

Strategic raw materials for the energy and digital transition in Spain

T. Sánchez-García^{1*}, R. Martínez-Orio¹, S.M. Timón-Sánchez², A. Díez-Montes², M. Trío-Maseda¹, T. Llorens-González², E. Boixereu i Vila¹, C. Fernández-Leyva³, J. Fernández-Suárez⁴, I. Martín-Méndez¹, P. Adanez¹, J. García-Crespo¹ and P. Delgado-Arenas¹

¹IGME, CSIC. Madrid, Spain

²IGME, CSIC. Oficina de Proyectos Salamanca, Spain

³IGME, CSIC. Oficina de Proyectos Granada, Spain

⁴IGME, CSIC. Oficina de Proyectos Oviedo, Spain

*Corresp. Autor. C/Ríos Rosas 23, 28003 Madrid, Spain. t.sanchez@igme.es

Abstract

One of the main concerns of the European Commission is critical raw materials (CRM), necessary for daily life in a wide range of goods and applications. The EU's industry and economy depend on international markets for many important raw materials, which are produced and supplied by third countries. These CRMs are closely linked to clean technologies, technological progress and quality of life. Concern about access to CRMs led the European Commission to draw up a first list of critical raw materials (CRM) in 2011, and to schedule its review and update every three years, the last being in 2020.

Based on the methodology of the European Commission for the determination of CRM, a list of critical and strategic raw materials for Spain has been drawn up. This methodology includes two major parameters, (i) economic importance and (ii) supply risk. These two parameters, which may seem simple, actually include a multitude of factors to take into account.

Economic importance is intended to provide information on the importance of a material in the economy in terms of end-use applications. It is related to the use made by the different economic sectors (CNAE classification) and the contribution of these sectors to the Gross Added Value of the evaluated territory. This parameter is corrected with the rate of substitution of one raw material for another.

Supply risk reflects the risk of material supply disruption. It is usually represented by global governance tabulated indices for each supplying country, weighted according to the proportion of the raw material provided by said producer. Within this parameter, some indices tabulated by international organizations are taken into account, such as the Herfindahl-Hirschman Index and the World Governance Index, and others must be calculated, according to export and import data and recycling rates. Substitution and recycling are considered risk reduction measures.

This study is part of a work package within the collaboration with the General Subdelegation of Mines, which we have called the MINCE Project, referring to the study of CRM and Strategic Minerals for Spain.