

Project acronym	SuMREE		
Project title	Sustainable Mining of REE in Europe		
Main topic	Topic 1: Supply of raw materials from exploration to mining		
Sub-topics	Sub-Topic 1.1: Innovative exploration methods, Sub-Topic 1.2: More sustainable mining operations, Sub-Topic 1.3: Improved environmental management of mines, Sub-Topic 1.4: Efficient mineral processing and metallurgy, Sub-Topic 1.5: Mine closure, remediation and re-mining of tailings and waste rock		
Keywords	REE mining, REE geochemistry, efficient extraction, low environmental impact, Critical Raw Materials (CRM)		
Publishable abstract	<p>The Critical Raw Materials Act, published on March 16th, 2023, clearly stressed the need for domestic production of Critical and Strategic Raw Materials (CRM) in Europe. Rare Earth Elements (REE) are classified as the CRM with the highest supply chain vulnerability. REE mining projects in Europe have a great opportunity to be profiled as world leading regarding sustainable mining. To reach that position, efficient extraction techniques need to be developed and the environmental standards must be high to minimizing adverse impact. In SuMREE (Sustainable mining of REE in Europe), we have gathered two of the most important stakeholders regarding REE-mining in Europe (LKAB, Sokli Oy) together with researchers holding extensive experience in REE geochemistry and mineralogy (Huelva University, Universitat de Barcelona, Luleå University of Technology, and the Czech Geological Survey). The main objectives of SuMREE are to increase the competitiveness for REE mining, reduce the environmental footprint and indirectly improve the social acceptance towards REE mining. Different geomaterials hosting REE will be studied in different climates (arctic, continental, Mediterranean), different pH-conditions (acidic to alkaline) and various redox environments (anoxic to oxic) regarding REE geochemistry. The knowledge gained will be directly applied by Sokli Oy, that aims to develop state-of-the-art mining, extraction and separation of REE from the Sokli ore in Northern Finland within the project. Furthermore, the impact of waste produced from REE mining of Fe-apatite residue in LKAB's mining process will be evaluated based on the environmental impact. Thus, the close collaboration between researchers and stakeholders in SuMREE enhance the results to be implemented already at an early stage of mining to reach responsible and sustainable mine development with high efficiency, low waste production and low environmental impact.</p>		
Participating Institutions	Luleå University of Technology, Department of Civil, Environmental and Natural Resources Engineering, Sweden; University of Huelva, Earth Sciences, Spain; Universitat de Barcelona, Spain; Czech Geological Survey, Mineral resources research and policy, Czech Republic; The Finnish Minerals Group, Finland; LKAB, JTFK, Sweden (associated partner)		
Project duration	36 months		
Total Costs	2 155 692 €	Total Requested Funding	1 243 069 €

