



EUROPEAN CLUSTER  
COLLABORATION PLATFORM

# From magnesium to steel: Navigating shifts in critical raw materials and global supply chains

## Summary

EU Clusters Talks  
22 June 2022, 8:30 – 9:30 CEST

An initiative of the European Union





# EU Clusters Talk “From magnesium to steel: Navigating shifts in critical raw materials and global supply chains”

The European Cluster Collaboration Platform organised this EU Clusters Talk on 22 June 2022, 8:30 – 9:30 CEST, to speak about disruptions in European supply chains related to raw materials, possible solutions, sustainability, and actions from the policy and industrial side.

## Agenda of the meeting

Moderation: Živilė Kropaitė

1. News from the European Cluster Collaboration Platform
2. “From Our Own Correspondent”: EXPOMINE project
3. EU policy securing the supply of critical raw materials and resilient value chains in transition  
*Maria Nyberg, Policy Officer, DG GROW, European Commission*
4. Panel debate  
*Constantin Ciupagea, Head of Unit, DG JRC, European Commission*  
*Kristiina Jokelainen, Founder, Smart North*  
*Luis Martíns, Chairman of the Board, ACPMR – Cluster Portugal Mineral Resources*
5. Funding opportunities

## 1. News from the European Cluster Collaboration Platform

### Nina Hoppmann, team member of the European Cluster Collaboration Platform

After the introduction by moderator Živilė Kropaitė, the following news items were presented:

1. Publication of the [report on the survey “Identification of disruptions in value and supply chains”](#). It presents the results of the survey to understand current disruptions in European value and supply chains.
2. [Open call for expression of interest](#) to host one of the 13 next “Clusters meet Regions” events in 2022 and 2023. The first cut-off will be on 29 July 2022.
3. [EU-Singapore Matchmaking](#). Two different calls are open: representatives from cluster organisations and small and medium-sized enterprises from EU (and non-EU-COSME countries). Deadline is 30 June 2022.

## 2. “From Our Own Correspondent”: EXPMINE project from MINE.THE.GAP

The video presented the **EXPOMINE project** developed by Monolithos, an industrial Greek SME dedicated to manufacturing and recycling automatic catalytic converters and other parts of commercial vehicles, under the INNOSUP project MINE.THE.GAP. The company is very active in R&D, working on more than 20 projects, resulting in four patents for its technologies and producing 16 regularly reviewed publications. It also has a network of more than 50 partners across its projects, including some of the world's largest companies. The EXPOMINE project is a **collaboration between three European companies** and aims to use a **novel recycling process** to exploit the potential of dressage mining by elevating it as a valuable source for governing platinum and rarer elements. Our demand for raw materials is increasing every day. Most of them are not available in the EU and we import them from third countries. However, these materials are in daily circulation, used and



discarded. The **EXPOMINE project** aims to **innovate in order to reuse them, recycle** them and provide us with **greater autonomy** in terms of resources with a more efficient use, especially in **rare earths** and **platinum**, with an important application for automotive catalysts, electronics, renewable energy devices, etc. Finally, the corresponding production is estimated to be worth more than 50 million euros per year.

### 3. EU policy securing the supply of critical raw materials and resilient value chains in transition

**Maria Nyberg, Policy Officer, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), European Commission**

In her introduction, Maria Nyberg commented that EU leaders reaffirmed the need to make Europe's single market and economic base more resilient, competitive, and fit for the green and digital transition. They called on the institutions to reduce strategic dependencies, including on critical raw materials, and to double efforts through strategic partnerships with like-minded countries that explore strategic partnerships, stockpile and promote a greater circularity and resource efficiency. In response, in the communication of 18 May, the Commission presented the start of a **legislative proposal on the supply of critical raw materials (CRMs)** inside the **REPowerEU plan**. The aim of this legislative proposal is to strengthen the EU's capacity to **monitor the European value chain** by identifying mineral resources and CRMs. These are projects of strategic interest for the EU and will consider environmental protection and circularity. However, she indicated that the timetable for the legislative initiative is not yet determined. Supply shortages, price increases and disruptions in the CRMs chain have revealed our dependency on our third country suppliers and our lack of domestic industrial capacities.

On the **urgency of tackling climate change**, Maria Nyberg stressed that Europe is the most ambitious continent in the world. To achieve an emission-neutral future as set out in the EU "FIT FOR 55" plan and the 2020 industrial strategy, the EU needs access to much **more sustainable CRMs from extraction and recycling**. For example, the demand for raw materials used in wind turbines, in particular rare earths in permanent magnets, is expected to increase up to 6 times by 2030 and up to 15 times by 2050. For mobility, EU demand for graphite is estimated to increase by 14 times, and nickel by 3 times by 2050. Besides, for the complete electrification of Europe, demand for copper is essential. In addition, magnesium chemicals, photovoltaics and cybersecurity technologies are examined in the analysis of strategic dependencies.

