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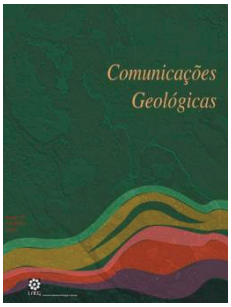
Comunicações Geológicas

Comunicações Geológicas (2020) 107, Especial I, 57-59
ISSN: 0873-948X; **e-ISSN:** 1647-581X

The role of EuroGeoSurveys' Mineral Resources Expert Group in the European minerals context



O papel do "Mineral Resources Expert Group" dos EuroGeoSurveys no contexto mineral Europeu

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Recebido em 25/01/2018 / Aceite em 16/12/2019
Publicado em agosto de 2020

Artigo original
Original article

Abstract: Europe shows an inevitably growing and accelerating consumption of mineral commodities and the high import dependence of strategic and critical raw materials has a serious impact on the sustainability of the EU manufacturing industry. The European Commission has long recognized the challenge of sustainable supply of mineral raw materials and steps are implemented to try to deal with this. In this context, EuroGeoSurveys and its Mineral Resources Expert Group (MREG) serve as one of the contact points for the Commission. The MREG is a group of earth scientists, experts in Economic Geology that act under the umbrella body of EuroGeoSurveys. The group acts upon requests and queries received by member states and the European Commission and provides the best available mineral expertise and information based on the knowledge of member Geological Surveys, for policy, communication, public awareness and education purposes at European level.

Keywords: Strategic raw materials, critical raw materials, MREG, EuroGeoSurveys, Europe.

Resumo: A Europa mostra um inevitável e acelerado aumento de consumo de recursos minerais. A alta dependência das importações de matérias-primas estratégicas e críticas tem um forte impacto na sustentabilidade da indústria transformadora da UE. A produção de muitas matérias primas depende apenas de alguns países. O desafio do abastecimento sustentável tem sido reconhecido pela Comissão Europeia e foram implementadas etapas no sentido de tal ser assegurado. Neste contexto, o EuroGeoSurveys e o seu Grupo de Peritos em Recursos Minerais (MREG) servem como um dos pontos de contacto para a Comissão. O *MREG* dos EuroGeoSurveys é um grupo de Geocientistas, especialistas em Geologia Económica que trabalham sobre a tutela dos EuroGeoSurveys. O grupo atua com base em solicitações e consultas recebidas pelos Estados membros e pela Comissão Europeia e fornece os melhores conhecimentos e informações disponíveis com base no conhecimento geológico dos recursos minerais, nas esferas da política, e de comunicação, conscientização pública e educação a nível europeu.

Palavras chave: Matérias primas estratégicas, matérias primas críticas, MREG, EuroGeoSurveys, Europa.

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1. Introduction

An estimated average of 460 tons of sand and gravel, 166 tons of oil, 39 tons of steel, 1 ton of copper and several other minerals and metals are consumed by each European citizen, during the 70 years of his or her lifetime (Bridge, 2017). Europe shows an inevitably growing and accelerating consumption of mineral commodities. It is well established that non-energy minerals underpin our modern economy and are essential for manufacturing and renewable "*green*" energy supply. The majority of the environmental technologies and applications (*e.g.* wind turbines, photovoltaic cells, electric and hybrid vehicles) will use both CRM (*e.g.* REE, PGE, Nb, In, Va), and the so called high-tech metals (*e.g.* Li, Co, Ga, Te, Se) that are derived or refined from minerals, on which Europe is strongly import dependent on (Fig. 1).

2. The challenge

The high import dependence of strategic and critical raw materials (CRM) has a serious impact on the sustainability of the EU manufacturing industry. This problem can be solved by more intense and advanced exploration for new mineral deposits on land and in the marine environment or increased production. Adding to the concern of dependence on supply from outside the EU (Fig. 1), the production of many mineral raw materials is concentrated in a few countries. This concentration of supply also poses concern as these few countries dominate supply of individual or several materials: Brazil (Nb), USA (Be), South Africa (Pt), DRC (Co) and China (REE, Sb, Mg, W). Twenty countries are the largest suppliers of the CRM

