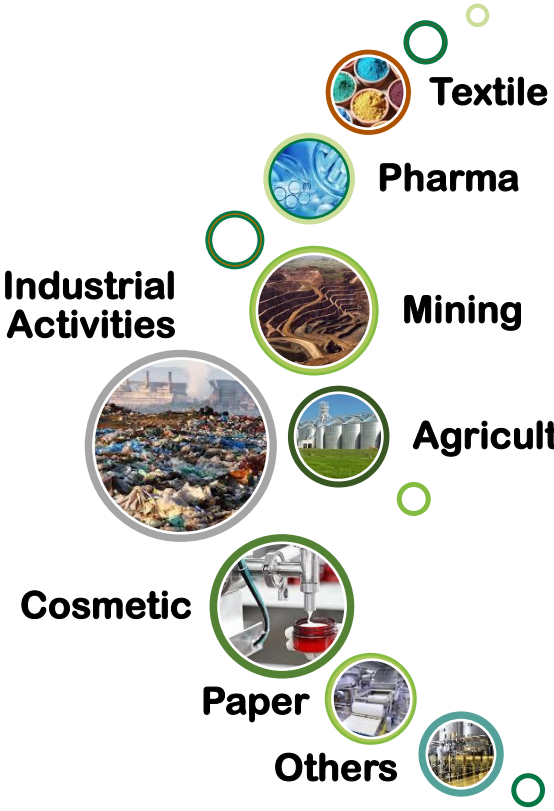
GREENER Project:

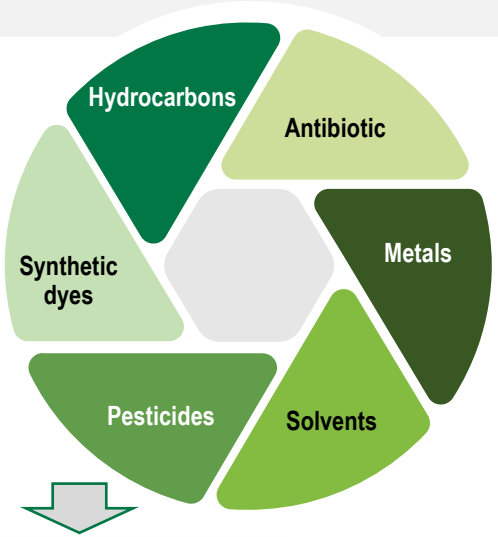
InteGRated systems for Effective ENvironmEntal Remediation

Partner Name

WHY GREENER???

In Europe→2,5 millions contaminated sites→trend increase by 50% in 2025. Annual cost of soil decontamination→2,4-17,3 billion euros





