



greener



GREENER Project:

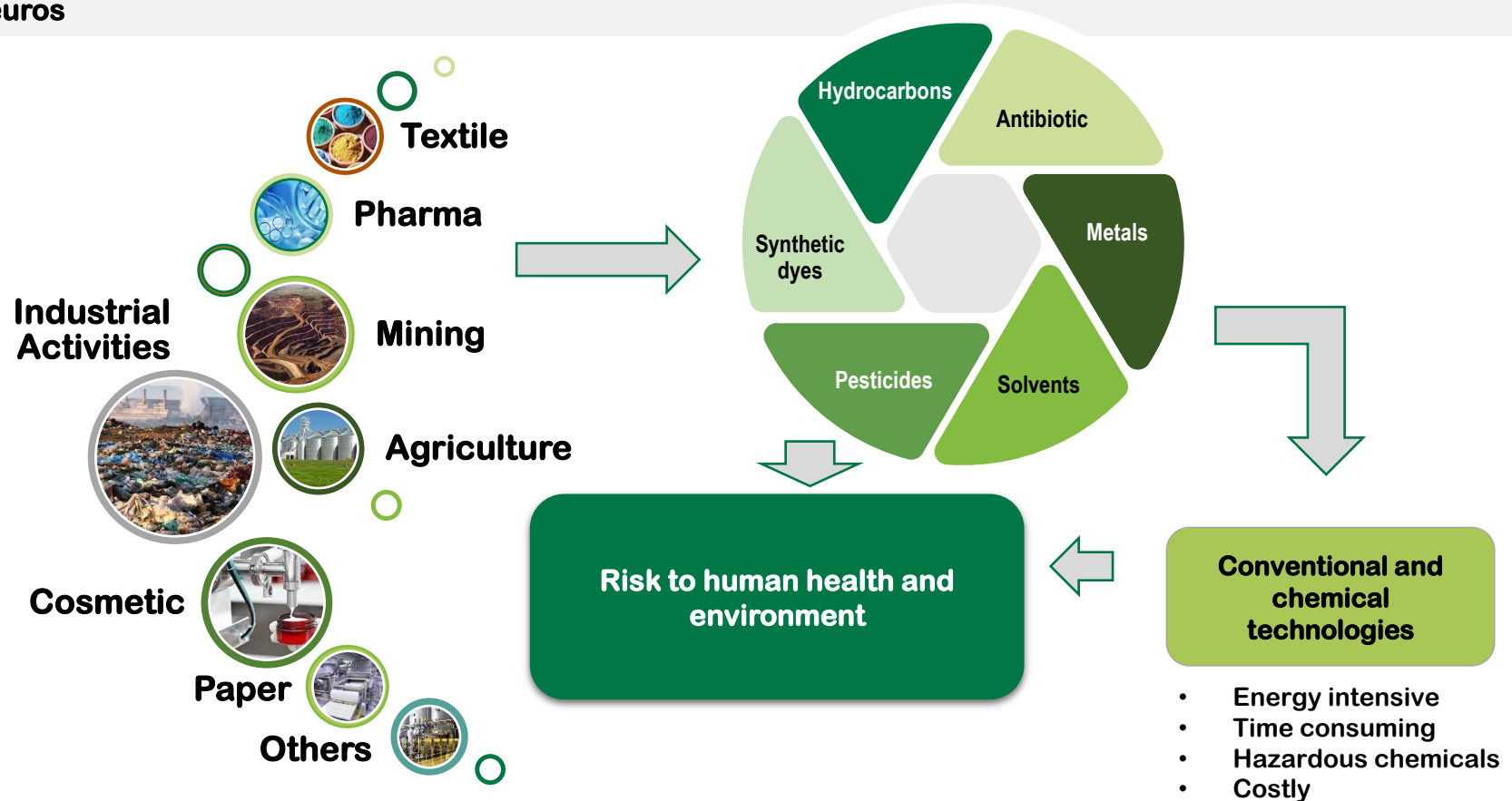
*InteGRated systems for
Effective ENvironmental
Remediation*

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



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.



