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Search for a sustainable way of exploiting black shale ores using biotechnologies

Fact Sheet

Project Information

BIOSHALE

Grant agreement ID: 505710

[Project website](#) 

Project closed

Start date

1 October 2004

End date

30 September 2007



Funded under

Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices: thematic priority 3 under the 'Focusing and integrating community research' of the 'Integrating and strengthening the European Research Area' specific programme 2002-2006.

Total cost

€ 3 390 202,00

EU contribution

€ 2 314 200,00

Coordinated by

BUREAU DE RECHERCHES
GÉOLOGIQUES ET MINIÈRES
 France

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Objective

The BIOSHALE project aims at evaluating biotechnologies for the safe, clean and viable beneficiation of black shale ores and at designing an innovative model of development of the mining activities, which addresses the relevancy of a biological approach, along with the evaluation of the environmental impact of the industrial exploitation of black shale ores, at all steps. European deposits of black shale ores contain considerable reserves of base and highly valuable rare and precious metals (Cu, Ni, Zn, Pb, Ag, Zn, Co, Mo, V, Se, Sn, Bi, Au, Pt, Pd, etc.) of which Europe is the main consumer in the World, so availability assumes a strategic importance. Two major difficulties restrict the exploitation of such abundant resources. The first is the low efficiency of the conventional technical means for recovering valuable metals, from mining extraction to metallurgical processing. The second is the environmental impact of the application of the conventional techniques. The success of biohydrometallurgy lies in the efficiency of the process with a reduced impact on the environment compared to conventional techniques. Bio leaching dissolves metals and a variety of chemical and electrochemical methods allow the selective recovery of each of the valuable metals and the transformation of the rest of the material into an inert waste. BIOSHALE will use an original and rational strategy based on a significant part of the tasks in every work- package of the project being systematically dedicated to the study of the role of biological phenomena from the processing and environmental points of view and to the environmental impact assessment, the social and economic benefits of this project in Europe would be to allow an extension of the exploitation life of European mining sites in operation, like Luban Poland and others in eastern European countries, and the exploitation of new resources with considerable reserves, like Talvivaara in Finland.

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Keywords

[Environment](#)

[Hydrometallurgy](#)

[Microbiology](#)

[Mining wastes](#)

[Rare & Precious Metals](#)

Programme(s)

[FP6-NMP - Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices: thematic priority 3 under the 'Focusing and integrating community research' of the 'Integrating and strengthening the European Research Area' specific programme 2002-2006.](#)

Topic(s)

[NMP-2002-3.4.3.2-1 - "Radical changes in the ""basic materials"" industry_\(excluding steel\) for cleaner, safer and more eco-efficient production"](#)

Call for proposal

FP6-2002-NMP-1

[See other projects for this call](#)

Funding Scheme

[STREP - Specific Targeted Research Project](#)

Coordinator



BUREAU DE RECHERCHES GÉOLOGIQUES ET MINIÈRES

EU contribution

No data

Total cost

No data

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Participants (12)



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CZECH GEOLOGICAL SURVEY

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Total cost

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European Union, 2025