Risk to human health and environment

Conventional and chemical technologies

- Energy intensive
- Time consuming
- Hazardous chemicals
- Costly

GREENER Concept

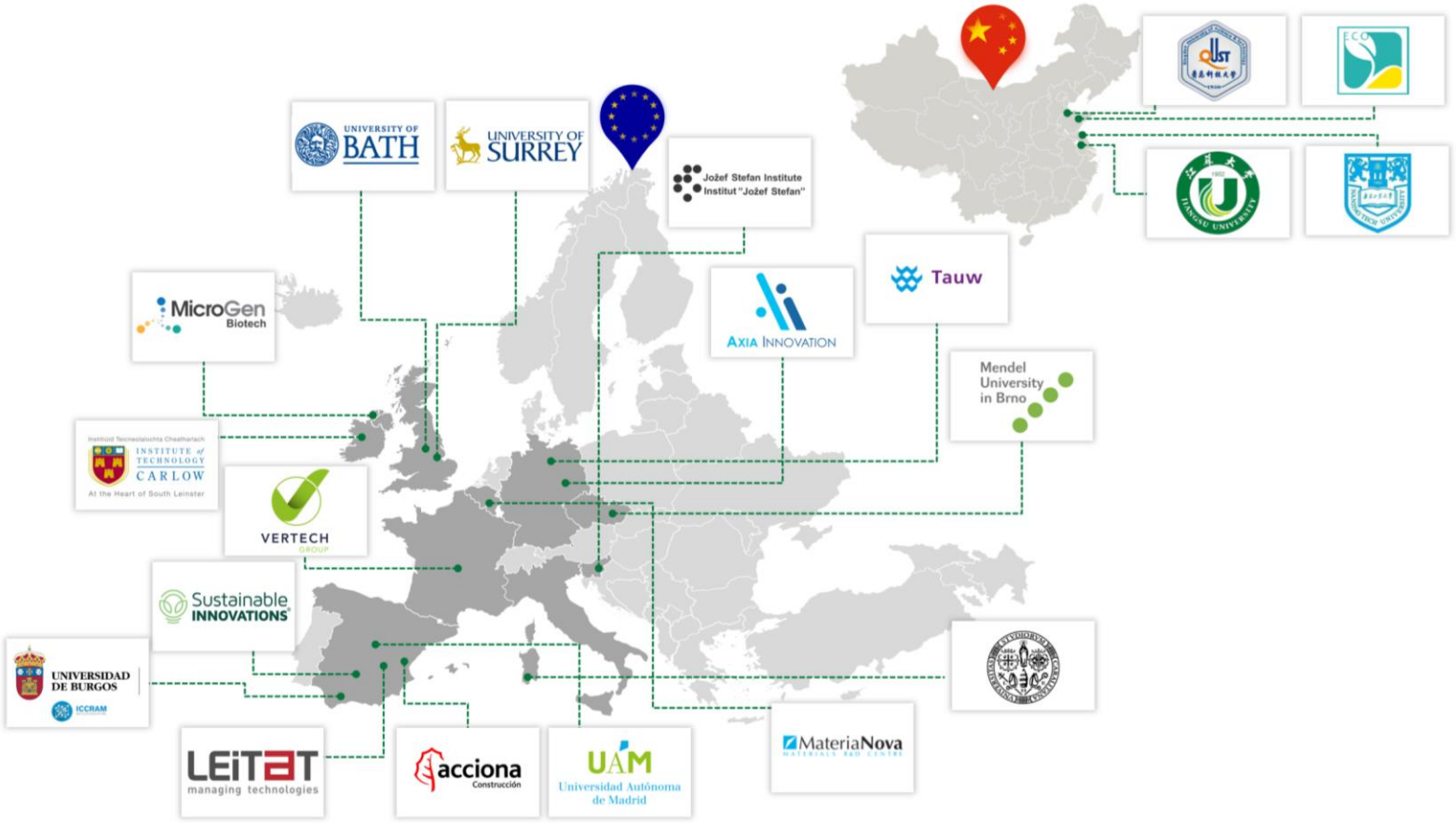
Development of green, sustainable, efficient, and low-cost solutions for soil/sediment and water bioremediation, by integrating several remediation strategies with innovative bio-electrochemical technologies.

Accelerate the remediation time of a range of organic and inorganic pollutants of high concern, while producing useful end-products, such as bioelectricity and/or harmless metabolites of industrial interest.