Regarding the **actions for a safe and sustainable RM** based on the **2020 CRMs list**, Maria Nyberg explained three strategic fronts, which are increased circularity of raw materials, sustainable mining in the EU, and the responsible sourcing of a range of resources from related third countries. She highlighted that in relation to recycling, the EU have a satisfactory level. However, in terms of **innovation** in CRMs, there is a big gap to be filled with different measures<sup>1</sup> (e.g., batteries regulation 2020, eco-design Sustainable Products Regulation 2022, Waste Shipment Regulation 2021, WEEE Directive, ELV Directive). Also, they are mapping the potential primary and secondary raw materials in the EU and Horizon Europe (300 MEUR on RM 2021-2022). Maria Nyberg noted that in addition to greater circularity, there is a need to have **access to the primary RMs**. It is necessary to strengthen the framework conditions for sustainable EU mining reducing their environmental impact (EU principles for sustainable RMs).

In relation to **access to funding**, she pointed out that the European Investment Bank (EIB) has adjusted its energy lending policy for projects relating to the supply of CRMs. In addition, the Bank for Reconstruction and Development (EBRD), has approved an extractive mining industry and InvestEU

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<sup>1</sup> [https://ec.europa.eu/growth/sectors/raw-materials/areas-specific-interest/critical-raw-materials\\_en](https://ec.europa.eu/growth/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en)



will support with an EU budget guarantee of 19.6 5 billion for investment projects, including the provision of CRMs across Europe.

She also invited attendees to participate in the **Raw Materials Week 2022**<sup>2</sup>, which will take place from 14-18 November.

Finally, regarding the war in Ukraine, work is underway on a legislative package to wean the EU off its strategic dependence on Russia and to assist Ukraine as much as possible as an ally and in its reconstruction.

## 4. Panel debate

Before the beginning of the discussion, the three panellists introduced themselves and their organisations:

### **Constantin Ciupagea, Head of Unit, DG JRC, European Commission**<sup>3</sup>

Constantin Ciupagea presented the European Commission's Raw Materials Information System (RMIS), which is the EC's knowledge platform on non-energy, non-food raw materials from primary to secondary sources. RMIS is an entry point for knowledge provision and management for secure and sustainable RM value chain at EU level, maintained by the Joint Research Centre (JRC). It provides science-based policy recommendations to the EU institutions. They manage the knowledge on non-fuel and non-food materials, biotic and abiotic (minerals, metals, etc.) seeking to integrate them into the EC's RMIS, a tool for disseminating information, not only within the Commission, but also as a global reference.

Currently, their activity focuses in 12 thematic chapters, 40+ subchapters and working together with more than 1500 stakeholders but working flexibly to adapt to new demands such as Russia's invasion of Ukraine. Their work led to a 5-fold increase in the number of visitors by the end of the year (30% non-EU visitors). He highlighted the applications developed in relation to critical raw materials dynamics (as battery supply chains) and the application of Ukraine (with briefs on demand for potassium, titanium, coal, or the EU-Russia trade dependencies).

### **Kristiina Jokelainen, Smart North**

Kristiina Jokelainen is a representative of the **S3P Mining Industry and Global Value Chains**<sup>4</sup>, a collaboration of 15 mining regions (Finland, Sweden, Portugal, Spain, Greece, France, UK and collaboration with the Ministry of Ukraine) to strengthen the regional and interregional innovation capacity to facilitate investments, growth and employment in the mining industry, related industries and services in regions. This is a sector where it is necessary to speak regionally, and which mainly involves regional governments, industries and stakeholders. The platform supports the development of regional mining hubs for cluster- and network-based operations, university research, and active partnerships of the regions.

Their thematic working areas are the critical and strategic RM production, empowerment of SMEs in global value chains, new technologies and sustainable mining, social acceptance of mining through stakeholder involvement, and education and training in mining and training.

Finally, she emphasised the concept of remining. Circular economy starts with the extraction of raw materials, and we need to think of circular approached.

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<sup>2</sup> <https://eit.europa.eu/news-events/events/eit-rawmaterials-eu-raw-materials-week>

<sup>3</sup> <https://rmis.jrc.ec.europa.eu>

<sup>4</sup> <https://s3platform.jrc.ec.europa.eu/mining-industry>





### Luis Martíns, ACPMR - ASSOCIAÇÃO CLUSTER PORTUGAL MINERAL RESOURCES<sup>5</sup>

Cluster Portugal Mineral Resources focuses on promoting knowledge and sustainable and economic value for mineral resources, deepening knowledge of the economic potential of resources, promoting R&D+I, increasing skills, and stimulating inter-company and inter-institutional cooperation.

Currently, the cluster has 84 members, counting with the largest research and academic organisations in Portugal leading in mineral RMs. He explained that the aim is to improve the systematisation of our industry in order to develop strategic autonomy in mineral raw materials in Europe, one of the lessons learned from the war between Ukraine and Russia. He underlined the importance of having a strategic triangle between the Commission, the Member States and between the regions as producers of primary and secondary RMs.

