

Hundreds of thousands of contaminated sites posing a significant risk to humans and the environment require innovative cleaning technologies, as conventional remediation is often too expensive and inefficient. Biotechnological remediation employs the use of living organisms, mostly microbes and bacteria, in the removal of contaminants from the environment.

The EU-funded MIBIREM project will develop a unique toolbox for highly efficient bioremediation environmental applications of microbiomes.

Through the MIBIREM toolbox, the project will provide innovative methods to use the potential of microbiomes in degrading contaminants in soil and groundwater. The performance of selected microbiomes will be tested under real field conditions.

PROJECT FACTS

- **Start: 1 October 2022**
- **End: 31 March 2027**
- **Duration: 4.5 years**
- **Consortium: 11 partners**
- **Funding programme: Horizon Europe**
- **EU funding: €6 Mio.**

www.mibirem.eu

PARTNERS



ALTAR



CONTACTS

Project Coordination & Communication:

RTDS Group, mibirem@rtds-group.com

Scientific Coordination:

AIT Austrian Institute of Technology,
thomas.reichenauer@ait.ac.at



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Innovative Toolbox
for Microbiome-based Soil Remediation

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CHALLENGE

In Europe, there are currently 324,000 severely contaminated sites such as mines, landfills or petrol stations which pose significant risks to humans and the environment.

Many organic contaminants are difficult to remove. They can reach deep into the soil, are extensive, or the contamination may be below a building still in use.

Conventional remediation technologies to clean up these sites are often too costly, technically demanding and not eco-friendly.

SOLUTION

Biotechnological remediation employs the use of living organisms, mostly microbes and bacteria, in the removal of contaminants from the environment.

The MIBIREM project will develop a unique toolbox for highly efficient bioremediation environmental applications of microbiomes.

The project will also develop molecular methods for the monitoring, isolation, cultivation and subsequent deposition of whole microbiomes.

Long-term upscaling of microbiome-based bioremediation will reduce risk and benefit the environment.



OBJECTIVES

MIBIREM will adapt and streamline microbiome science for bioremediation, creating and applying a toolbox to identify, analyse, cultivate and upscale microbiomes, while ensuring safety and policy alignment.

1 Make sample taking & treatment, site selection & access and data management easy and comparable through harmonised methods and protocols.

2 Enable access to highly active degraders in the microbiome by identifying, analysing, isolating and cultivating them.

3 Facilitate access to bioremediation bacteria & microbiomes, their genomic information and metadata by sequencing and publicly depositing them.

4 Support decision-making on whether and how bioremediation can be applied through an IT modelling tool which integrates microbiological, chemical, hydrological and physical data & processes.

5 Bring microbiomes into application by large scale analysis of their degradation potential & safety, scale-up production & processes and field tests.

6 Ensure that the MIBIREM toolbox - the microbiome and bioremediation tools developed and applied in MIBIREM - fulfils regulatory requirements and addresses market needs.

IMPACT

- **Bioremediation is 20-50% cheaper than current practice**
- **Bioremediation emits 70-90% less CO₂ emissions than conventional remediation technologies**
- **The bioremediation market has huge potential, growing 105% faster than the conventional remediation market**
- **20,000-26,000 sites in Europe are suitable for immediate bioremediation**
- **A projected yearly increase of 3-5% of MIBIREM-based bioremediation**