

## FRAME - FORECASTING AND ASSESSING EUROPE'S STRATEGIC RAW MATERIALS NEEDS



### Research Area

Mineral Resources

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### Motivation

Mineral Raw Materials underpin societal development and Europe's ambition for economic growth and well-being. The European Commission recognises the importance of Raw Materials through its Raw Materials Initiative (RMI), the European Innovation Platform on Raw Materials (EIP-RM) and Horizon 2020 funding, specifically through Societal Challenge 5 – Climate Action, Environment, Resource Efficiency and Raw Materials. These initiatives have as their overall objective:

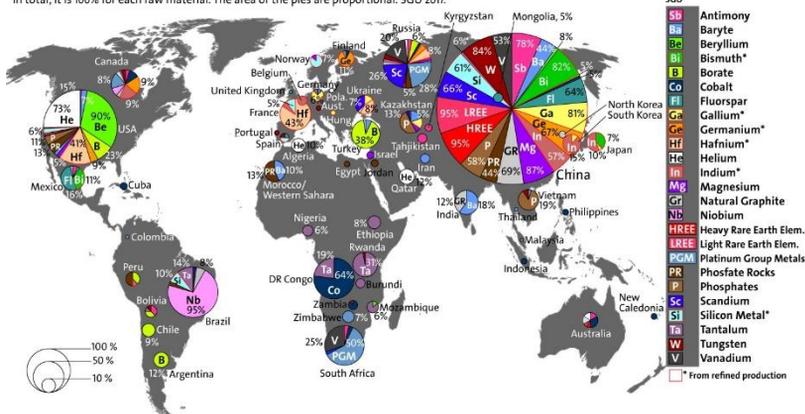
The security and sustainability of mineral raw materials supply from EU domestic sources and other sources (primary and secondary); and the management of competing uses of the European surface and subsurface.

### Objectives

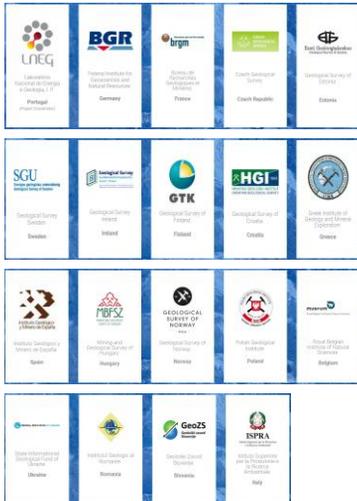
Inevitably, Europe shows a growing and accelerating consumption of mineral commodities, which at the moment the question whether supply to meet demand is adequate or not cannot be answered with any certainty because secure supply is a matter of knowing the resources and the ability to exploit them with respect to sustainability. Non-energy minerals underpin our modern economy and are essential for manufacturing and renewable "green" energy supply technologies. Many critical and strategic minerals and metals may be collected through recycling of mining related waste materials. However, even with the important contribution from recycling, it will still be necessary to extract them from primary mineral deposits, focusing on applying new technologies for deep exploration and mining, turning low-grade ores to exploitable resources and reducing generation of mining wastes and large tailings by converting them to exploitable resources.

### Global Supply of EU Critical Minerals and Metals

The pie charts show the percent distribution of the production of critical metals and minerals. In total, it is 100% for each raw material. The area of the pies are proportional. SGU 2017.



## Partnership



## Web page

[www.frame.lneg.pt](http://www.frame.lneg.pt)

## Project Duration

3 Years

1 July 2018 - 30 June 2021

Project FRAME (Forecasting and Assessing Europe's Strategic Raw Materials Needs) is designed to research the critical and strategic raw materials in Europe, in scenarios as described above, by employing sound strategies and a partner base spread far and wide amongst those that have some of these raw materials. Through successful teamwork, there is the expertise and knowledge base to provide a significant innovative contribution towards knowing more about the potential primary deposits, predict new target areas/deposits and recognize the potential in secondary deposits. FRAME is made up of eight work Packages (WP) designed to collect, extract and disseminate strategic and critical mineral data to fill existing knowledge gaps in this field.

Work package 1 - The purpose of work package 1 is to lead, manage, coordinate and monitor the progress of the project, and ensure that the project meets the objectives stated for the work described in the Grant Agreement and that WP leaders and partners respect the timeline and deliverables.

Work package 2 - The objective of WP 2 is to widely disseminate the project results during the duration of the project as well as to maximize its impacts after the end of the project. WP 2 will focus in developing and implementing a comprehensive communication strategy plan that will define the project multiple stakeholders and the most suitable channels to reach them. WP 2 will support the technical and management project Work Packages in communicating their research in an understandable way for scientific and non-scientific audiences.

Work package 3 - To develop metallogenic research and models at regional and deposit scales as well as prospectivity maps, with special attention to strategic critical minerals for which the EU is highly dependent, in support of more efficient exploration and mining.

Work package 4 - This work package is dedicated to the assessment of economic potential of igneous and sedimentary phosphate deposits (and their host black shales) in Europe, especially regarding Critical Raw Materials (CRM). These deposits could significantly contribute to a secure sustainable access to a large proportion of Europe's requirement for these CRM.

Work package 5 - Natural graphite, lithium and cobalt are essential components in modern and mobile energy storage technology, most notably in rechargeable lithium-ion batteries. The current work package will investigate, generate and compile data on the occurrence and production of these "energy critical elements" in order to provide a better and more accurate basis for exploration and exploitation, as well as land use management, and to provide high quality mineral intelligence data to the European data portals. Natural graphite and cobalt are both critical raw materials in the 2017 EU criticality assessment, while lithium is located above the supply risk threshold.

Work package 6 - The chemically related elements niobium (Nb) and tantalum (Ta) are two of the most particular critical metals (critical raw materials; CRM), of which Ta, and associated Nb are extensively sourced as so-called conflict mineral from the central African region today. As such, their mine production is associated with abhorrent and often slave-like conditions for mine workers, which include children, as well as being a fundamental source of income for local warlords. While legislation is now in part being enforced to "guarantee" conflict-free Nb and Ta in industrial products, this is very far from being without major caveats. An alternative, or complimentary action to this, is to find potential sources of these rare metals within the EU and associated countries.

Work package 7 - improving European regional geological and metallogenic knowledge regarding future potential of existing mine sites and will contribute to improving pan-European geological information on CRM by providing an overview and case studies on critical raw materials contained in known European deposits while focus will be given to former highly and longtime active mining regions.

Work package 8 - The main objective is to identify and discuss requirements in close dialogue with the Information platform (IP) team.