

ProSUM Prospecting Secondary raw materials in the Urban mine and Mining waste

Project Summary

Background

The use of secondary raw materials and recycling was recommended to the European Commission as a strategy to improve resource efficiency and reduce and alleviate the supply risks facing critical raw materials (CRMs) (COM 2010a). The EU Raw Materials Initiative has led, through the European Innovation Partnership (EIP), to the definition of research and innovation actions to mitigate these risks. One such action is to build the EU raw materials knowledge base. The ProSUM project intends to supply the inventory component of this knowledge base.

Data on primary and secondary raw materials are available in Europe but are scattered amongst a variety of institutions including government agencies, national geological surveys, universities, NGOs and industry. The data are often stored in databases with their own design and architecture making it difficult and time consuming to merge or compile. Moreover, where data relates to the composition of waste different and, often incomplete, sampling and analytical approaches may have been used which makes it challenging to aggregate and compare data. The disposal of WEEE, ELVs and spent batteries together with other solid wastes, the export of used products and long 'hibernation' times in homes is also limiting the recovery potential of CRMs.

"Prosum" is Latin for "I am useful".

The project forms part of the WEEE 2020 Commitment on Raw Materials <https://ec.europa.eu/eip/raw-materials/en/content/weee-2020-raw-material-partnership-%E2%80%93-delivering-advancements-across-weee-value-chain-improve>

Approach

The ProSUM project will gather data on WEEE, ELVs, batteries and mining waste known to have relatively high concentrations of CRMs. Methodologies will be developed to gather harmonised and standardised data, compliant with existing primary raw materials databases, to provide a general architecture for an inventory for secondary raw materials in the urban mine and mining waste.

Access to the data inventory will be through the EU Urban Mine Knowledge Data Platform (EU-UMKDP) and a user friendly web portal. Working with partners through the ProSUM Information Network will assist in the development of the EU-UMKDP by sharing existing data and identifying ways of collecting harmonised data in future. The wide range of data network partners working together with the research partners will jointly deliver structured data, and standard methodologies for the sampling and analysis of CRM content in WEEE, ELVs, spent batteries and mining waste. This allows for better presentation, standardisation and harmonisation of data as well as improved coverage and accessibility of data in the future for a wide range of end-users, including the recycling industry, producers and producer compliance schemes, and policy

makers. The inventory also sets the basic architecture to include a larger part of the urban mine in the future and to define the potential for mining wastes.

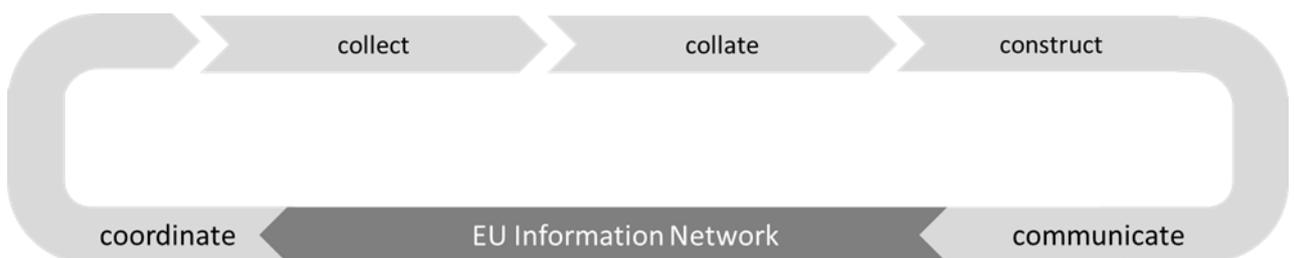
Project Objectives

Coordinate	Coordinate with a wide range of organisations involved in the four product and waste groups to enhance access to and dissemination of current and future CRM data in view of improving the knowledge base on CRMs in secondary sources along the value chain.
Collect	Collect, describe and compile currently available data and trends for CRMs in products and component, stocks and waste arisings for the four waste groups.
Collate	Collate and harmonise existing data and to develop a sampling strategy to expand modelling of historic and future stocks and flows to feed the inventory of the four waste groups.
Construct	Construct the EU-UMKDP as the Inventory and Portal providing state-of-the-art data for the four waste groups, compatible with the data being collated on primary raw materials by the Minerals Knowledge Data Platform (EU-MKDP), including development of new data models.
Communicate	Communicate and disseminate results and recommendations via the Information Network to support full access to CRM information along the value chain and to improve coordination between network partners to support future CRM data availability.

