

# Primary and secondary resources of the Dinarides-Hellenides

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**Borojević Šoštarić, Sibila; Mileusnić, Marta; Galović, Lidija**

*Source / Izvornik:* **Geologia Croatica, 2022, 75, 289 - 289**

**Journal article, Published version**

**Rad u časopisu, Objavljena verzija rada (izdavačev PDF)**

<https://doi.org/10.4154/gc.2022.28>

*Permanent link / Trajna poveznica:* <https://urn.nsk.hr/urn:nbn:hr:169:351055>

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*Download date / Datum preuzimanja:* **2024-08-26**



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doi: 10.4154/gc.2022.28



Dear readers,

Primary and secondary mineral resources are of strategic importance to the EU economy. The EU has recognized the importance of securing access to mineral resources in the future, meeting the needs of European industry, preserving jobs and ensuring further development. This special issue is dedicated to the mineral potential of South-eastern Europe, more specifically the Adria region (including the countries of Albania, Bosnia and Herzegovina, Croatia, Montenegro, North Macedonia and Serbia), which corresponds to the Dinarides, the northwesternmost Hellenides, and the Vardar zone and has a long history of mining.

The six papers, which focus on primary and secondary mineral resources, are the result of the work of a large team involved in the European Institute of Innovation and Technology (EIT)-funded project **rESEErve - Mineral potential of the Eastern and South-Eastern Europe region**.

Mineral potential mapping led to the Western Balkans Mineral Register (publicly available data), which enabled the integration of the region into a pan-European mineral information network and brought it closer to the common mineral market. Primary raw materials data refers to active, abandoned and closed mines that could be of interest for further exploration / exploitation, as well as prospective greenfield sites. The secondary raw material data include information on mine waste sites (including mining, processing and metallurgical wastes).

**BOROJEVIĆ ŠOŠTARIĆ et al.** (2022) assessed the main strengths and challenges of the mineral sector in the Adria region. They present the status of mineral exploration and exploitation, provide a SWOT and Gap analysis, and developed the roadmap for the necessary actions to promote investments in the mineral sector in the Adria region.

The potential for discovery and exploitation of primary and secondary mineral resources in Montenegro is demonstrated by **RADUSINOVIĆ et al.** (2022), who present the main metallic mineral resources (bauxite, lead and zinc), abundant non-metallic mineral resources (industrial minerals and construction materials) and secondary mineral resources (in particular, aluminous red mud and Pb and Zn operational and abandoned mine tailings, bottom and fly ash from thermal power plants, slag from steel production, and marlstone and limestone from hanging walls of coal deposits) and waste rock for aggregate production.

**SERAFIMOVSKI et al.** (2022) present an overview and synthesis of several important polymetallic mineral deposits under exploitation in the Republic of Northern Macedonia (copper mine Buchim, lead-zinc mines Sasa, Zletovo and Toranica) as well as new exploration targets (Plavica, Ilovica, Kadiica, Borov Dol). The authors demonstrate the significant polymetallic ore potential in the Republic of Northern Macedonia.

**STEINER et al.** (2022) have produced a basic characterization of selected tailings of active and abandoned mines in Serbia (Bor, porphyry Cu/Au; Krivelj, porphyry Cu/Au; Blagodat, hydrothermal Pb-Zn; Lece, epithermal Au; Rudnik, hydrothermal/skarn Pb-Zn) and North Macedonia (Sasa, Pb-Zn; Probištip, Pb-Zn; Bučim, porphyry Cu; Lojane, fault-bound vein-type low-temperature As, Sb, Cr at the contact of rhyolite and serpentinite).

They demonstrate the grades of valuable metals that could be recovered to fund potential remediation work and improve the supply of critical metals to the EU.

**VELOJIĆ et al.** (2022) discuss the significance of trace element analysis from various types of mineralization in the Čukaru Peki deposit, a recently discovered porphyry high-sulfidation Cu-Au deposit from Eastern Serbia. The trace elements study indicates a change in pyrite compositions from porphyry-style mineralization having a magmatic signature to later high-sulfidation mineralization.

The manuscripts presented demonstrate the significant potential in primary and secondary resources in the ADRIA region. Large reserves of primary commodities, significant secondary potential as a result of decades of mining/metallurgical activities, and numerous active exploration targets including new commodities such as lithium and boron, place the ADRIA region high on the map of EU strategically important areas. However, additional work needs to be done to develop full mineral resource capacity. This includes detailed geological prospection and the standardization of existing geological datasets as well as adjustment and harmonization of the exploration/mining legislation with special plans and education of the next generation of professionals covering the mineral resources life cycle. Aside from trained professionals, crucial partners in 21<sup>st</sup>-century mining are the local communities. Social acceptance of future mining operations no longer depends solely on the economic or strategic value of the discovered resources, but also the transparency and community inclusion, wider-society benefits, and sustainability of the presented projects. Only projects with the highest environmental standards will gain social acceptance, therefore “*Green Mining*” is the new *modus operandi* of successful exploration and mining companies.

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