Re-use

Scan

Recover

Describe

Prioritise

RAWFILL

RAWFILL

Supporting a new circular economy for RAW
materials recovered from landFILLs

Valuable resources such as raw materials and energy carriers lie dormant in North-West Europe's 100.000 landfills. Many of these are located in highly populated areas, where the need and value for reclaimed land and raw materials are high. Reclaiming land and recovering secondary raw materials is still challenging. RAWFILL, a project of eight collaborating partners provide support to landill owners and managers to recover resources, both smartly and efficiently.

Most of the 100.000 landfills pre-date the EU directives and lack state-of-the-art environmental protection systems, leading to local pollution, land-use restrictions and global impacts such as greenhouse gas emissions. Good landfill management can deal with most of these issues, but it is expensive and is spread over a long period. Landfill mining projects can transform these issues into an economic opportunity.
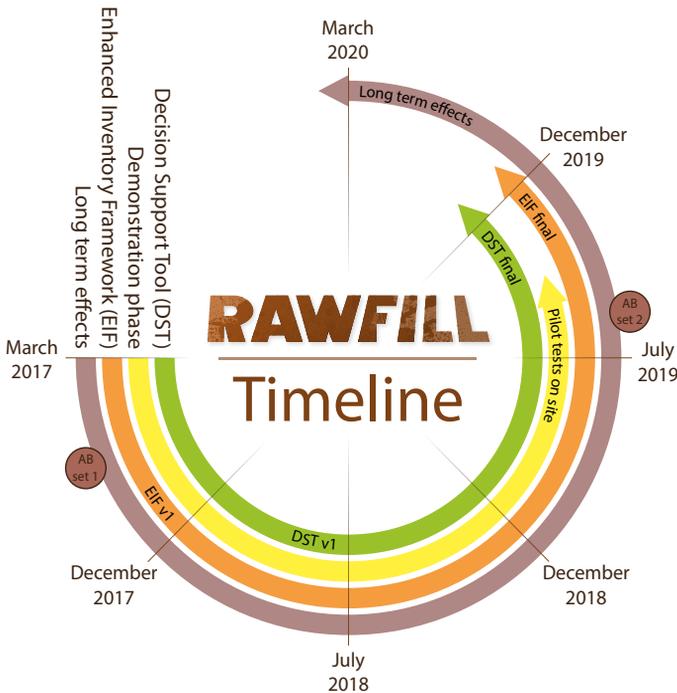
However, the profitability risk of mining the landfills is too high, due to the current lack of reliable, coherent and affordable data about the economic resource recovery potential of a landfill.

1 CHAL-   Incomplete inventories
Existing landfills inventories are incomplete; they do not include suitable datasets related to dormant resources that would allow investors to robustly assess the opportunity of launching profitable landfill mining operations for a specific landfill site;

2 CHAL-   Expensive landfill investigation methods
Traditional landfill exploration methods are prohibitively expensive as they require analysis of multiple core waste samples;

3 CHAL-   No standard methodology ranking landfills
There is no standard methodology allowing the ranking of landfills to select the most profitable landfill mining projects, taking into consideration their resources potential, the specificity of the sites, their surrounding environment and various sustainability aspects.

UNFOLD TO FIND OUT HOW IT WORKS

Within RAWFILL the partners are developing novel tools and knowledge to support a new circular economy for raw materials recovered from landfills. RAWFILL will demonstrate the added value of the tools by applying them to pilot landfill sites. The objectives of RAWFILL are:

1 OBJECTIVE
Enhanced Inventory Framework (EIF)
RAWFILL provides supporting evidence through its Enhanced Inventory Framework. By doing so, RAWFILL is able to demonstrate added value to landfills owners and managers.

2 OBJECTIVE
Develop high-performance and cost-effective landfill geophysical methods
RAWFILL designs and demonstrates an innovative multi-method geophysical approach to characterise landfills through large-scale non-invasive survey in order to reduce pre-screening costs and obtain reliable economic-driven data for a large set of landfills.

3 OBJECTIVE
Develop a reliable prioritisation support tool in order to rank landfills
RAWFILL supports landfill mining projects by designing a Decision Support Tool (DST) that prioritises landfills with the view to subsequent, resource-recovery driven projects.

RAWFILL
Timeline

March 2020
Long term effects
December 2019
EIF final
DST final
AB set 2
July 2019
Pilot tests on site
March 2017
Decision Support Tool (DST)
Demonstration phase
Enhanced Inventory Framework (EIF)
Long term effects
AB set 1
EIF v1
DST v1
December 2017
December 2018
July 2018

This key visual explains all the steps of an integrated landfill mining project following the RAWFILL methodology. By supplying guidelines, tools, e-learning and academic training, RAWFILL covers in detail steps 1 to 3: Scan, Describe and Prioritise. For steps 4 and 5, RAWFILL helps stakeholders to make relevant decisions for launching profitable landfill mining projects: Recover and Re-use.

1. Scan

Analyse landfills by means of historical studies and on-site survey: what kind of extractible waste have been land- filled, when, how much and where are they located? What are the landfill conditions regarding gas or leachates? Site survey, based on available historical information, is performed by an innovative combination of geophysical methods

2. Describe

Describe each scanned landfill by using the RAWFILL EIF structure in order to define homogenous zones with specific characteristics regarding geometry, density, water content and relevant information about the raw materials content, such as metals, organic materials and plastics.

5. Re-use

By mining the selected qualifying landfills, raw materials, energy and land will be injected into the economy again. Furthermore this will improve the environmental quality of water, soil and air.

4. Recover

Recover raw materials, spare fossil resources, reduce gas emissions and create local added value through the creation of jobs or innovative industrial development. Moreover the cost of landfill aftercare management will be reduced.

3. Prioritise

Classify the landfills by using the RAWFILL DST following sustainable principles, economical, environmental, social and technical features. In this way it is possible to rank and then select the most relevant landfill mining projects.

This project is co-funded by the European Union.

Would you like to join the RAWFILL
community? Please contact Claudia Neculau
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