SRM Technical tools developed

- WEEE: (a) Creation of 2 sampling protocols and a survey aimed at improving reporting of scavenging practices. (b) Creation of "Conversion protocol" to update the collected and reported flow for the EU.
- PV Panels: (a) Revised classification for UNU key 0002. (b) Creation of Survey and Sampling Protocols to improve knowledge lifecycle of PV panels. (c) Recommendations for official statistics (WEEE, Energy, Trade).
- Batteries: (a) Creation of a harmonized classification of battery chemistries. (b) Quantification of stocks and flows of batteries and the critical raw materials (CRM) they contain. (c) Definition of systems.
- ELV: Quantification of electric vehicle battery stock in Norway using four different vehicle classification systems in order to draw a comparison and recommend a better classification.
- Mining Waste: (a) Survey of existing data providers. (b) Creation of protocols for harmonization. (c) Creation of non-technical practical roadmap to generate and share national data sets into ProSUM database based on existing practices.

'INSPIRE MR and EarthResourceML data models'

The EU INSPIRE Mineral Resources data model and its international counterpart, ERML, have been improved in the frame of ORAMA. A new data model allowing harvesting aggregated data at national level has been created for the automatic feeding of the e-Minerals Yearbook.

Main Results:

- Technical Guidelines and Training Materials
- Webinars
- Recommendations
- Deliverables
- Final Technical Report

Future Events

- E-waste World Conference and Expo

  14-15th of November 2019

  Kap Europa, Frankfurt Messe Frankfurt, Germany

  https://www.ewaste-expo.com

- ORAMA's Final event

  22nd of November 2019

  Hôtel Le Plaza, Boulevard Adolphe Max, 1000 Brussels Belgium

  www.eurawmaterialsweek.eu/event/pages/satellite-events#orama-closing-event

Contact us:

Technical Coordinator: Perttu Mikkola
Geological Survey of Finland

perttu.mikkola@gtk.fi

Scientific Coordinator: Pasi Eilu
Geological Survey of Finland

pasi.eilu@gtk.fi

www.orama-h2020.eu

@orama_eu

https://www.linkedin.com/groups/13643064/

ORAMA

Optimising quality of information in **RA**w **MA**terials data collection across Europe

ORAMA has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776517

Aim of ORAMA

- Improve data availability, geographical coverage, accessibility, standardisation, harmonisation, interoperability, quality and thematic coverage of primary and secondary raw materials within the EU.
- Build on results of past and ongoing projects such as Minerals4EU, ProSUM and MICA to identify best practices, develop practical guidelines and provide training to meet the specific needs of resource reporting.
- Demonstrate how to create more robust Material System Analysis studies and reliable Sankey diagrams for stocks and flows of raw materials within the EU.

About the Project

Information on the resources and production volumes of mineral raw materials needs to be easily accessible from a single source within the EU. A solid knowledge base will support decision making within the metal refining and manufacturing industry, and in research and education programmes of the EU.

The two-year ORAMA project (Optimising quality of information in RAw MAterials data collection across Europe) started on 1 December 2017. The project supports the further development of the Raw Materials Information System (RMIS). ORAMA will identify the best practices in collecting information on European raw materials.

Projects Partners

- Geologian tutkimuskeskus
- Bureau de Recherches Géologiques et Minières
- British Geological Survey
- Chalmers Tekniska Högskola AB
- Geological Survey Ireland
- Eidgenossische Materialpruefungs- und Forschungsanstalt
- Geoloski Zavod Slovenije
- Geological Survey of Denmark and Greenland
- Instituto Geológico y Minero de España
- JRC - Joint Research Centre - European Commision
- Magyar Bányászati és Földtani Szolgálat
- Norges Geologiske Undersokelse
- Technische Universität Berlin
- Universiteit Leiden
- United Nations University
- Waste Electrical and Electronic Equipment Forum

Projects Findings

Primary Raw Materials

The EU is highly dependent on primary raw materials (PRM) and to ensure for adequate planning for future supplies it is important to be able to access data on PRMs that is comparable on a European level. There are currently significant knowledge gaps regarding European PRM resources. The ORAMA project has undertaken a comprehensive review of all available PRM data and made recommendations on how they can be improved and harmonised as well as providing case studies and examples of good practice that allow information sharing at different levels.

PRM Technical tools developed

The ORAMA project recommends that the best tool for the harmonisation of mineral resource data is the United Nations Framework Classification for resources (UNFC) and has created a range of training materials to enable its use. ORAMA has also complied case studies from European countries, where a variety of different types of standards are used to report PRM data, to show good practice and how the UNFC can harmonise previously incomparable data. It is hoped that these resources can provide organisations, such as geological surveys and national statistical agencies, who are responsible for the collation of mineral statistical data at a national level, with the required tools to convert existing data to UNFC for the compilation of pan-European resource and reserve estimates.

Secondary Raw Materials

Securing responsible sources of secondary raw materials (SRM) as well as increasing recycling are complex challenges. The ORAMA project has analysed data collection methods and recommendations from past and ongoing projects. It has identified the best practices, developed practical guidelines and provided training to better understand SRM from batteries, electronics, vehicles and mining waste in Europe and, in so doing, allow policymakers to make informed policy decisions to increase the supply of secondary raw materials.