

OBJECTIVES

- Increase the reuse of raw materials from past metallurgical sites and deposits.
- Evaluate the feasibility and economic potential for raw material recovery and site remediation using innovative Artificial Intelligence Tools.
- Provide knowledge and decision support tools to screen past metallurgical sites and deposits.
- Recover valuable materials.
- Create jobs.

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NWE-REGENERATIS PARTNERS



Lead Partner: SPAQUE (Société Publique d'Aide à la Qualité de l'Environnement), Belgium

Project Partners:

- MPI (Materials Processing Institute), United Kingdom
- CTP (Centre Technologique International de la Terre et de la Pierre), Belgium
- BRGM (Bureau de Recherches Géologiques et Minières), France
- ULiège (Université de Liège), Belgium
- IXSANE, France
- OVAM (Openbare Vlaamse Afvalstoffenmaatschappij), Belgium
- TEAM2, France
- TH Köln (Technische Hochschule Köln), Germany
- BAV (Bergischer Abfallwirtschaftsverband), Germany
- Cranfield University, United Kingdom
- ATRASOL, Belgium
- DUFERCO Wallonia, Belgium
- JUNIA, France



REGENERATION of Past Metallurgical Sites and Deposits through innovative circularity for raw materials

Project NWE-REGENERATIS: 2019 - 2023

Total budget ERDF: €4.26 million

Total project budget: €7.10 million

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FOCUS

NWE-REGENERATIS focuses on solutions for the remediation of contaminated Past Metallurgical Sites and Deposits (PMSD) in NWE. The main groups targeted by the project are:

- organisations responsible for decontaminating sites contaminated by metallic industrial wastes.
- organisations in charge of their redevelopment.

Current trend:

- the considered metallic waste streams such as aggregated materials with high ferrous metal content, scrap metals, white and black slags, and other streams are seen as a source of pollution, expensive to manage/eliminate.
- the soil pollution treatments focus on the decontamination or landfilling of dumped materials and are not oriented towards the extraction and recovery of raw materials.

The current lack of reliable, coherent and affordable data about the economic resource recovery potential of PMSD, and about the viability and yield of metals extraction processes is thus a major challenge.

HOW WILL NWE-REGENERATIS GO BEYOND THE CURRENT SITUATION?

- Cost-effective methods focused on the identification, extraction and recovery of raw materials, are therefore required to obtain an estimate of the potential of a given site.
- The development of an innovative tool based on Artificial Intelligence (SMARTIX) addressing the feasibility and economic potential for raw material recovery on PMSD.
- Increasing the reuse and recovery of metals while decreasing global remediation costs and environmental risks.

Advantages of the “REGENERATIS methodology for Innovative Circularity to Recover Raw materials” (REMICRRAM) from PMSD:

- improving soil fertility for the production of eco-catalyst.
- avoiding the landfilling and the treatment of contaminated soil (saving costs).
- remediated soil can be used on site for redevelopment.

9 PILOT SITES,

of which 3 are former steelmaking sites:

- **Teesside site - United Kingdom**
- **Pompey site - France**
- **La Louvière site - Belgium**

OUTPUTS

NWE-REGENERATIS offers a methodology promoting the harmonisation of brownfields inventories in NWE, with a focus on the raw materials, in order to support new business models, through the Decision Support Tool SMARTIX based on Artificial Intelligence algorithm.

NWE-REGENERATIS provides as main outputs:

- a harmonised inventory structure, focusing on recoverable raw materials
- an innovative investigation and characterisation solution using geophysics.
- an open source tool (SMARTIX), based on four dimensions (quality/quantity of raw materials streams, innovative extraction processes, soil recovery and eco-catalyst production potential).
- two innovative uses of waste processes for metal/mineral extraction and eco-catalyst production on recovered soils, demonstrated on pilot sites.
- 800 tonnes of recovered materials.

Source: ULiège. Pilot site at La Louvière (DUFERCO), Walloon region, Belgium