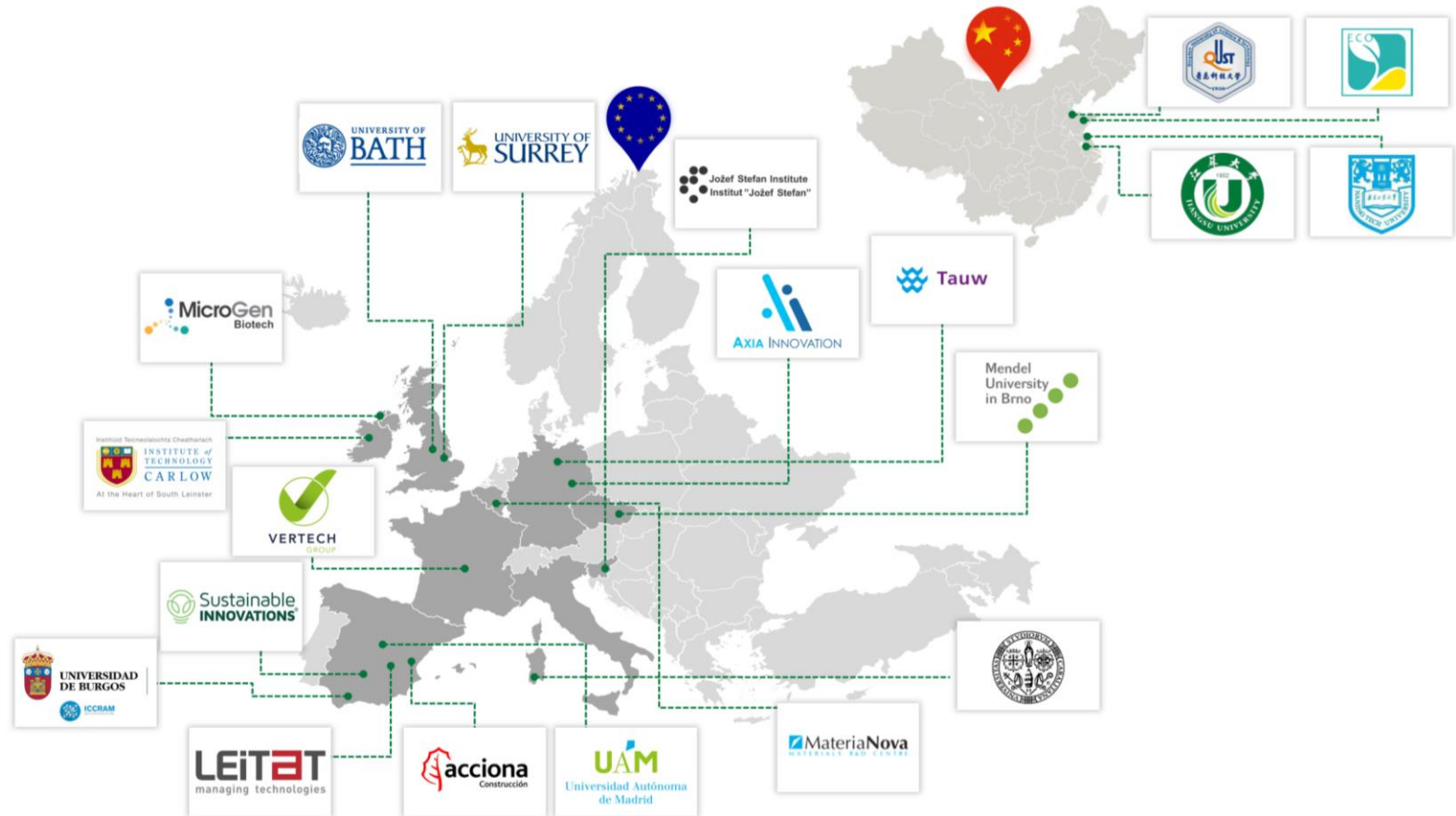
Organisms with high bioremediation ability will be identified and isolated. The influence of physico-chemical factors on the treatment effectiveness will be evaluated and proof-of-concept experiments will be performed to define optimal integrated solutions at the lab-scale.



