



RAWMINA H2020 PROJECT LAUNCHED

Integrated Innovative Pilot System For Critical Raw Materials Recovery From Mines Wastes In A Circular Economy Context

A 42-month EU funded project driven by 19 partners from 9 EU countries, 1 non-EU country and 2 international partners, aiming to develop and demonstrate an innovative pilot system for the clean and sustainable production of non-energy, non-agricultural raw materials from Mine Waste (MW) resources has been launched.

Funded by the EU, RAWMINA project officially started in May 2021. The project addresses major challenges for the international mining industry, and will deliver significant impact across the European Economy, Environment and Social Wellbeing.

Funded by the Horizon 2020 program, under the Grant Agreement n°958252, RAWMINA benefits from an overall budget of about **10.8M€** with an allocated European funding of about **9M€** (see Fig. 1) to be expend in **42 months**. European competitiveness is strongly supported with a **26.4%** and **30.3%** of total budget for innovative **SMEs** and **large industries**, respectively. The consortium covers **9 countries** (European: Czech Republic, Finland, France, Germany, Greece, Ireland, Italy, Spain; International; Chile, UK) and includes **5 RTOs**, **3 universities**, **4 large enterprises** and **7 SMEs**. Coordinated by **LEITAT**, and involving a prominent industrial partner from **Chile**, where the world’s largest copper ore deposits exist, the consortium will also leverage the knowledge and support of the Advisory Board members, including expertise from the mining sector in **South Africa, Portugal and Turkey**.

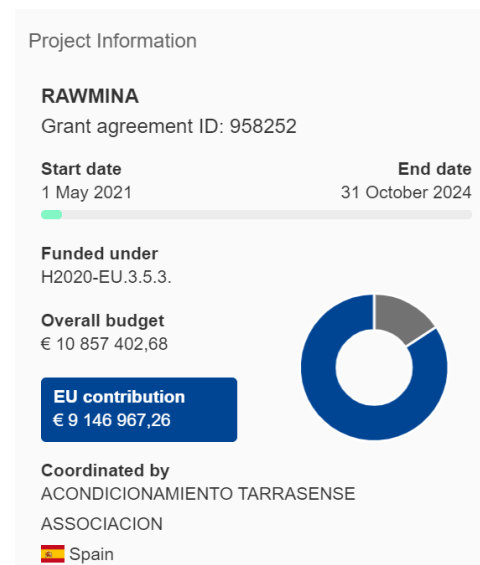


Figure 1. RAWMINA info at CORDIS website

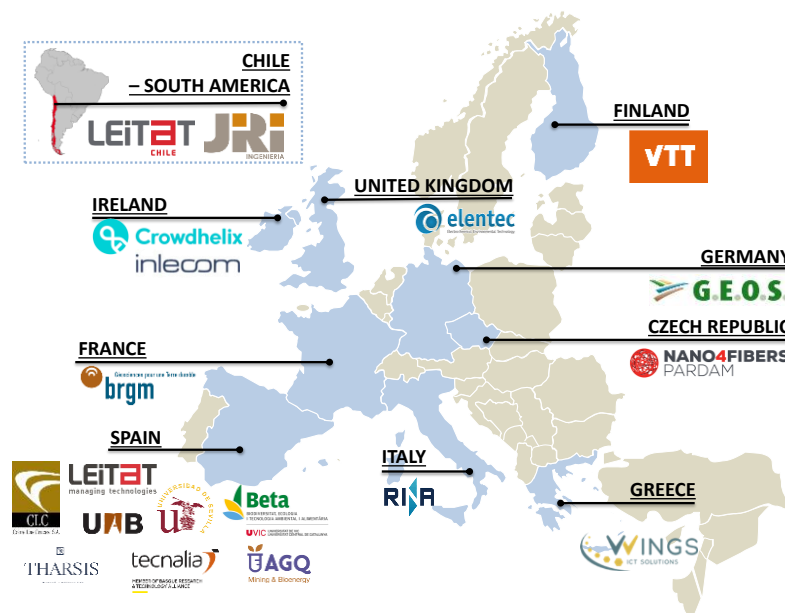


Figure 2. RAWMINA Consortium



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RAWMINA IN BRIEF

The European Challenge

“Securing access to a stable supply of Raw Materials”

Critical Raw materials (CRMs) are crucial to Europe’s economy. They form a strong industrial base, producing a broad range of goods and applications used in everyday life and modern technologies. CRMs are needed for **significant economic and strategic sectors**, as for example manufacturing batteries, construction tools, sensors and electronic devices, medical devices, metals, automotive, defence or renewable energy sectors. However, **unreliable supply** and **difficult substitution** to CRMs is a growing concern within the EU and across the globe. Currently, the EU relies on the rest of the world for many CRMs such as Antimony (**Sb, 100% imported**), Cobalt (**Co, 32% imported**), Germanium (**Ge, 64% imported**) and Tungsten (**W, 44% imported**). European reserves and current recycling rates are low (2% for Ge as an example), and **recycling rates** are substantially **insufficient** to meet demand.ⁱ

How RAWMINA will solve it

RAWMINA **aims to develop and to demonstrate the RAWMINA pilot system: an industrially scalable and flexible innovative pilot** in continuous operation for **MW valorisation**, achieving **95% recovery rate** and **95% selectivity** for CRMs (Co, Sb, Ge, W), and **80-90% recovery rate** and **95% selectivity** for Gold (Au), Silver (Ag) and Iron (Fe) based high-value products, whilst **reutilising 90% of water**. The RAWMINA pilot system will treat up to **100-150 kg MW/day** on an industrial demonstration (TRL7, 12 months operation) and includes an **efficient, circular and robust process control** by an end-to-end Intelligent Management System.

To achieve these aims, RAWMINA **activities** include MW conditioning and characterization, optimization and upscaling of innovative technologies, such as continuous bioleaching, iron removal with magnetic separation & by-products recovery, selective recovery of Co, Sb, Ge and W through a combination of Nanofibrous Composite Materials, Thermo-Desorption Process and Electro Winning followed by other metals recovery by Electro Coagulation, process simulation, integration, and pilot design, System engineering & Demonstration. The sustainability and social impact of these technologies will be checked and finally the exploitability of the project will be analysed with a Circular Business Plan. The project will create a unique community, named “CRM Recovery Helix” to maximise clustering and dissemination to all the relevant stakeholders (researchers, industries, investors, municipalities, policy makers, NGOs, Society).

An interdisciplinary, vibrant, industry led **consortium**, formed by 19 partners, with recognized expertise, experience, skills, resources, infrastructure and position in the fields of mining industry, circular economy, renewable energy, material sciences, and business development, is prepared to achieve these goals. Finally, RAWMINA will contribute to reduce production costs and environmental impacts, contributing to the objectives of the European Innovation Partnership on CRMs.

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RTO: Research and Technology Organisation; UNI: University; SME: Small and Medium Enterprise; LE: Large Enterprise;

ⁱ EC, 2018. Report on Critical Raw Materials and the Circular Economy

