Project details

| Total cost: | Topic(s): |
| EUR 2 868 093,58 | WATER-1a-2014 - First application and market replication |
| EU contribution: | Call for proposal: |
| EUR 2 734 222,50 | H2020-WATER-2014-two-stage |

| Coordinated in: | Funding scheme: |
| Germany | IA - Innovation action |

Objective

The main objective of the presented innovation action is the first application and near-market replication of a novel water nanogeotechnology for the immobilization of toxic metals in groundwater aquifers, drinking water wells, and river bank filtration sites. The basic concept of our technology is the creation of an adsorptive in situ barrier for the immobilization of toxic metal contaminations. This barrier is made of iron oxide nanoparticles, which are injected into sediments as colloidal suspension, forming stable deposits there. Over the last 6 years, we have developed a novel technology for the injection of iron oxide nanoparticles (NPs) into groundwater contaminant plumes. The feasibility of this approach has been successfully tested in lab experiments and a scientific field application. Specifically, our approach addresses arsenic, barium, cadmium, chromium, copper, lead, mercury, and zinc, all of which are known major groundwater contaminants. Now, we want to bring this novel, green and near-market water eco-innovation into the European markets, and beyond. The very core of this effort is the performance of two industrial-scale applications of our technology at two different types of contaminated sites. This first application of our technological approach under field conditions is the major objective of REGROUND. By developing our technology into a market-ready application, REGROUND will globally transform the efforts to mitigate the risks posed by toxic metal contaminations to humans and ecosystems. The REGROUND technology, due to its low costs and wide applicability, will be made highly available. The near-market replication of our technology and subsequent commercialization efforts are an integral part of REGROUND. This will enable immobilization of toxic metal contaminations at sites which were left untreated so far due to technical or economic reasons.

Related information

Report Summaries

Periodic Reporting for period 1 - REGROUND (Colloidal Iron Oxide Nanoparticles for the REclamation of Toxic Metal Contaminated GROUNDwater Aquifers, Drinking Water Wells, and River Bank Filtrations)
Coordinator

UNIVERSITAET DUISBURG-ESSEN
UNIVERSITAETSSTRASSE 2
45141 ESSEN
Germany

EU contribution: EUR 1 127,794,13

Activity type: Higher or Secondary Education Establishments
Contact the organisation

Participants

POLITECNICO DI TORINO
CORSO DUCA DEGLI ABRUZZI 24
10129 TORINO
Italy

EU contribution: EUR 251,250

Activity type: Higher or Secondary Education Establishments
Contact the organisation

KATHOLIEKE UNIVERSITEIT LEUVEN
Oude Markt 13
3000 LEUVEN
Belgium

EU contribution: EUR 220,000

Activity type: Higher or Secondary Education Establishments
Contact the organisation

FRIEDRICH-SCHILLER-UNIVERSITAT JENA
FURSTENGRABEN 1
07743 JENA
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EU contribution: EUR 279,312,50

Activity type: Higher or Secondary Education Establishments
Contact the organisation

FUNDACION TECNALIA RESEARCH & INNOVATION
PARQUE CIENTIFICO Y TECNOLOGICO DE GIPUZKOA PASEO MIKELETGI 2
20009 DONOSTIA SAN SEBASTIAN
Spain

EU contribution: EUR 383,500

Activity type: Research Organisations
Contact the organisation
Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
Contact the organisation

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Activity type: Research Organisations
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Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)
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