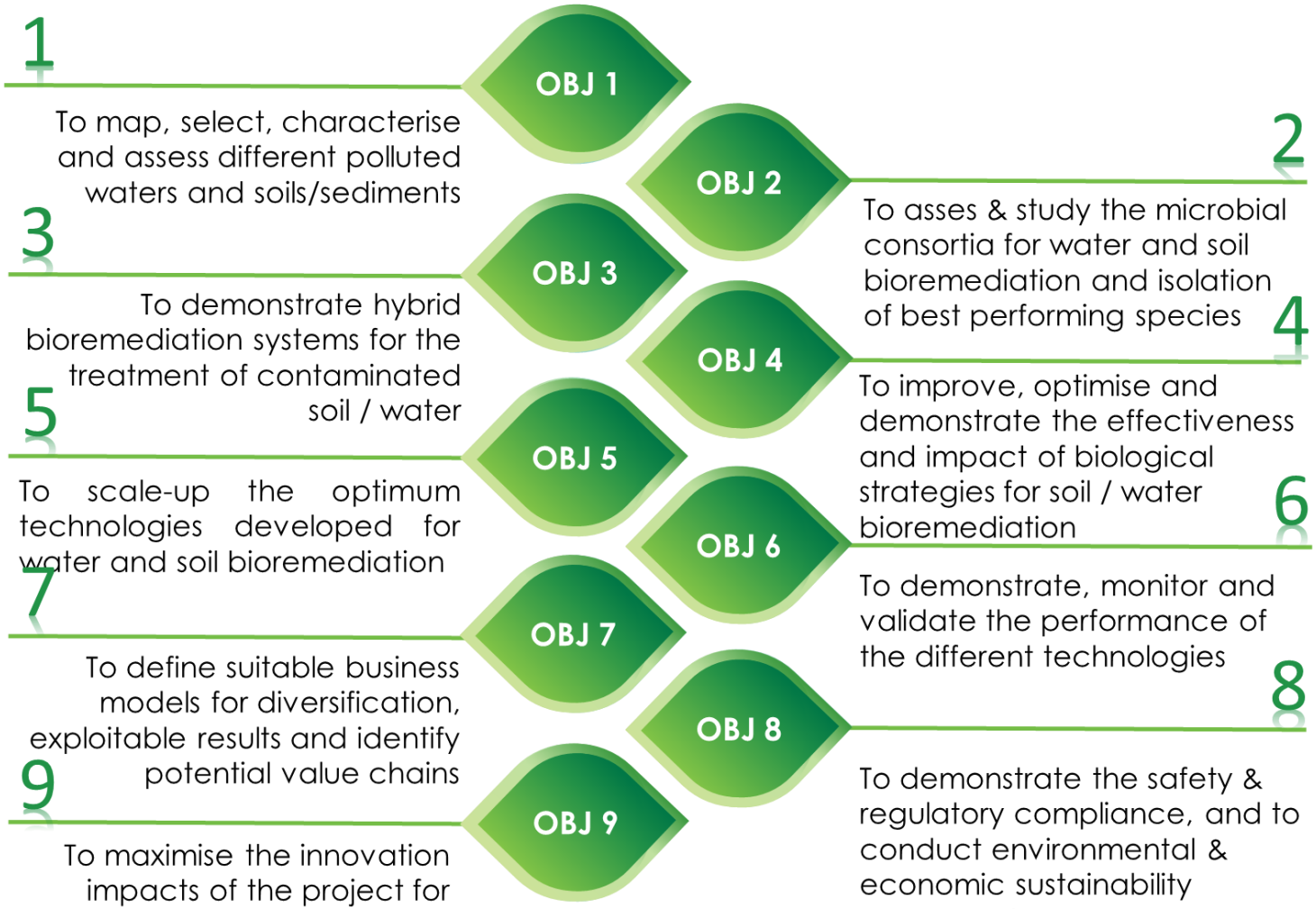
Organisms with high bioremediation ability will be identified and isolated. The influence of physico-chemical factors on the treatment effectiveness will be evaluated and proof-of-concept experiments will be performed to define optimal integrated solutions at the lab-scale.

A combination of the most promising technologies will be up-scaled and tested on the field. Finally, life cycle analyses will demonstrate the technical and economic feasibility of the solutions suggested.

