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A look at European practices for identifying mineral resources that deserve to be safeguarded in land-use planning

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ABSTRACT

Safeguarding the access to mineral resources in land-use planning plays a crucial role in securing their supply to society. Despite the existing literature about minerals and land-use policy integration, a major question remains: to which mineral resources must the access be guaranteed?

Based on the findings of two recent European-funded projects (Minatura2020 and Minland), this paper compares multi-criteria assessment methodologies that are in use or are intended to be used in Austria, Norway, Poland, Portugal, and Sweden for the identification of mineral resources that deserve to be safeguarded in land-use planning.

Results show that these methodologies are applicable to all types of mineral deposits and make use of an extensive set of parameters for their assessment, which are grouped into the following criteria: geological, economic, environmental, social, and land-use conflict issues. One of the methodologies takes into consideration potential areas with serious promises for the occurrence of valuable minerals, the remaining only dealing with well-documented resources. When applied, the methodologies prove to be effective in safeguarding the access to important mineral deposits, even if not to all of them, or at least to draw attention to their existence.

Despite the different levels of implementation and effectiveness, a main common achievement was a transition from point-based spatial datasets of mineral resources to polygon-based datasets. This considerably increased the awareness of the land-use planning authorities about the importance of mineral resources and facilitated the integration of mineral data into land-use planning maps.

1. Introduction

Mineral raw materials play a crucial role in people's everyday lives. They are essential for the functioning of industries, supporting the economic activities on local, regional, national and international levels.

In the European Union, the sustainability of the industry requires sustainable and environmentally friendly extractive activity, so that the industry does not depend entirely on foreign sources and, consequently, overcomes the risks of outsourcing (European Commission, 2008). Since Europe has only a very small native mining industry, it is necessary to create favourable economic conditions for its reactivation e.g. by exploration activity (Grennan, 2020). Yet, several competing land uses, such as residential and infrastructure developments and nature conservation, amongst others, have a negative effect on the available area for exploration and exploitation of mineral deposits (Gałaś, 2017; Hilson, 2002; Lamelas et al., 2008; Poulin et al., 1994; Radwanek-Bąk and Kivinen, 2016). Thus, one of the main challenges on ensuring a sustainable supply of mineral raw materials from domestic sources to the European industry is the access to land where mineral resources exist or potentially exist (Mateus et al., 2017; Tiess, 2010). Hence, land-use planning policies and tools play a crucial role at this point.

Until recently, the important link between mineral raw materials and land use has not been a focus at EU policy level. Only in 2000 the topic emerged in an EU Communication (European Commission, 2000),

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