Geology and Minerals of Kosovo – Perspectives for National Development

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Abstract

In 2002, the UN Kosovo administration has identified the key economic potential of the mineral industry for the further sustainable development of Kosovo. Consequently, between 2003 and 2009, under supervision of the Directorate of Mines and Minerals (DMM) (now Independent Commission for Mines and Minerals of Kosovo (ICMM)), Pristina/Kosovo, a comprehensive review of the geology and mineral potential of Kosovo was carried out. The results have been stored in the GEO-Database Kosovo (GDK) – a customised geo-scientific information management system, powered by ESRI ArcGIS 9.2 and Microsoft SQL 2005. The GDK comprises of a system of primary and derived geo-scientific and geo-economic data, such as mineral concessions, drill holes, geochemistry, field observation data, reports and documents, and a wide variety of thematic maps at scale 1:50,000 – 1:200,000. The database, reports and maps are currently used as the key working tools for the management of the mining sector of Kosovo and its further development.

In 2003, the activities have been launched by digitalisation of the existing geo-scientific maps, followed by the implementation of a unified national geological legend and the creation of a reviewed seamless national geological map at scale 1:100,000 (finalised in 2008). Extensive field work was executed in order to investigate thematic geological issues and to evaluate the mineral potential of the country.

An atlas of new thematic maps at scale 1:200,000 covers the most important geo-scientific and geo-economic issues: Metallogenic / Minerogenic Map, Map of Minerals, Geological Map, Hydrogeological Map, Tectonic Map, Quarry Map, Map of Construction Raw Materials, Map of Mineral and Thermal Waters, Morpho-Orographical Map, Soil Map, Satellite Imagery Map, Maps of Mineral Prospectivity for Au, Pb/Zn and Cr.

Detailed maps have been created in order to investigate special issues of key economic importance: Map of Construction Raw Materials and related maps of land use conflicts (Kosovo Quarry Plan) 1:50.000, the Kosovo Mineral Resources Management Plan 1:50.000, the Geohazards Map of Planned Kosovo Highway 1:25.000, the Geochemical Survey Maps of gold prospective areas 1:50.000.

Between 2007 and 2008, as part of the field mapping and sampling campaign, a stream sediment sampling survey was executed with main focus on precious metals (Au, Ag), base metals (Zn, Pb, Cu) and rare metals. As result, high-grade Au-anomalies (up to 11 g/t in stream sediments) were found at different locations, proven by findings of native gold in heavy concentrates and Au recorded in hard rock samples. In 2009, the existing knowledge and data was used for the creation of national mineral prospectivity maps for Pb/Zn, Au and Cr. These maps have been produced by support of the newly developed– advangeo® - software, which uses neural networks technology based on artificial intelligence. The resulting prospectivity maps set the basis for further detailed exploration activities in the country.

Developed in 2009, the Kosovo Mineral Resources Management Plan (KMRMP) targets on the sustainable utilisation of the high mineral potential of the country in the given economic and social framework. All known mineral deposits and occurrences were ranked with regard to their economic potential and legal status. The KMRMP clearly outlines the prospective areas and describes steps for further investigation. It forms the basis for the development of the mining industry of Kosovo, the implementation of improved land use planning procedures and environmental protection as well.

Keywords

Kosovo, Geology, Metallogeny, Minerals, Database, Prediction Mapping, advangeo®