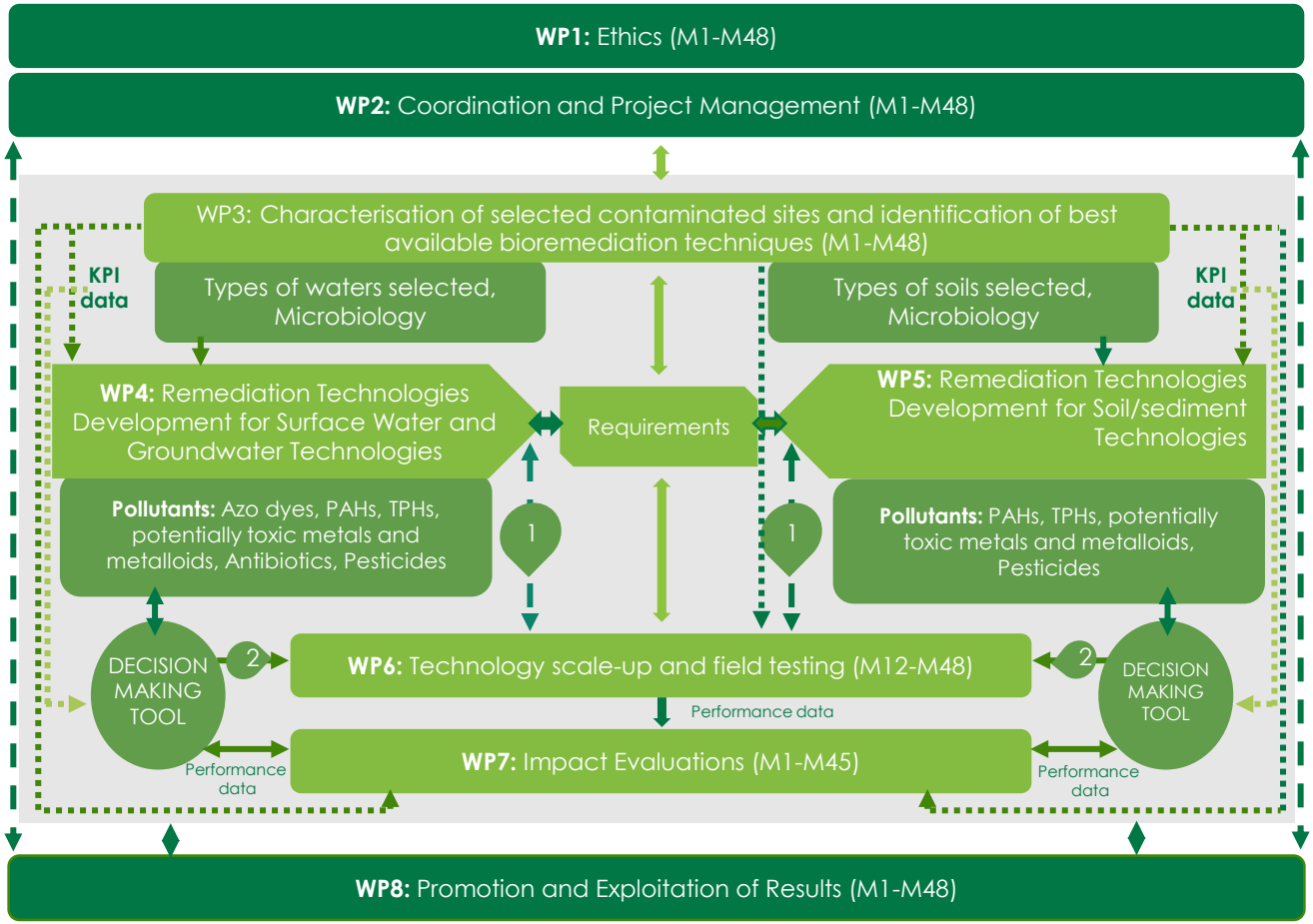
GREENER Consortium



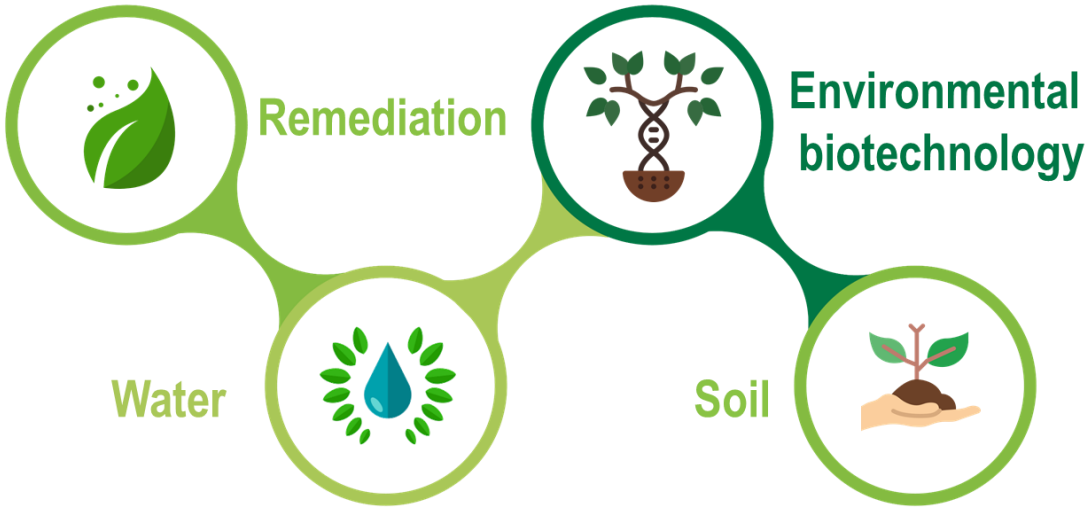
GREENER Objectives



GREENER Workplan



GREENER Technologies



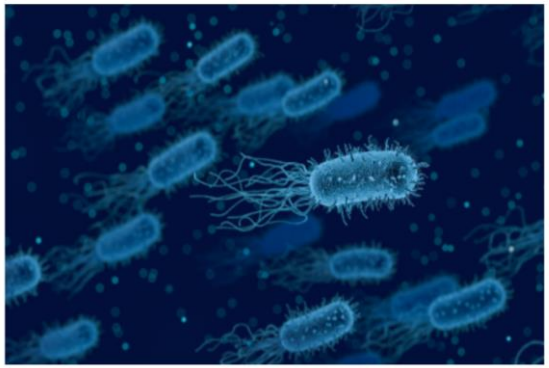
GREENER Technologies

Surface Water &
Groundwater Technologies

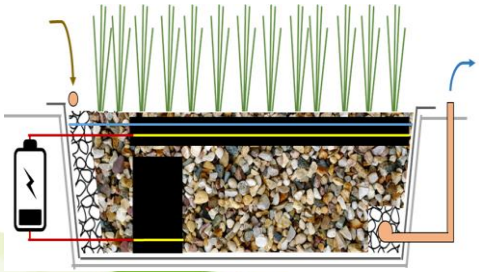
Phycoremediation Technology

Phytoremediation Technology