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

1

To map, select, characterise and assess different polluted waters and soils/sediments

OBJ 1

2

OBJ 2

To assess & study the microbial consortia for water and soil bioremediation and isolation of best performing species

3

To demonstrate hybrid bioremediation systems for the treatment of contaminated soil / water

OBJ 3

4

OBJ 4

To improve, optimise and demonstrate the effectiveness and impact of biological strategies for soil / water bioremediation

5

To scale-up the optimum technologies developed for water and soil bioremediation

OBJ 5

6

OBJ 6

To demonstrate, monitor and validate the performance of the different technologies

7

To define suitable business models for diversification, exploitable results and identify potential value chains

OBJ 7

8

OBJ 8

To demonstrate the safety & regulatory compliance, and to conduct environmental & economic sustainability assessments

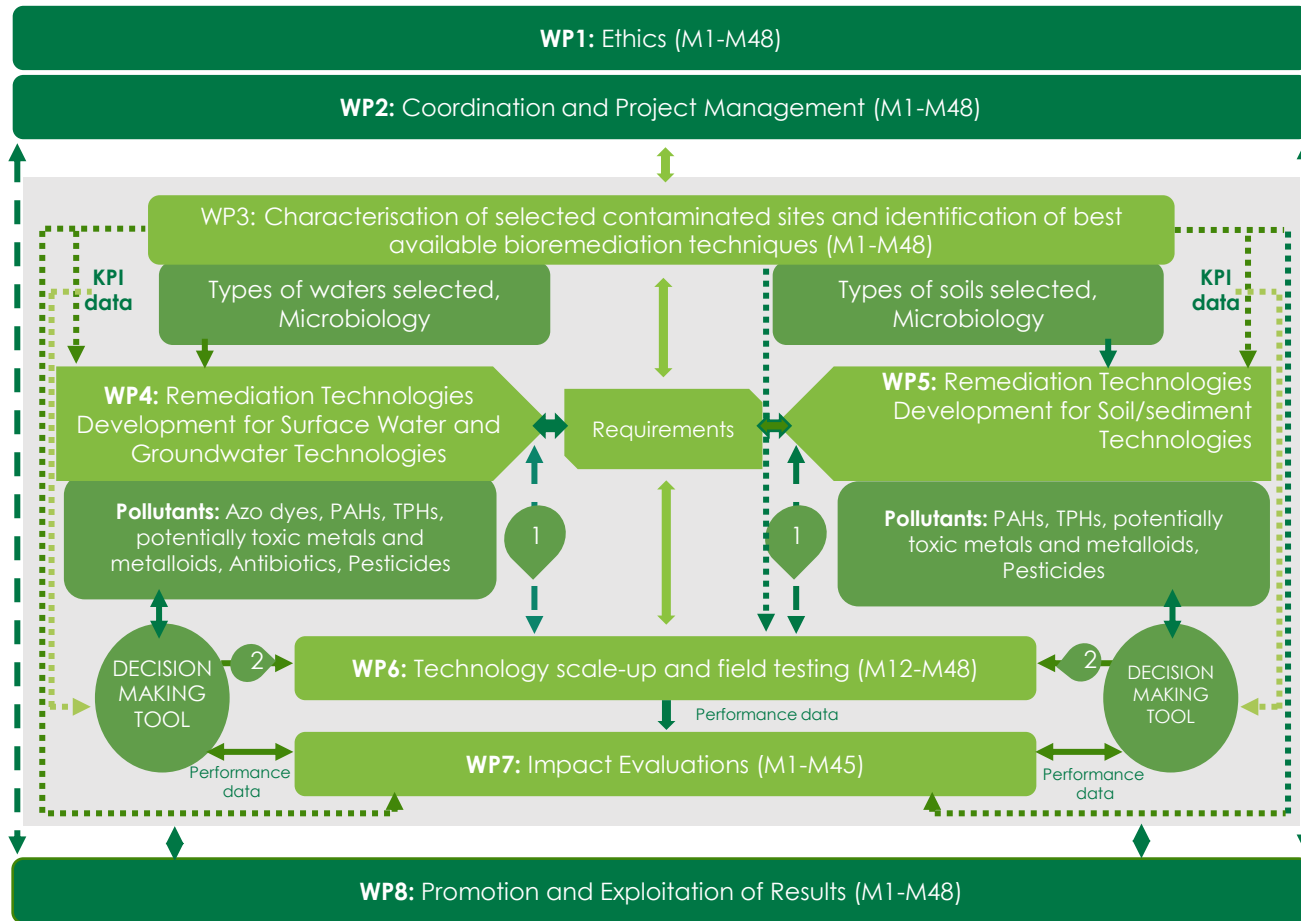
9

To maximise the innovation impacts of the project for contributing to the uptake of the project results for growth & jobs

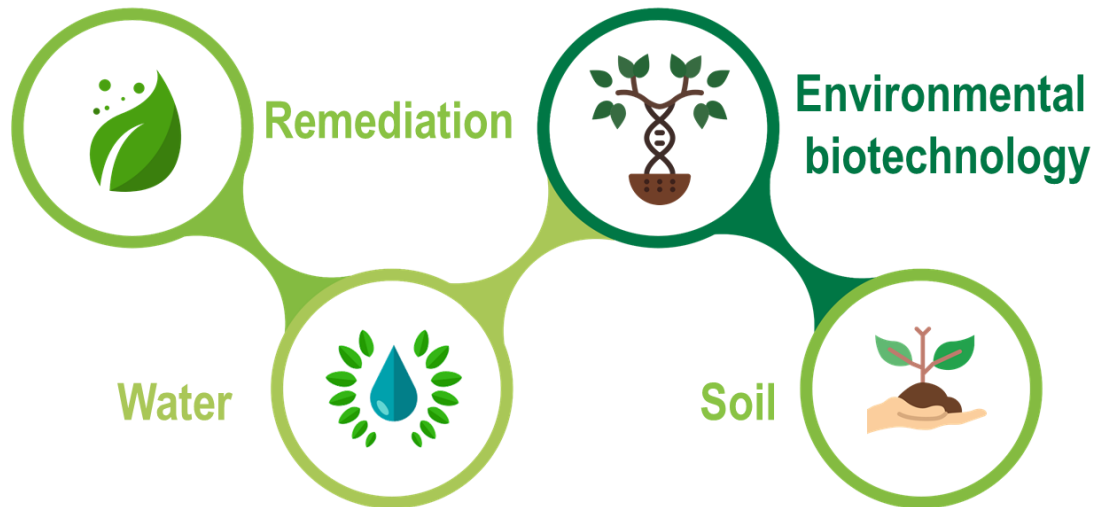
OBJ 9



GREENER Workplan



GREENER Technologies



GREENER Technologies

Surface Water & Groundwater Technologies

Phycoremediation Technology



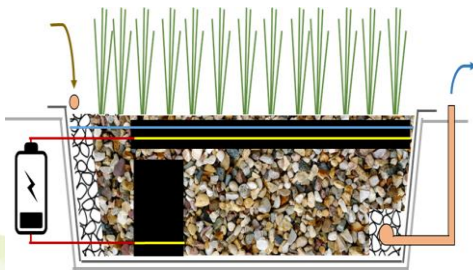
Phytoremediation Technology



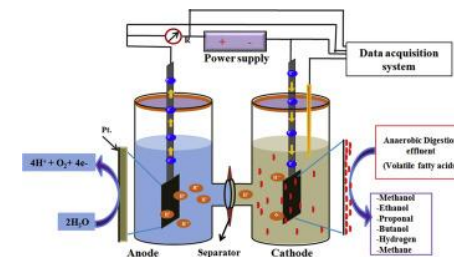
Bio-electrochemical systems (BES)



