

## BIOCritical Metals

<b>Acronym/short name</b>	BIOCriticalMetals
<b>Proposal full name</b>	Recognition of microbial functional communities and assessment of the mineralizing potential (bioleaching) for high-tech critical metals
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<b>Organization</b>	University of Coimbra
<b>Planned starting date (year/month/day) (1)</b>	2016-06-01
<b>Project duration in months</b>	36
<b>Sub-Topic area (2)</b>	I.B - Extraction LE - Mine closure and rehabilitation 2.A - Recycling of mining and smelting residues (incl. historical dumps and tailings)  This project is conceived as a need-driven-research, focused on the concept (mandatory): that waste can become a valuable resource, supplying metals that are extracted today by other processes, promoting recycling, minimizing harmful waste and hazard and dissipation. The selection of the target minerals/metals in the project addresses the need for continuous supply of these in Europe for technology, anticipating a future cost effectiveness potential of the practical application of the expected research results. Innovative methods and processes for extracting even faint traces of these elements are the focus of the project.
<b>Publishable summary (mandatory)</b>	New characterized microorganisms with potential to be applied in biosolubilization, biomineralization and bioaccumulation will be obtained. The consortium will assess the microbial biodiversity in tailings where potentially critical high-tech metals may exist ( In, Ga, Te and W) but also relevant pollutants (As, Sb), located in different geological and climatic settings. Isolates will be tested in macrocosm conditions at the last part of the project. The ultimate focus will be to apply microorganisms in the extraction process through bioleaching and to recover the minerals from lixiviates by biomineralization and bioaccumulation. A comparative environmental risk assessment will be performed to residues produced by bioJeaching with and without nanoparticles.
(1)	Before completing, please inquire with your Call Funding Agency
(2)	Please select one or more sub-topic area from the drop-down menu in the ESS. The drop-down menu will allow selection of more than one sub-topic areas, if applicable.