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Sustainability perspectives in Greece as reflected by mineral deposits exploitation

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Abstract

The mining activity and further exploitation of mineral wealth remain the main development priorities of Greece. The exploitation of rich deposits of mineral raw materials is a timeless essential reference for the mining and metallurgical activities in Greece. The Greek minerals are early target of productive investment and interest, with strong commercial presence in the global market offering employment opportunities for large numbers of workers. Today employs about 23,000 workers and there are still more than 100,000 employment positions. The specification of strategic options for the future of mining in Greece should be of high priority, as well as the definition of a «roadmap» for the optimal use and sustainable exploitation of specific mineral raw materials.

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1. Introduction

The timeless development of mineral resources has contributed decisively to the social and cultural evolution of man. Even today, in the period of post-industrial era, the exploitation of mineral resources serves, to a large extent, daily and general needs of society, and contributes to further development and progress. The increasing demand for them is a constant value for the future. Despite this fact, both Greece and the EU lack specific mining policy and strategy. A consequence of this is that areas with large ore deposits interest for Europe, are binding to other land uses, without taking into account the increasing needs of the European mining industry (www.inspire.net and www.gmes.info). It is obvious that this situation will trigger the coming decades adverse developments in Europe, which will be found unprotected against the intense and often unfair global competition and dependent on the production and distribution of mineral raw materials (e.g.

penetration of China into the global market).

Demand for so-called non-energy raw materials, with reference to metallic, industrial, quarrying and mineral aggregates tends constantly growing. Today every EU citizen consumes 16 tons of minerals. On the other hand, 70% of the necessary raw materials for the European industry is imported from third countries, while 70% of European industry generally relies on mineral raw materials. Europe produces only 3% of world production of metallic minerals, while consuming 30%. In 2009 Europe imported mineral resources for 393.6 billion €, while exports amounted respectively to 136.0 billion € (<http://ec.europa.eu/enterprise>). The dependence of EU in non-energy raw materials ranges from 48% in ores of copper, 64% zinc and bauxite, 78% nickel and up to 100% in cobalt ores, platinum metals, titanium and vanadium. For the next 10 years it is estimated that demand will continue to rise.

The mineral resources are today a top priority of the development agenda of EU. This trend is now visible at all levels of administrative and political decisions. It is commonly accepted by almost all EU institutions, that Europe now needs to support economic and social development in own sources of minerals. On the basis of these developments is the consensus and acceptance by the majority of European citizens for sustainable relationship of the mining industry with environment and social progress.

This article refers mainly to non-energy minerals which, according to a report by the European Directorate and Industry (<http://ec.europa.eu>), include metal products, industrial and construction minerals (construction materials, decorative and building stones, aggregates), and the «general» waste/byproducts of certain materials as secondary sources of economic deposits.

2. Development opportunities in the mining and processing of mineral raw materials in Greece: socio-economic impacts

The Greek minerals are of the very early a goal and an important productive investment interest, with strong commercial presence in the global market and employment opportunities for a large number of workers. Today employs about 23,000 workers and there are still more than 100,000 employment positions. Greece holds an important position in European and world market on mining and production of specific non-energy mineral raw materials.

The results of research conducted mainly by Institute of Geology and Mineral Exploration (IGME) are expected to add significant and in many cases measurable economic and social value in relation to the current productive capacity of non-energy raw materials in Greece. However, these results will significantly increase our understanding of the dynamic reserves and prospects of exploitation of Greek non-energy raw materials. Figure 1 presents the active mining centers of metallic and industrial minerals in Greece.

The value of proven ore deposits of zinc, lead, copper, gold and silver in Greece, based on current metal prices, is around 25 billion €, while dynamic reserves hosted on existing mining areas and on new areas of interest are able to multiply the above economic size. These reserves are located mainly in deposits of NE Chalkidiki (Olympias, Stratoni, Skouries) and Thrace (Perama, Sappes). Indicative plans for the productive exploitation of them are in progress by international companies holding mineral deposits. The aforementioned mining value can totally be 32 billion € under the new ore resources of about 15-20% additional reserves that are expected to arise by an ongoing new research project contacted by IGME, including the dynamic presence of rare or other "critical" metals (www.igme.gr). It is estimated that the enhancement of at least two investment opportunities in productive exploitation of ore reserves of base and precious metals will create more than 500 new jobs in direct employment. Thus, the developmental dynamics is inextricably linked with

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