Hybrid systems CW-BES



Hybrid BES-anaerobic digestion system



GREENER Technologies

Soil/sediment technologies

**Improved Biopile-Bioaugmentation
/Biosimulation**



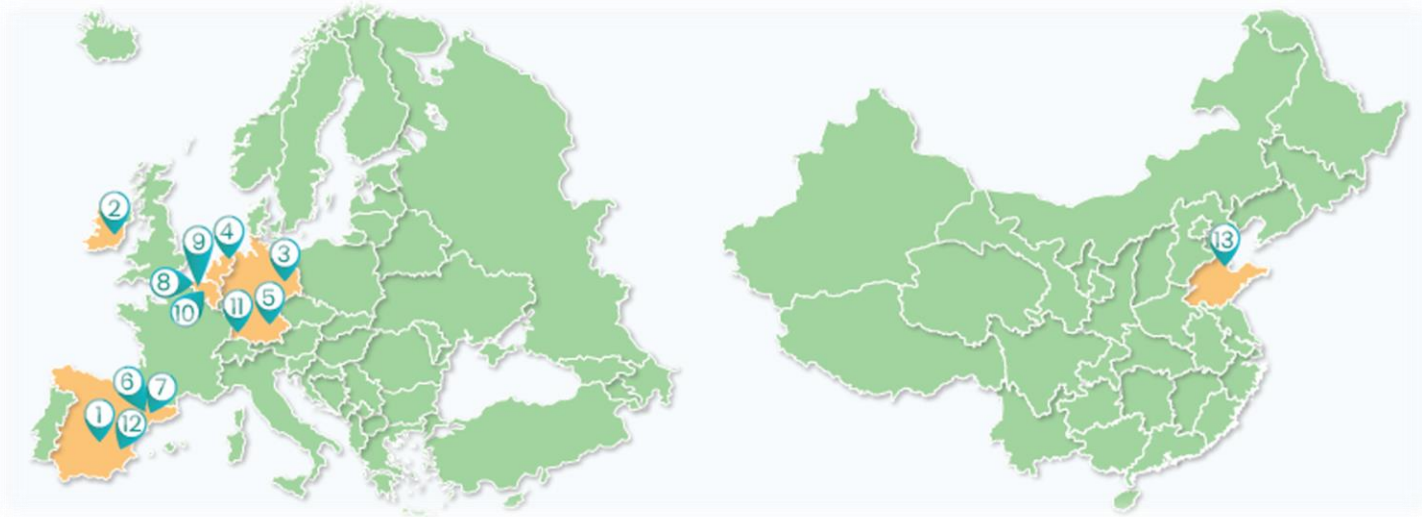
**Improved Ecopile –Phytoremediation &
Bioaugmentation /Biosimulation**



Hybrid: BES- phytoremediation (PFC)



