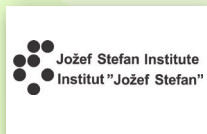


Project Partners

exergy

Engineering that inspires



The GREENER project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No. 826312.



Greener-h2020



Contact

First Floor,
Coventry Innovation Village,
Office IV7, Cheetah Rd,
Coventry CV1 2TL
United Kingdom

e-mail: info@greener-h2020.eu

CE-BIOTEC-04-2018: InteGRated systems for Effective ENvironmEntal Remediation



greener

Project Details

Start date: 1 March 2019

Duration: 4 years

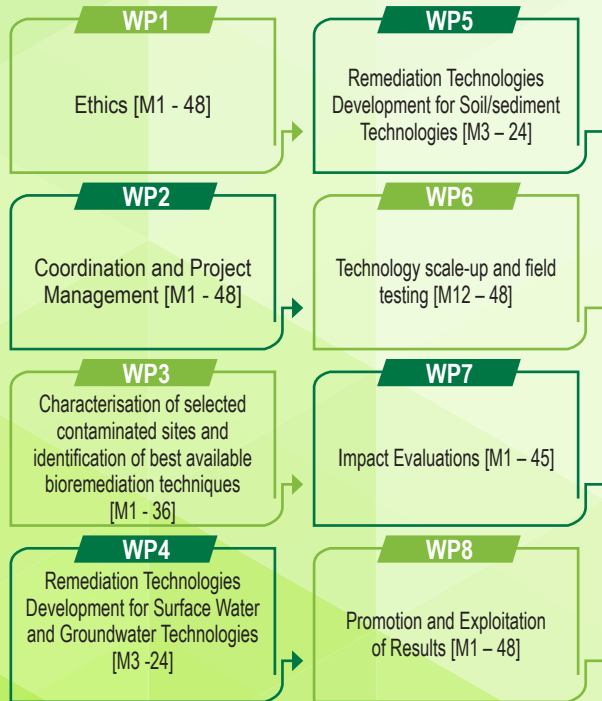
EU contribution:

EUR 4,964,168.25

Project webpage:

www.greener-h2020.eu

Workplan

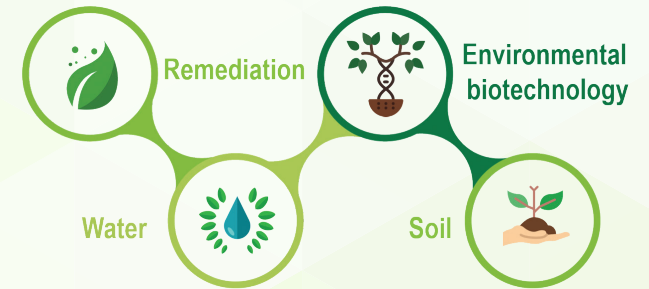


Objectives

- OBJ 1 To map, select, characterise and assess different polluted waters and soils/ sediments
- OBJ 2 To asses & study the microbial consortia for water and soil bioremediation and isolation of best performing species
- OBJ 3 To develop, improve, optimise and evaluate the effectiveness and impact of technologies
- OBJ 4 To improve, optimise and demonstrate the effectiveness and impact of biological strategies for soil bioremediation
- OBJ 5 To demonstrate hybrid bioremediation systems for the treatment of contaminated water
- OBJ 6 To scale-up the optimum technologies developed for water and soil bioremediation
- OBJ 7 To scale-up the optimum technologies developed for water and soil bioremediation
- OBJ 8 To demonstrate, monitor and validate the performance of the different technologies
- OBJ 9 To define suitable business models for diversification, exploitable results and identify potential value chains
- OBJ 10 To demonstrate the safety & regulatory compliance, and to conduct environmental & economic sustainability assessments
- OBJ 11 To maximise the innovation impacts of the project for contributing to the uptake of the project results for growth & jobs

Technologies

GREENER will include technologies such as, biopile (soil/sediment), ecopile (soil/sediment), phycoremediation (water), phyto remediation (soil/sediment and water), novel technology for metal and recovery of nanoparticles (water), bio-electrochemical systems such as, MFCs, MECs, SMFCs (soil/sediment and/or water) and hybrid systems such as, PFC (soil/sediment) and CW-MFC (water), two demonstrators for the pilot activities in soil/sediment (ACC, SDAS) and water (TAUW, QUST).



Project Description

GREENER proposes the 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. The project focuses on accelerating the remediation time of a range of organic and inorganic pollutants of high concern, while producing end-products of interests, such as bioelectricity and/or harmless metabolites of industrial interest. To achieve such an ambitious goal, organisms with high bioremediation ability will be identified and isolated, the influence of physico-chemical factors on the effectiveness of treatment will be evaluated and proof-of-concept experiments to define optimal integrated solutions at the lab-scale will be performed. Finally, a combination of the most promising technologies will be up-scaled and tested on field. Life cycle analyses will demonstrate the technical and economic feasibility of the solutions suggested.



IMPACT 1. REMEDIATION OF AT LEAST TWO TOXIC CONTAMINANTS

- removal of potentially toxic metals and metalloids
- total petroleum hydrocarbons (TPHs) & polycyclic aromatic hydrocarbons (PAHs).
- antibiotics
- pesticides
- azo dyes

IMPACT 2. SCALING UP OF THE TECHNOLOGY FOR FIELD TESTING, INCLUDING AN ASSESSMENT OF THE RELATED ENVIRONMENTAL BENEFITS AND RISKS

- combination of bioremediation techniques
- 2 demonstrators
- BES
- technology risk assessments

OTHER IMPACTS

- establishment & deployment of cost-effective and viable bioprocesses
- hiring new staff/training staff
- improving the knowledge base & progress of the remediation sector
- creation of new companies

IMPACT 3. BENEFITS OVER STANDARD PHYSICO-CHEMICAL REMEDIATION APPROACHES

- no external chemical agents or sources of temperature
- technologies based on the use of microorganisms
- no disposal or removal of soil
- energy output through Bio-electrochemical systems