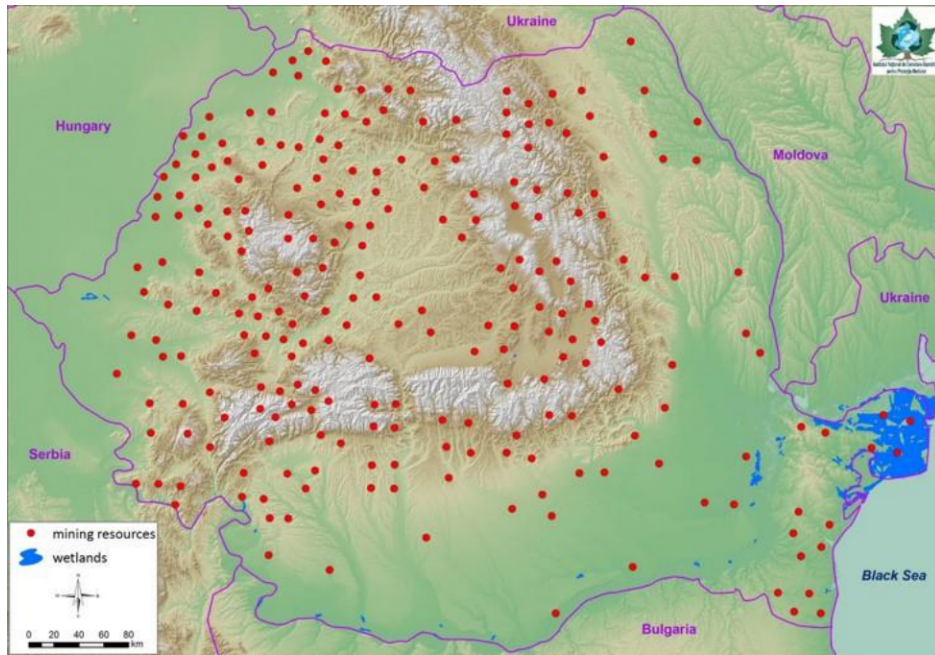


National register regarding secondary reserves of raw materials with economic importance resulted from mining residues

According to the Strategic Implementation Plan for the European Innovation Partnership on Raw Materials, which synthesizes the policies regarding the mineral resources, the coherent development of this area is based on three major pillars:

- a) Ensuring access to raw materials for all major players in the European economy;
- b) Determining the conditions for a sustainable supply of raw materials;
- c) Encouraging the efficient use of resources and promoting resource efficiency and recycling to reduce raw material consumption and dependence on imports outside the European area.

Taking into account the continued demand for mining products, at European level are encouraged the initiatives aiming a sustainable, smart and inclusive growth and innovation. Accordingly, the development of best practices and technologies for the collection and treatment of waste, and the improvement of access to waste statistics and material flows to support research and innovation are encouraged within UE. Thus, this project aims to create a national database on secondary reserves of mining waste materials so that Romania can participate in the activities of the European platform and benefit from its expertise. Mining residues are of interest due to their negative impact on the environment as evidenced by the formation of acid waters, heavy metals pollution (Pb, Cu, Zn, Cd, Hg) and metalloids (As, Sb), mechanical instability phenomena, blocking of agricultural or built-up areas, modification of the landscape in areas with tourism potential. However, these residues have the potential for industrial capitalization as secondary mineral resources by recovering the useful basic elements for which the mines were opened (Au, Ag, Cu, Pb, Zn, Fe, Mn, W, Mo) or elements that have recently gain interest from the industry (Ge, In, Te, Cd, Sb), the use of gangue elements (quartz, feldspar, clay minerals) or the use of mining residues to ameliorate the deficient solutions (eg in the case of some coal mines tailings).



Location of mining areas and wetlands of international importance - Ramsar sites

The project is divided into 5 stages:

- 1) The logistical and technical preparation of the project;
- 2) Updating information on European legislation in the field of secondary resources from mining waste;
- 3) Current situation in our country regarding the policies for the exploitation of the secondary raw material reserves;
- 4) Elaboration of documentation on exploitable mining tailings;
- 5) Elaboration of the documentation on the secondary reserves of raw materials with economic importance resulted from the mining residues.

Multidisciplinary teams bringing together experts in the field of geology, materials science and engineering, chemical engineering, environmental engineering, equipment design are involved in this project, ensuring thus its success.

- **Partners**

CO – National Research & Development Institute for Non-Ferrous and Rare Metals (IMNR)

P1 – Geological Institute of Romania (IGR)

P2 – Research and Development National Institute for Metals and Radioactive Resources (INCDMRR – ICPMRR)

P3 – National Institute for Research and Development in Environmental Protection (INCDPM)

P4 – National Institute for Research & Development in Chemistry and Petrochemistry (ICECHIM)

P5 – COSFEL ACTUAL SRL

- **Project Coordinators**

Eng. Deák György PhD. habil, Scientific Researcher I

- **Period**

14.11.2017 – 10.12.2018

- **Financed via**

Ministry of Research and Innovation

Objectives

The general objective of the project is to produce a national register containing secondary resources of raw materials from mining residues that will allow for the repositioning of the mining sector considering the supply with mineral resources necessary for a sustainable development of the country under environmentally friendly conditions.

The specific objectives of the project include:

- Updating the integrated database on the secondary resources of raw materials from mining waste with an emphasis on tailings and tailings ponds during the project implementation period (one year). At least 20 representative areas will be sampled.
- Simulating (under technical-economic conditions) the processing of secondary resources (tailings ponds) in order to identify ways to make them more efficient, in

environmentally friendly conditions, with emphasis on the study of the environmental impact considering the European legislation;

- Performing 3 case studies to ensure the rapid implementation of the project results;
- Organizing 2 national debates and 5 regional debates in representative areas to inform the public about the exploitation of secondary mining resources and to start the effective cooperation between institutions and authorities (ministries, relevant agencies, local organizations, chambers of commerce, NGOs, institutes and universities with concerns in the field, potential users).
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Obtained Results

The implementation of the project determined the following results:

- Updated information regarding the European legislation on secondary resources from mining waste and the protection of areas of international importance;
- The SWOT analysis of the current Romanian exploitation policies of the secondary reserves of raw materials from mining waste;
- National database on secondary reserves of mining wastes;
- Inventory of mining waste areas, evaluation and characterization, technical and economic exploitation conditions, case studies;
- National and regional debates, including within scientific events.