The ProSUM Information Network

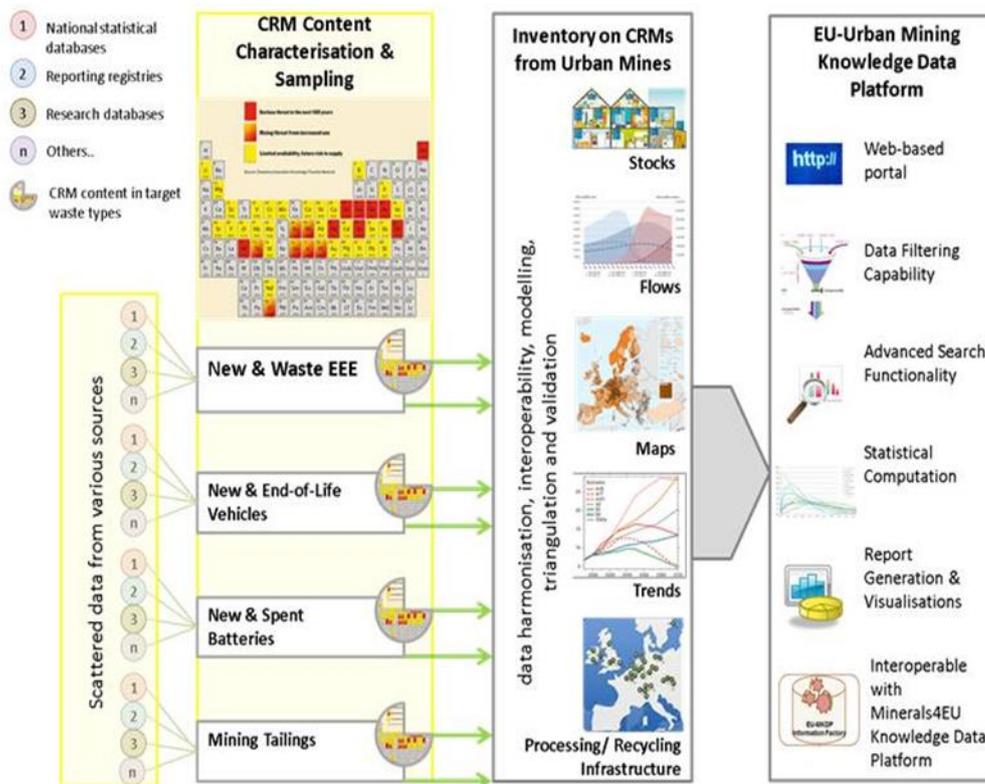
Through the creation of the Information Network a wide range of stakeholders will be engaged along the value chain. This Network will share best practice, benchmarks and opportunities for greater harmonisation and cooperation regarding secondary raw materials data pooling. Better, more accessible, standardised and harmonised qualitative and quantitative data will be produced overcoming the current barriers of interoperability of spatial data and services at both national and EU levels.

This network will spearhead greater dissemination of the knowledge base necessary to improve recycling rates, particularly of CRMs, leading to longer term resource efficiency and sustainability of supply of raw materials within the EU. It will build on the Minerals Intelligence Network already in place and will consist of researchers, the recycling industry, producer compliance schemes, producers, public authorities, national geological surveys, and other EU funded projects e.g. CRM-Innonet, EURARE, Minerals4EU, the KIC (Knowledge and Innovation Communities) on Raw Materials and the waste industry.



