

# REEBAUX - PROSPECTS OF REE RECOVERY FROM BAUXITE AND BAUXITE RESIDUE IN THE ESEE REGION

Project title: REEBAUX - Prospects of REE recovery from bauxite and bauxite residue in the ESEE region



Duration of the project: 2018 - 2020

Project leader: University of Zagreb, Faculty of Science (UNIZG-PMF)

Co-location Centre: EIT RawMaterials CLC East Sp. z o.o. (CLCE) (Co-location Centre for Eastern Europe)

Project partners:

Croatian Geological Survey (HGI), Croatia

DMT GmbH & Co., Germany

Eötvös Loránd University, Hungary

Geological Survey of Montenegro, Montenegro

Geological Survey of Slovenia (GeoZS), Slovenia

Miskolc University, Hungary

Montanuniversität Leoben (MUL), Austria

University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering (UNIZG-RGNF), Croatia

Web page: <https://eitrawmaterials.eu/project/reebaux/>

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### Project description:

Rare earth elements (REE) are a group of 17 metallic elements comprising lanthanides (elements from lanthanum to lutetium), yttrium and scandium, and are import critical raw material in a large number of modern industrial applications but almost exclusively extracted out of Europe, thus leaving the continent completely dependent on imports. Recent estimations show that a significant amount of the European needs for REE could be recovered from bauxite-related resources. With a large number of bauxite deposits in the ESEE region and a long tradition of aluminum processing industry, which has also left a significant amount of bauxite residue behind, there is a respectable perspective for development of a new REE resource for Europe once geological, mining and technological aspect are well elaborated. By extensive collection of available and acquiring new representative data, the project consortium is to assess the potential of the bauxite deposits and bauxite residue for production of REE in the ESSE region for European needs. Also targeting an increase of innovation capacity in regional bauxite resources management for future developments in REE production, the project constortium will involve students in the execution of the project tasks, and offer several educational events for students and professionals from R&D and industrial sector.

### Project objective and scope:

Utilization of bauxite and bauxite residue in the production and recovery of REE for an inadequate domestic supply in the European market is a general scope of the project. Project also contributes to the overall impacts of the KIC:

- a) **Industrial competitiveness** – the project focuses to a strategy that will assure a reduction of the dependence on REE imports from outside Europe, thus increasing resource productivity and competitiveness of related European industry branches;
- b) **Innovation capacity** – the project tends to enlarge innovation capacity by joining a number of regional academic and research institutions with interested industrial entities in the field of innovative production and recovery of CRM following demands of the industrial sector in EU;
- c) **Environmental and social sustainability** – industry savings due to higher material and energy efficiency;



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d) **Human capital** - the project embraces the EIT human capital impacts by building a background for a creation of new jobs in the RM sector as well as the preservation of current job positions in the struggling aluminium processing industry.

#### Project activities:

- ❖ Collecting and evaluating available data on bauxite deposits and bauxite residue accumulations in the ESEE region and on the respective REE concentrations;
- ❖ Defining perspectives and strategies for a viable REE production from bauxite primary and secondary resources, including strategies for utilization of bauxite residue after REE recovery in a view of zero-waste management;
- ❖ Boosting regional innovation capacity in bauxite prospecting and its utilization for CRM production by inclusion of students from the partner institutions in accomplishment of the defined project task and offering in-house training in the project-related topics for students and professionals;
- ❖ Educational activities, which will target students from the region but also professionals from R&D sector and industry, as follows:
  - ❖ Several students will be involved in field research, analysis and evaluation of the most promising bauxite localities regarding REE abundances, and the same will be applied for bauxite residue accumulations in the region. The data obtained will be published, providing a dissemination impact for the project.
  - ❖ Data collected will also be used in two-day workshops that the consortium will provide for MSc. and PhD. students to introduce the topics in bauxite and REE (2nd project year).
  - ❖ An additional two-day workshop for students and professionals (3rd project year) from industrial sector is to be organized, introducing the topics in technology of bauxite processing with up-to-date research deliverables and discussion.
  - ❖ At the project closing period, a round table with panel discussion for professionals and wider community will take place, which should coincide with publication of a booklet providing the most important headlines from the topics the project addressed. The booklet will be dispatched as an informational and promotional material to the community involved, but also as a brochure for the potential stakeholders who could find interest in investment in the bauxite industry related to the recovery of REE.

