The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101006717

CERESiS

ContaminatEd land Remediation through Energy crops for Soil improvement to liquid fuel Strategies

CERESiS (ContaminatEd land Remediation through Energy crops for Soil improvement to liquid biofuel Strategies) is a H2020 Project aiming at facilitating land decontamination through phytoremediation, i.e. growing energy crops to produce clean biofuels. In the longer term, this will increase the land available for agriculture, while producing non-ILUC biofuel. During the 42 months of the project duration, CERESiS will:

- Demonstrate the suitability and effectiveness of various conventional and novel species of energy crops for phytoremediation purposes in contaminated land, against a variety of the most common contaminants globally
- Demonstrate the potential of two novel thermochemical processes, i.e. Supercritical Water Gasification (SCWG) and Fast Pyrolysis (FP), for the production of biofuels and key biofuel precursors suitable for further upgrading, from contaminated biomass.
- Provide decision support to stakeholders and policy makers in order to achieve optimal win-win solutions for site-specific land decontamination through phytoremediation while simultaneously producing clean liquid biofuels.

Project Background

Across EU-28, 1,54 million of potentially contaminated sites are estimated and out of the 650,000 registered sites only 1 in 10 have so far been remediated *(Figure 1).* The management cost of European contaminated sites is estimated at €6 billion annually. Meanwhile, meeting the global challenge of feeding growing populations while still reducing greenhouse gas emissions would require less land used for dedicated bioenergy crops. Bioenergy accounts for 18.9% of renewable energy (2018 data) and is expected to increase to 32% in 2030. Especially in the transport sector, agri-

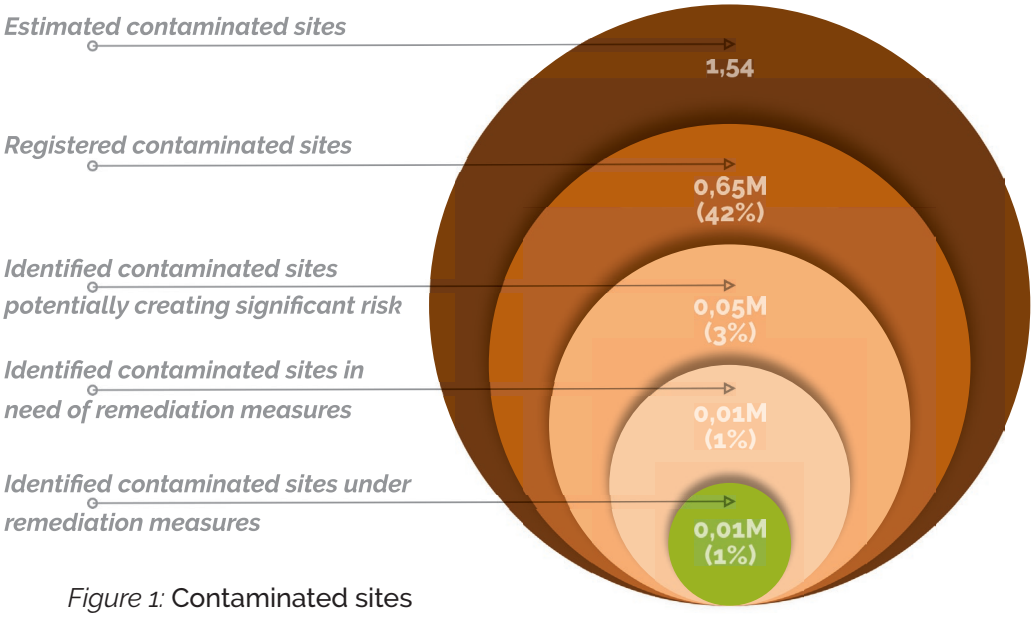

Figure 1: Contaminated sites

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cultural crops constituted the largest source of feedstock for biofuel production (72% of approx. 14 Mtoe used in transport in 2016). Therefore, sustainable bioenergy crops are essential to expand the future production of biofuels, the latter of which will still play a fundamental role all the way through 2050. Biofuels contribution to transport is illustrated in *Figure 2.*

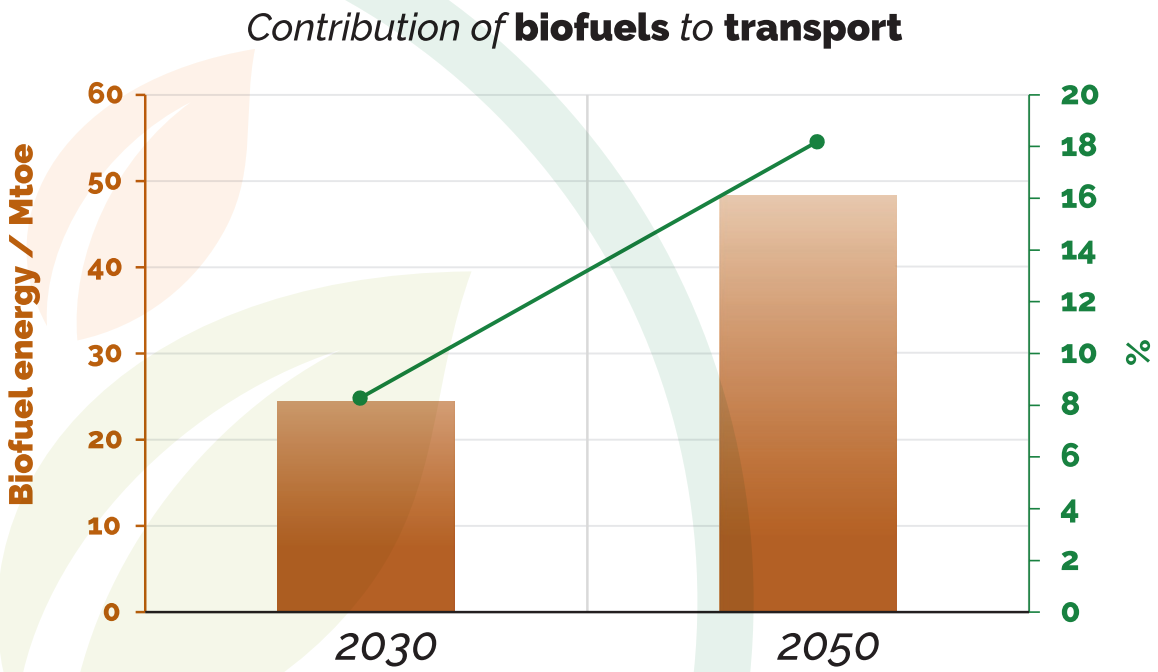

Figure 2: Contribution of biofuels to transport

CERESiS Output

CERESiS aims to influence policy makers and stakeholders with recommendations on how to support the incorporation of phytoremediation in biofuel production value chains. To this end, the project will develop a Decision Support System (DSS) and test it in 4 use cases (UA, IT, UK, BR). DSS can be further exploited outside the scope of the project and propose optimal pathways (i.e. best choice of energy crops, most appropriate cultivation and harvesting methods, conversion and separation technologies and supply chain design) for each individual case of site, area, region or country.

The CERESiS Consortium

Nine partners from five European countries (GR, DE, IT, LU and UK) closely collaborate with one Ukrainian NGO (Associated country) and two Universities from Canada and Brazil (international partners) to form the 12 partner Consortium. It is comprised by four leading European Universities and two international ones, two research centres, one large industry, one SME and two NGOs. The consortium expertise covers the entire value chain and addresses all project requirements, demonstrating the inter-disciplinary approach adopted.