Funded by the Horizon 2020 Framework Programme of the European Union

Summary

COST Action Mining the European Anthroposphere

Mining operations constitute the first link in raw material supply chains. The project cycle of such operations depends on estimates – estimates on the future availability of resources that can be extracted and transformed into raw materials and sold on the market. Even if the market is currently dominated by natural resources, anthropogenic resources are becoming increasingly important. Interestingly, at the present time anthropogenic resources are not assessed in terms of their future availability for markets. This prevents a consistent comparison with natural resources and, therefore, the optimization of raw material sourcing strategies to meet societal challenges.

To overcome the gap, this COST Action focused on anthropogenic resources and their potential for being recovered and put on market. Between 2016 and 2020, experts from 30 European countries worked on two main topics. Firstly, they identified enablers of and barriers to resource availability and developed a comprehensive knowledge base. It addresses methods for waste characterization, recovery technologies, economic settings, and environmental impacts as well as case studies that illustrate the use of the knowledge base to assess resource availability. This knowledge base is publicly available and helps experts to develop their own case studies (http://dx.doi.org/10.5281/zenodo.3739164). Complementary reports on recovery technologies are available as well as articles, proceedings and presentations on various aspects of material recovery from anthropogenic resources (https://doi.org/10.5281/zenodo.3767910). Secondly, the experts recognized the complexity of the assessments and the challenges in achieving comparable results and communicating these to recovery project developers in industry and raw material policy makers. To meet this challenge, the experts made use of the United Nations Framework Classifications for Resources (UNFC). It is a globally accepted framework for communicating resource availability. In the past, it has been applied to natural resources only, while this COST Action initiated and developed innovative specifications to apply the UNFC to anthropogenic resources as well. It is a key milestone for generating resource availability data in Europe and beyond (http://dx.doi.org/10.5281/zenodo.3759026). However, the generation of data requires quality assurance, which in turn necessitates experts who have the knowledge to assess and classify resources as well as information systems and institutions to monitor the generation of data. These accompanying actions evolved into a strategic roadmap on sustainable management of resources, which is also publicly available (http://dx.doi.org/10.5281/zenodo.3739269).

In conclusion, over a period of 4 years about 180 experts compiled knowledge from traditionally separated fields and consolidated this information into a unified assessment and classification of anthropogenic resources. In this way, the COST Action provides a sound conceptual framework for researchers, the recycling industry and resource policy makers as a whole to ensure the supply of raw materials for the common good.

Web: www.minea-network.eu
Contact: info@minea-network.eu

Authors: Ulrich Kral, Soraya Heuss-Aßbichler
Proofreading: Andrew Clarke
Date: 2020/04/28