The EU- Urban Mine Knowledge Data Platform

The existing EU Minerals Knowledge Data Platform (EU-MKDP) aims to give simplified, user friendly and efficient access to all available and new data on mineral resource stocks and flows in the EU. The EU-UMKDP will complete the picture with the inclusion of data on secondary sources of raw materials from “urban mines”. The result will be seamless access to data on resources from extraction to end-of-life products with the ability to reference all spatial and non-spatial data. This knowledge will provide the foundation for improving Europe’s position on raw material supply.



Interoperability with National and Other Databases

National and pan-European databases stored at Eurostat (including Member State data returns for the ELV Directive, Battery Directive, WEEE Directive, Waste Statistics Regulation, International Trade Statistics, Prodcom Statistics) and reports from FP7 funded projects containing relevant data on CRMs from the target waste types will be tapped into to collate all appropriate data and the extent to which additional data can be interoperable. Here “appropriate” means all data which allows for a better description and characterisation of the material content and where better data is required. This will include identification of the need for additional standards and datasets including the need for harmonisation of methodologies for characterising products and wastes and their CRM content. This will lead to the potential to aggregate future data arising from other projects and studies.

Methods, networks and tools will be put in place which bring these waste products into the INSPIRE framework for the first time. The INSPIRE Directive aims to establish an

infrastructure for spatial information which is created and maintained by Member States and which concerns policies and activities which have an impact on the environment.

Potential End Users

The inventory and EU-UMKDP will be developed with end users in mind to:

- **Enable coordination and collaborative work:** The establishment of the Information Network will allow actors in the value chain to collaborate to identify opportunities to enhance data gathering which meets their needs, uses harmonised methodologies and is presented in consistent interoperable formats.
- **Raise awareness:** The project will raise awareness by collating best available data on materials arising in the EU, including their stocks and flows, and producing additional data on product and waste composition.
- **Facilitate standardisation:** The project will contribute to improving the knowledge base by identifying the potential for new standards and statistics.
- **Support policy dialogue:** Through the provision of state-of-the-art data on CRM arisings in the target products and their waste streams and mining waste, which, for the first time, will be interoperable and harmonised with primary raw materials thus supporting the EU Raw Materials Knowledge Base (EURMKB) objective of the EIP on Raw Materials.
- **Support research to further develop infrastructure:** The data provided will allow industry to identify further research and innovation opportunities.

Project Impact

This unique, ground breaking project will deliver:

- An easily accessible platform with all available data on WEEE, ELVs, batteries and mining waste, and their arisings, stocks, flows and treatment;
- Waste statistics combined with other product statistics following a life cycle approach allowing checks for data coherence and the prediction of future waste streams;
- Data on secondary raw materials combined and linked with primary minerals information on the same platform;
- Maps presenting data on secondary raw materials in a spatial format;
- Standardised methodologies and protocols to characterise products and wastes and gather harmonised data in future to provide longevity and improvement of the data;
- Enhanced national databases through an interoperable data knowledge platform;
- A centralised database based on distributed architecture, designed to accommodate wastes and resources updates in future;
- The EU potential to match supply and demand for secondary raw materials, particularly CRMs, quantifiable at a high level.

Partners

A consortium of 17 partners, representing research institutes, geological surveys and industry, with excellence in all the above domains is delivering this ambitious project:

WEEE Forum – Project Coordinator
Bureau de Recherches Géologiques et Minières (French Geological Survey)
C-Tech Innovation Limited
Centraal Bureau Voor De Statistiek (Statistics Netherlands)
Czech Geological Survey
Chalmers University of Technology
EuroGeoSurveys – Scientific Coordinator
Empa (the Swiss Federal Laboratories for Material Science and Technology)
Eucobat
Geological Survey of Slovenia
Geological Survey of Denmark and Greenland
Recharge
Geological Survey of Sweden
Technische Universität Berlin
Technische Universiteit Delft
United Nations University – Scientific Coordinator
WRAP

Funding

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