GREENER Contaminated Sites

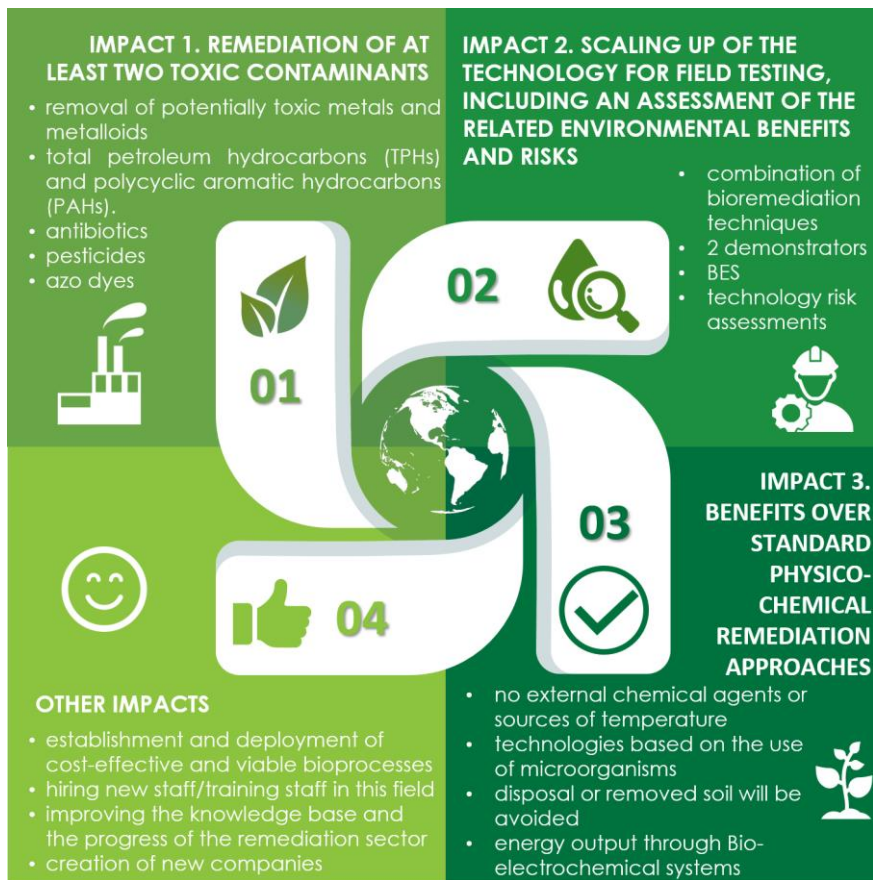


- REMEDIAION SITE 001 **SOIL WITH TPH, PAH AND HEAVY METALS** 
- REMEDIAION SITE 002 **FORMER IRISH SUGAR SITE** 
- REMEDIAION SITE 003 **SAALE RIVER SEDIMENT** 
- REMEDIAION SITE 004 **HOSPITAL** 
- REMEDIAION SITE 005 **INDUSTRIAL FACILITY** 
- REMEDIAION SITE 006 **COASTAL AQUIFER** 
- REMEDIAION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

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

-  1 river
-  1 hospital
-  9 industrial sites
-  1 coastal aquifer
-  1 site contaminated with pesticides

Project Impacts



Our role in the project

Visit:



Dissemination material



Project Partners

CE-BIOTEC-04-2014: InterGRated systems for Effective ENvironmental Remediation

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Contact

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Project Details

Start date: 1 March 2019
Duration: 18 months
EU contribution: EUR 4,9M, 100 %

Project webpage: www.greener-h2020.eu



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SAVE THE DATE

3rd April 2019

International Workshop in Environmental Biotechnology: Towards a GREENER world

University of Burgos

I+D+i Building
Plaza Misael
Bañuelos s/n
Burgos
SPAIN

Lead organizers

Dr. Carlos Rod (URBU)
Dr. Raquel Barrio (URBU)
Dr. Juan Antonio Toranzo (URBU)
Dr. Andreas Gondran (AOCX)
Dr. Mark Walker (EXERGY)
Dr. Robert Swales (EXERGY)



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University of Burgos

International Research Center in Critical Raw Materials for Advanced Industrial Technologies

GREENER | Kick of Meeting
1st - 2nd April 2019

NAME
COMPANY

ARIA INNOVATION



CE-BIOTEC-04-2014: InterGRated systems for Effective ENvironmental Remediation

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GREENER project 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

20 Partners, 16 EU & 4 Chinese partners

48 Months Duration 9 EU Countries

14 RTDs, 4 SMEs, 2 LEs

4.9M Funding

4 Temp Sites

Project webpage: www.greener-h2020.eu

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InteGRated systems for Effective ENvironmEntal Remediation

Names:
e-mails:



European
Commission

Horizon 2020
European Union funding
for Research & Innovation

The GREENER project has received funding from the European Union's Horizon 2020 Research and Innovation Framework Programme under Grant Agreement No. 826312.