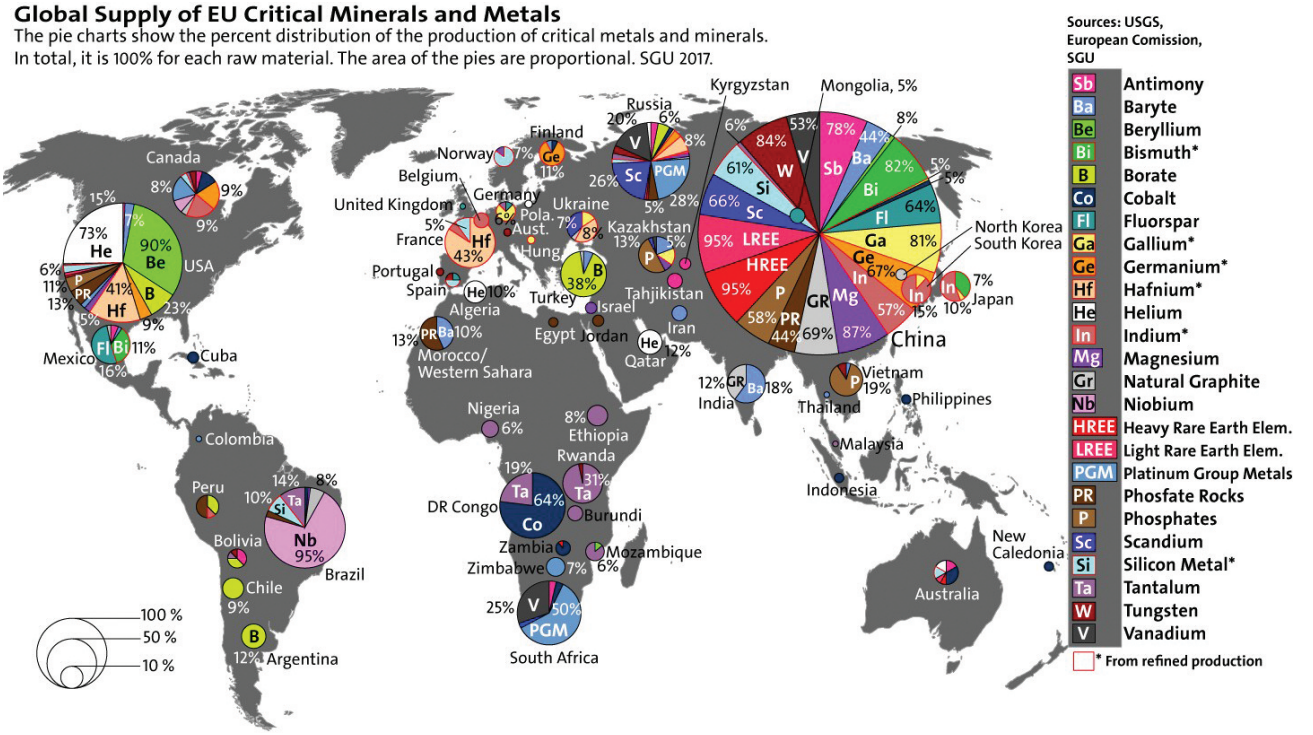

Figure 1. Map showing the production and critical minerals for Europe in the world context (Arvanitidis and Norlin, 2017).

Figura 1. Mapa da produção de minerais críticos para a Europa no contexto mundial (Arvanitidis e Norlin, 2017).

contributing with 90% of the global supply (Fig. 1). At the same time, in all these countries, a growth in demand is predicted, with Li, Nb, Ga and (heavy) REE forecast to have the strongest rates of demand growth, exceeding 8% per year for the rest of the decade. Additionally, Russia has an active program on mineral raw materials stockpiles and export restrictions and has from time to time tightened the export quotas for REE ostensibly to secure internal supply, as has the US a stockpile for strategic defense mineral raw materials.

Industrial trends, particularly clean and carbon-reducing technologies, are disrupting traditional metal sectors, with a robust drive in the development of battery-raw material metals. Consequently, there is a need for more effective CRM exploration and for a better understanding of the metallogenetic setting and mineral potential of deposits as well as why they occur where they do (Fig. 2). Discovery of new strategic and CRM resources needs enhanced information on surface and subsurface geology, new concepts of mineral resource potential, particularly in underexplored areas with limited geological knowledge. Projects need to integrate all geosciences and be truly multidisciplinary. Irrespective of the CRM exploration level, a better understanding of the geology and metallogeny is of vital importance. In addition, future CRM exploration will likely need to focus increasingly on blind deposits. The EU has recognized these challenges and has reacted since 2008 with its Raw Materials Initiative, following Communications [COM(2008) 699 final; COM(2011) 25 final] and the List of CRM (EU 2017). Many National Geological Surveys have supported the European Commission (EC) in identifying potential bottlenecks on CRM supply as well as providing information on how to overcome physical shortages.

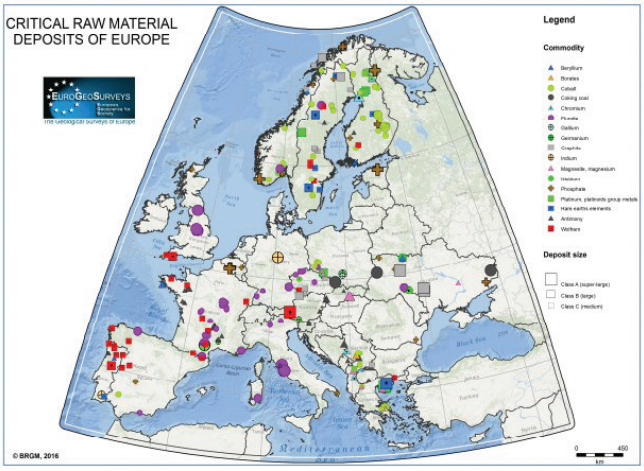

Figure 2. European distribution of the critical raw materials based on the 2014 list (Bertrand *et al.,* 2016).

Figura 2. Distribuição de matérias primas críticas na Europa baseada na lista de 2014 (Bertrand *et al.,* 2016).

3. The Mineral Resources Expert Group (MREG)

The MREG consists of a group of earth scientists designated by each geological survey member of EuroGeoSurveys'. The group acts upon requests and queries received by member states and the EC. The MREG mission is to provide the best available mineral expertise and information based on the knowledge of Geological

Surveys, for policy, communication, public awareness and education purposes at EU level, focusing mainly on strengthening the position of the European minerals industry towards resource sustainability and competitive growth. The MREG is actively involved in contributing to policy- and strategy-making processes aiming to identify, characterize and safeguard a sustainable resource potential, notably on CRM, through research, development and innovation.

The MREG members have been involved in several EU-funded projects concerning mineral intelligence (*e.g.* EuroGeoSource, Minerals4EU, MICA), exploration and production (*e.g.* PROMINE, EuRare), secondary resources (*e.g.* PROSUM), research coordination (*e.g.* Veram, GeoERA), as well as capacity building (*e.g.* PanAfGeo).

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