



## Review

# The role of anthropogenic resource classification in supporting the transition to a circular economy



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## ARTICLE INFO

## Article history:

Received 3 June 2020

Received in revised form

11 March 2021

Accepted 12 March 2021

Available online 18 March 2021

Handling Editor: Cecilia Maria Villas Bôas de Almeida

## Keywords:

Anthropogenic resources

Circular economy

Secondary raw materials

Sustainable resource management

United nations framework classification for resources (UNFC)

Waste management

## ABSTRACT

A successful transition to a Circular Economy, as promoted by the European Commission, requires solid information on the future availability of anthropogenic resources. Anthropogenic resources are human-made material stocks and flows, such as old landfills, buildings or different waste streams. A case study approach was adopted in this paper to investigate the role of the classification of anthropogenic resources in supporting the transition to a Circular Economy. The first objective is to identify the motivation and scope of the reviewed case studies. The second objective is to investigate to what extent they address the challenges linked to anthropogenic resource recovery. The third objective is to elicit in how far resource classification can contribute to promote anthropogenic resource recovery and to support the EU Action Plan for the Circular Economy. This paper includes case studies that classify materials recovered from old landfills, built infrastructure, national secondary metal stocks, electrical and electronic waste and waste incineration residues. With respect to anthropogenic resource recovery, five areas were identified, in which resource classification can have a meaningful contribution in the future, namely in knowledge management, research and development, policy support, (pre-) feasibility studies, and marketing. In a wider Circular Economy context, resource classification can play a key role in assessing anthropogenic resources in analogy to natural resources for integrated resource management. Further, it can be useful to improve communication along the value chain, e.g., to optimize waste management operations, processes and products for enhanced resource recovery and recyclability. Resource classification can also help compare different Circular Economy options. The paper concludes that a standardized classification, which encompasses guidance on detailed assessment of different types of anthropogenic resources, is necessary. This should take into account the fact that the availability of resources does not solely depend on the material quantities, but also on the technical, operational, economic, social, environmental and regulatory conditions which cumulatively enable or prevent recovery of these resources.

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