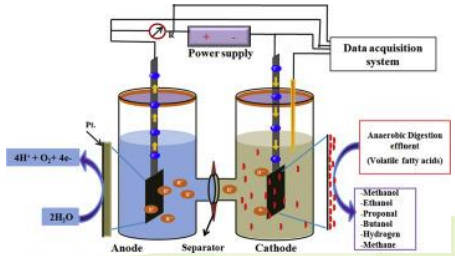
Bio-electrochemical systems (BES)



Hybrid systems CW-BES



Hybrid BES-anaerobic digestion system



GREENER Technologies

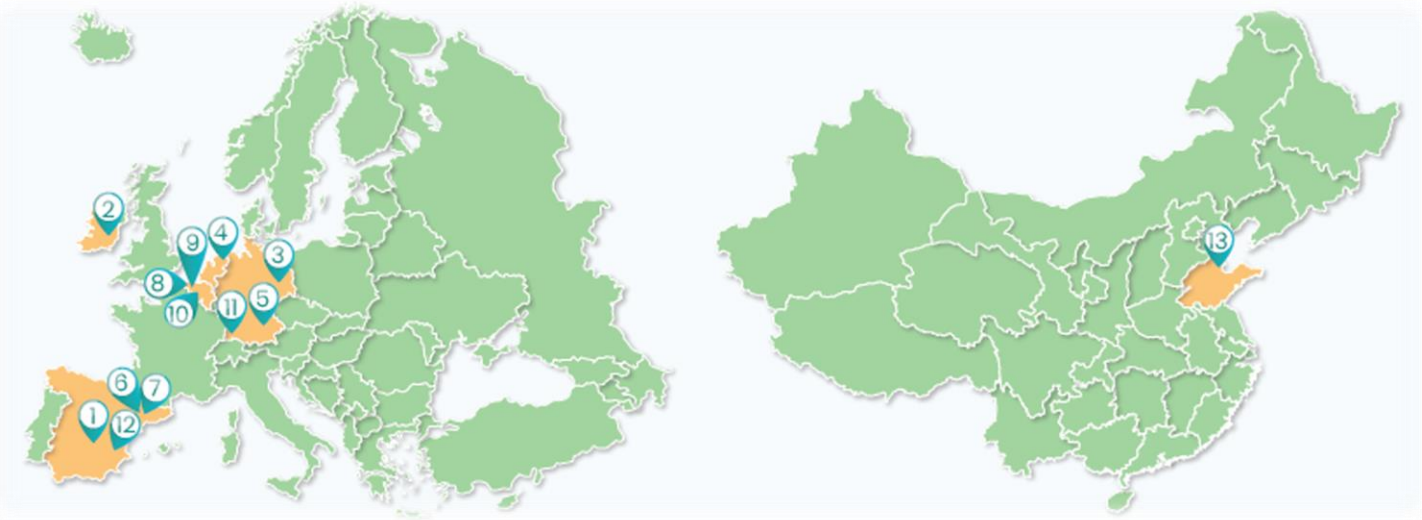
Soil/sediment technologies

Improved Biopile-Bioaugmentation /Biostimulation

Improved Ecopile –Phytoremediation & Bioaugmentation /Biostimulation

Hybrid: BES- phytoremediation (PFC)

