Elements
- Scandium
- Strontium
- Titanium
- Tungsten

Deposit Size *

- Class A (Super Large)
- Class B (Large)
- Class C (Medium)

* Remaining = extracted amount of the commodity



CRITICAL RAW MATERIALS HARD ROCK DEPOSITS OF EUROPE

Based on the 2023 CRM list
of the European Commission

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The designation of Kosovo is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.



Critical minerals

“Everything starts with a rock”

Karen Hanghoj, BGS Director



Funded by
the European Union



What are Critical Minerals?

For many of us, the word 'mineral' brings to mind colourful crystalline pieces that we know come from the ground, but have only seen in museums as children, in beautiful pieces of jewellery, or something we might take as dietary supplements. We probably don't think much beyond that.

But that's not the whole story...

Minerals are found in rocks and soils, and they are present in most aspects of our daily lives.

The Geological Service for Europe (GSEU) project has recently released a second edition of the book "**Minerals in Your Life**", where you can discover and learn about the importance and everyday uses of minerals in our society, and why they are essential for Europe's green and digital transition. From common minerals such as halite (salt) –

used to flavour our food – to others such as gypsum, calcite or iron oxides which are vital for meeting our basic needs – used in infrastructure, agricultural fertilisers or electrical wiring, and even to more specialised critical minerals. These are the source of what we call critical raw materials, which are of high economic importance and are irreplaceable for creating the technology we rely on today. Some of these materials are also considered strategic due to their applications in areas such as national defence. Mineral commodities, such as lithium, cobalt, and rare earth elements, are key ingredients for making smartphones, electric vehicles, and renewable energy systems like solar panels. Without them, we wouldn't be able to enjoy the modern technologies we use daily.

So, whether it's a simple wire or a complex electric vehicle, **everything starts with a rock.**

What does that mean for me?

Okay. Let's say you're having breakfast while watching the first news of the day on your mobile phone. **Where does your milk, cereal, spoon, or mobile phone come from?**

Even if you've always lived in a city, you know that milk comes from a cow and you know that cereal comes from the countryside. However, what about everything else?



Ceramic bowl?
Made from clay minerals such as kaolinite, feldspar and quartz.



Your spoon?
Likely made from stainless steel, which contains iron and chromium.



Mobile phone?
A mix of more than 30 different minerals, including lithium, cobalt, and rare earth elements.

Minerals, along with food, have accompanied humankind throughout history. While we see and understand food as we buy it every week at the supermarket, minerals remain largely invisible. Yet they have become the unseen foundation of modern life.

However, **invisible does not mean unimportant.**

The European Commission has identified **34 critical raw materials that are essential** for the energy transition and digital transformation to make Europe the first climate-neutral continent.

In this context, "critical" also means that their production is concentrated in a limited number of countries, making any supply shortage potentially harmful, as they cannot be replaced by other elements. As demand for electric vehicles, renewable energy, and digital technologies grows, the need for these minerals will continue to increase.

Challenges

We know that the minerals used in our society come from mines and quarries, but many critical minerals can also be recovered through recycling. In fact, old electronic devices and

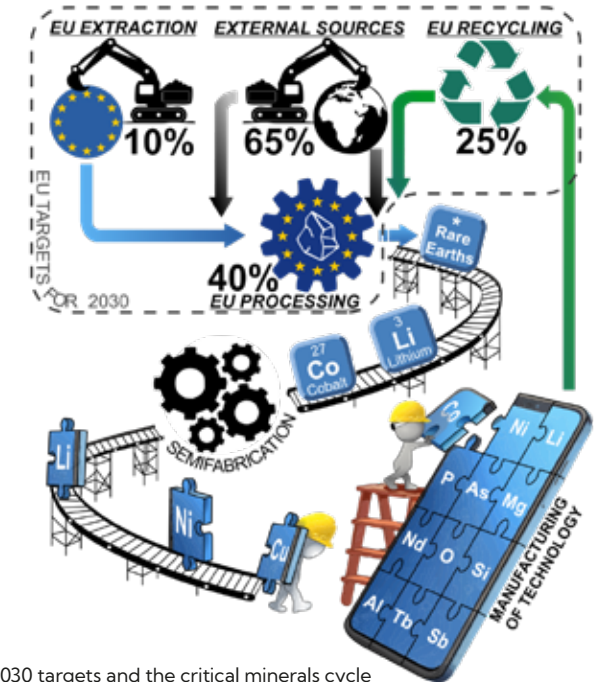
industrial waste are valuable sources of materials such as cobalt, copper and nickel. However, recycling currently meets only a very small portion of our growing demand. The European Union aims to obtain at least 25% of the critical raw materials it consumes annually from recycling by 2030, but recycling alone will never be sufficient to meet future needs. This means that we still need to extract critical minerals through mining operations.

Currently, the EU's industry is heavily dependent on critical minerals that are extracted or processed in several non-EU countries, such as China, Turkey, and South Africa. Some of the most critical raw materials, including heavy rare earth elements, are supplied almost entirely—up to 100%—by a single third country, exposing supply chains to geopolitical risks.

Because demand is rising and mineral resources are limited, it is essential to reduce consumption while developing

recycling. In addition, securing more local sources of supply is crucial to meet growing demand and reduce dependence on non-EU countries. To mitigate the risk of disruptions in the supply of critical raw materials, **the EU has set the following**

targets for 2030:
limiting reliance on any single third country to no more than 65% of the EU's annual consumption, **increasing EU-based processing** to 40%, and **sourcing** at least 10% of **these materials from EU extraction.**



EU 2030 targets and the critical minerals cycle