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Mineral resources - crucial components of a vital and wealthy society

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Changes in our world mean that Europe is facing many pressing demographic and geographic challenges. A growing, aging population coupled with changes in population density are causing environmental stresses to our ecosystem that when coupled with climate change create challenges in sustainable food production and the use of natural raw materials. At the same time, the Fridays For Future Movement is calling out loudly for Future and Climate Justice, CO₂-neutrality, resource efficiency and (almost) closed material loops. These issues are already expressed by the 17 UN sustainable development goals (SDGs) and widely shared through the Paris Agreement. The European Union and the National Governments have launched many frameworks and action plans such as the European Green Deal to achieve a carbon-neutral economy and clean mobility for example. Certainly, any of those transformations and any infrastructure developments will require sustainably produced mineral raw materials to deliver key enabling technologies and to meet the needs of the Industry 4.0 society. Moreover, improvements in buildings such as energy efficiency through insulation technologies, other infrastructure developments and the Europe's cultural heritage preservation add to the increasing demand in mineral resources.

The demand for ever increasing volumes of mineral resources cannot be met exclusively by recycling and thermodynamics does not allow for fully closed material loops. Hence, a sustainable supply of raw materials will always require accessibility to mineral deposits and productive mines while the effects of competing land-use issues and NIMBY activism are increasing too.

The realisation of a low-carbon society and a self-concept of reliable sourcing increasingly require short feed strokes and local sourcing. A good understanding of mineral systems, mining sites, and remaining resources of historical sites will stay of utmost importance. The four **GeoERA Raw Materials** projects* EuroLITHOS, FRAME, MINDeSEA and Mintell4EU share expertise, information and focus on European on-shore and off-shore resources.

EuroLITHOS gives specific attention to ornamental stone resources for which Europe has a long

tradition in mining, processing and usage.

FRAME designed to research the Strategic and Critical Raw Materials (SCRM) in Europe to gain new insights into reserves and resources taking into account new technologies and developments.

MINDeSEA focuses on exploration and investigation of SCRM from seafloor mineral deposits in European waters. Identifying areas for responsible resourcing and information on management and Marine Spatial Planning in European Seas are in its core of action.

Mintell4EU focuses on harmonizing data, utilizes the UNFC, providing spatial data and thematic maps. Updated electronic Minerals Yearbook and Europe's Minerals Inventory are among the products.

Foresight and forecasting of the raw material supply potential of Europe will become more reliable through increased data quality and harmonization. Workshops and training courses will add to ensure an improvement of the European Raw Materials Knowledge Base. GeoERA Raw Materials projects create valuable, accessible and public data, and information for policy-makers and end-users of geological data and minerals information in Europe.

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