GREENER Contaminated Sites



REMEDIATION SITE 001 SOIL WITH TPH, PAH AND HEAVY METALS
REMEDIATION SITE 002 FORMER IRISH SUGAR SITE
REMEDIATION SITE 003 SAALE RIVER SEDIMENT
REMEDIATION SITE 004 HOSPITAL
REMEDIATION SITE 005 INDUSTRIAL FACILITY
REMEDIATION SITE 006 COASTAL AQUIFER
REMEDIATION SITE 007 CHEMICAL INDUSTRY

REMEDIATION SITE 008 MAJOR NON-FERROUS MELTER 1
REMEDIATION SITE 009 MAJOR NON-FERROUS MELTER 2
REMEDIATION SITE 010 CU AND AL WIRE AND CABLE PRODUCER
REMEDIATION SITE 011 METAL REFINING INDUSTRY
REMEDIATION SITE 012 SITE CONTAMINATED WITH PESTICIDES
REMEDIATION SITE 013 GUDAO


1 river

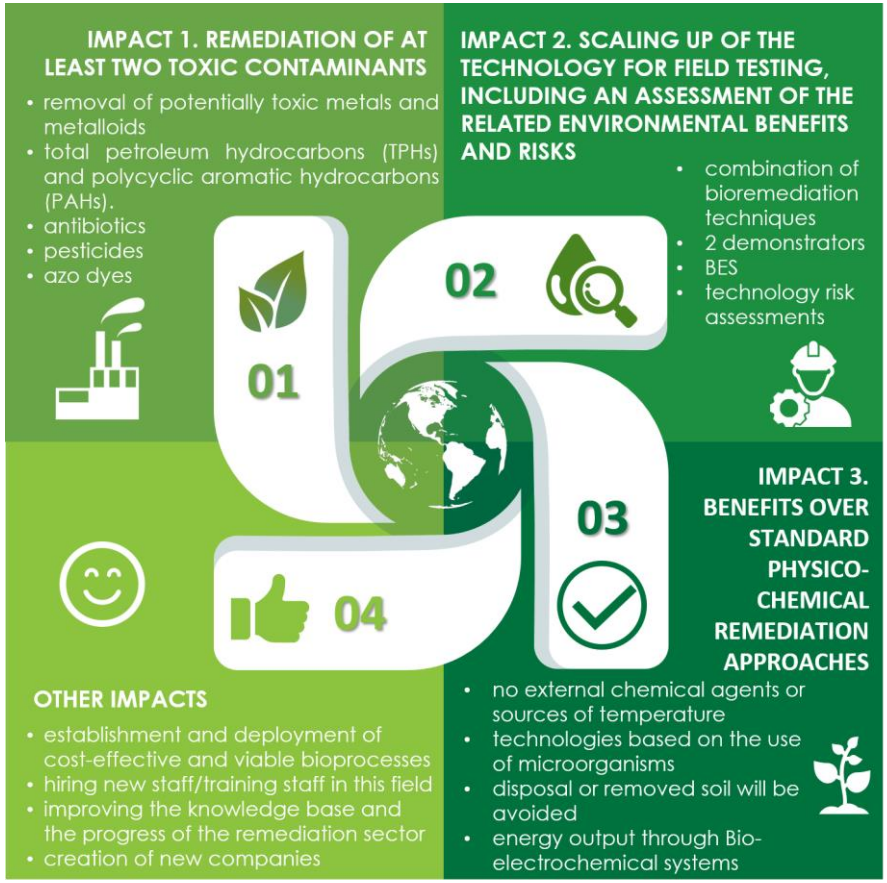

1 hospital


9 industrial sites


1 coastal aquifer


1 site contaminated with pesticides

Pproject Impacts



Our role in the project

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InteGRated systems for Effective ENvironmEntal Remediation

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European Commission | Horizon 2020 European Union funding for Research & Innovation

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