

Innovative and Demostrative Arsenic Remediation Technologies for Soils



PROJECT DETAILS

Funding Programme:

LIFE Programme

Sub-Programme:

LIFE+ Enviroment

Funding Scheme:

Innovation and Demonstration
Actions

Project Reference:

LIFE11 ENV/ES/000547;

UE-12-IDARTS-LIFE11-000547

Project Duration:

51 Months (from 2012-09-01 to
2016-08-31)

Total Project Value:

€ 878.639

EU Grant-Aid:

€ 439.319

Funding to UniOvi:

€ 759.335'13

PROJECT DESCRIPTION

In recent decades, industrial restructuring has led to the closure of many mining and industrial facilities in various parts of Europe, and particularly in Spain. This has left a large number of contaminated sites. In Asturias, the situation is striking, with a multitude of degraded areas remaining both from old mining (coal and metal) activities and the relatively recent dismantling of heavy industry (chemical and metallurgical) plants. Whether located within or near urban areas or in more isolated areas where rural development or natural ecosystems are important, soil contamination is not a trivial problem. The challenge is even greater when contaminants with complex geochemical characteristics and behavior – such as arsenic – are present in areas under restructuring processes or protected areas. Despite the efforts of recent decades, it is estimated that there might be thousands of such contaminated former industrial and mining sites in every EU country, including several hundred affected by arsenic. Traditional management measures including soil confinement and landfilling are not sustainable solutions. More efforts are needed in terms of policies and techniques to advance specific recuperation actions for such sites.

Objectives

The 'I+DARTS' project aims to demonstrate the technical and economic feasibility of using best available technologies in real scale to offer more advanced and sustainable soil remediation solutions for regions undergoing industrial restructuring. It expects to deliver a decision tool that will enable the selection of the most appropriate technique for remediation of specific contaminated sites and thus facilitate decontamination efforts in other areas.



The project plans to conduct pilot actions of a variety of techniques for the remediation of soils contaminated by arsenic and heavy metals. It will work on three test sites presenting a diversity of characteristics and scenarios aiming thus to be globally representative of other locations in the region and hopefully beyond. Two sites will be former mining areas and one an old industrial site. The sites are located in diverse areas: rural/natural; suburban; and urban. The project intends to conduct an innovative biogeochemical characterization of the three target sites. It will then compare the application of enhanced remediation technologies, such as phytoremediation, bioremediation, soil washing or electro kinetics on the three contaminated sites using pilot-scale demonstration experiences. The decision protocol developed by the project will take into account the characteristics of each site - including the original contamination source and intended future land use as well as calculations of the technical and economic feasibility of the best available technologies - to offer recommendations on the best approach to remediation. The protocol will be communicated to other regions under industrial restructuring in the EU.

Expected results

The project is expected to achieve the following results:

- Strengthen existing scientific knowledge around decontamination of highly polluted soils;
- Demonstrate the effectiveness and feasibility of best available technologies in dealing with former industrial and mining sites more sustainably than e.g. soil confinement or landfill;
- Provide a decision tool for identifying the best remediation approach for a given site. This tool will thus support the application of the project's methods in other parts of the EU; and
- Present solutions to enhance and update current Environment Policies and Governance Strategies on contaminated soils in Asturias (and eventually beyond).

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