



## **International SUSMIN-project aims at sustainable gold mining in EU**

Soile Backnäs (1), Raisa Neitola (1), Kaisa Turunen (1), Alexandre Lima (2), António Fiúza (2), Malgorzata Szlachta (3), Patryk Wójtowicz (3), Raluca Maftei (4), Marian Munteanu (4), Lena Alakangas (5), Calin Baciú (6), and Dámaris Fernández (7)

(1) Geological Survey of Finland, Eastern Finland Office, Kuopio, Finland (soile.backnas@gtk.fi), (2) University of Porto, Faculty of Sciences and Faculty of Engineering, Porto, Portugal (allima@fc.up.pt), (3) Wrocław University of Technology, Department of Environmental Engineering, Wrocław, Poland (malgorzata.szlachta@pwr.edu.pl), (4) Geological Institute of Romania, Regional and Economic Geology Department, Bucharest, Romania (mafteir@yahoo.com), (5) Luleå University of Technology, Department of Civil, Environmental, and Natural Resources Engineering, Luleå, Sweden (lena.alakangas@ltu.se), (6) Babes-Bolyai University, Faculty of Environmental Science and Engineering, Cluj-Napoca, Romania (calin.baciú@ubbcluj.ro), (7) Trinity College Dublin, Department of Materials Chemistry and Department of Geology, Dublin, Ireland (dafernan@tcd.ie)

Although the gold demand has been constantly increasing in past years, the commodity findings have been decreasing and the extraction of gold has complicated due to increasing complexity and decreasing grade of the ores. Additionally, even gold mining could increase economical development, it has also challenges in eco-efficiency and extraction methods (e.g. cyanide). Thus, the novel energy and resource-efficient methods and technologies for mineral processing should be developed to concentrate selectively different gold bearing minerals. Furthermore, technologies for efficient treatment of mine waters, sustainable management of wastes, and methods to diminish environmental and social impacts of mining are needed. These problems will be addressed by the three year long project SUSMIN.

The SUSMIN-project identifies and evaluates environmental impacts and economical challenges of gold mining within EU. The objective of the project is to increase the transnational cooperation and to support environmentally, socially and economically sustainable viable gold production. The focus is to develop and test geophysical techniques for gold exploration, eco-efficient ore beneficiation methods and alternatives for cyanide leaching. Additionally, the research will improve treatment methods for mine waters by the development and testing of advanced adsorbents. The research on socio-economic issues pursues to develop tools for enhancing the mechanisms of the corporate social responsibility as well as community engagement and management of the relations with the stakeholders. Moreover, with the environmental risk assessment and better knowledge of the geochemistry and long-term transformation of the contaminants in mining wastes and mine waters, the mining companies are able to predict and prevent the impacts to the surrounding environment, resulting in an improved environmental management solution.

The SUSMIN consortium led by Geological Survey of Finland (GTK) includes seven research partners from six EU member states Finland, Sweden, Portugal, Romania, Poland and Ireland. Additionally eight globally on mining industry working industry partners will contribute in the SUSMIN consortium, so implementation of results from the project will translate into direct and significant economic benefits.