### Open Dialogue

The panellists discussed the challenges of the supply with critical raw materials, the cooperation between the different actors, and on how to become more resilient and increase the production of raw materials.

Talking about critical raw materials, Kristiina Jokelainen highlighted that 14% of the world's **cobalt deposits** are located in Finland and Sweden. Of these 14%, 12% of the deposits are located in the territory of eastern Finland and 2% in northern Sweden. Currently, only 2% represents existing and exploited mines. Jokelainen explained that these are deposits that are in process. She gave the example that the Kiruna deposit in Sweden alone, the largest deposit, could currently produce 30% of Europe's cobalt needs. Other strategic projects, such as the **iron ore** deposits in these countries, must also be taken into account.

Luis Martíns highlighted a **lack of cooperation** between the different actors, and identified member states as a major bottleneck. He points out that closer work is needed between the Commission, the member states and above all with the regions. For its part, the Commission is working on European legislation on minerals and trying to push Member States to have more favourable policies for mining our raw materials. As an example, in Portugal, he stated that they have bureaucratic problems for the exploitation of mines, especially for permits. The waiting time for companies to obtain environmental impact licenses is long. A balance must be found between supervision for environmental and safety issues and the viability of the projects. Kristiina Jokelainen added that the communication should go directly to the regions. For this, we have networks of clusters at the regional level. Instead of having different solutions, the challenges could be solved if only they were discussed around the same table. For his part, Ciupagea stressed the importance of the different levels of public administrations, empowering regions, working together to develop and improve the operation of the Raw Materials Information System (RMIS).

In relation to projects or activities to make the **supply chain of RMs more sustainable and resilient**, Luis Martíns highlighted that in Portugal, the Recovery and Resilience Plan foresees new 50 projects, allowing the joint work between companies, clusters and research institutions to develop projects for the digital and green transformation, including a sustainable and secure supply of raw materials and a much greener industry. Kristiina Jokelainen explained the **cooperation networks between innovation hubs in Finland and Sweden** and the importance of the smart specialisation strategies. This development of the innovation ecosystem is allowing local SMEs to be active in the value chains and to find solutions for large companies through outsourcing. Also, she pointed out that another major challenge for the supply of raw materials in the North is **infrastructure**, as massive works are needed to cope with the climatic conditions in her area. So, not only do you have to look at the deposits, but also to the communications to make that supply possible.

Ciupagea affirmed that the EU should focus on those fields for which it is a reference, for example the further development of our **technology**. He agreed with Jokelainen in being aware of our complex geography in Europe in order to improve supply chains. At the same time, we should continue to support free trade agreements in raw materials, benefiting from being the world's largest consumer,

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<sup>5</sup> <https://www.clustermineralresources.pt/>



but demanding that environmental and sustainability standards are met in the production of these products.

Luis Martíns suggested the **possibility of creating a Mineral Raw Materials Cluster Alliance** to improve coordination and cooperation between the different institutions at the European, state and regional levels and to strengthen collaboration between industry and academia. Regarding the necessary technology, Kristiina Jokelainen added to also consider robotics and automation technology actors, as they are becoming key in the mining industry. Constantin Ciupagea considered that it is necessary to focus on the entire cycle of raw materials, seeking efficiency, from the primary materials we buy to their recycling to convert them into secondary materials. Therefore, he believes that this European network should not focus on mineral raw materials but rather on networks of **industrial ecosystems in which we are strong** in order to focus on what Europe's priorities are. We should see where we have an advantage and develop it further with a strong technological component (e.g. the steel industry sector, as we are the second largest producer and consumer in the world).

## 5. Funding opportunities to strengthen resilience

### Nina Hoppmann, team member of the European Cluster Collaboration Platform

Closing the EU Clusters Talk, Nina Hoppmann presented the following funding opportunities:

From the European Commission:

1. European Innovation Council: [€20 million support for Ukrainian start-ups](#). The initiative will support the Ukrainian innovation community and at least 200 Ukrainian deep tech start-ups with up to €60,000 each. Deadline: 7 September 2022.
2. [EIT Raw Materials Business Plan 2023-2025](#). Programme: HORIZON.EIT-2022. Deadline: 28 September 2022.
3. Call for [sustainable processing and refining of battery grade graphite \(Batteries Partnership\)](#). The initiative has the objective of promoting the exploitation of existing graphite resources in Europe for the creation of batteries partnerships and decrease external dependencies.

From cluster partnerships:

1. Advanced Materials & Manufacturing Technologies United for LightEight (AMULET): [First call for proposals](#). The funding to exploit the innovation of advanced lightweight materials will include a lump-sum of up to 120,000 per project (up to 60,000 per SME). 1<sup>st</sup> Open Call deadline: 30 June 2022.