

## **The role of mineral raw materials towards a carbon neutral society**

by Karen Hanghøj

British Geological Survey, United Kingdom

Metals, minerals and materials and their sustainable supply and consumption are important in the move towards a carbon neutral society and a green and circular economy. They are key for achieving the goals set out in COP21 and several of the United Nations Sustainable Development Goals, for implementing the European 2030 Agenda for Sustainable Development, and for the EU Green Deal.

Emerging energy and mobility technologies drive an increasing demand for raw materials, and for some critical raw materials this demand will dramatically exceed current production in the next 10-15 years. Limited access to these materials might negatively impact the transition. From a raw materials value chain perspective, three objectives are key in securing supply for the energy transition: bringing materials into the material loop in a sustainable way, keeping materials in the loop for as long as possible, and minimizing waste at all stages. To achieve this we need to design smarter solutions for the sustainable extraction, processing and use/repairing/recycling of raw materials from both primary and secondary sources. Furthermore, we must ensure that used materials and products find their way into new product lifecycles in an energetically and economically meaningful way. We need to maintain products and materials in the economy as long as possible through waste valorization, industrial symbiosis, reuse, repairing, remanufacturing and recycling. Geoscience, exploration and discovery is the first part of the metals and minerals value chain. To meet the challenge of increasing demand for these raw materials, we must address strategic issues such as criticality and global supply, as well as ensure an environmentally and socially responsible exploration and mining industry.

In Europe there has been a decreasing appetite for exploration and mining in most regions over the last several decades, and thus the challenge of rising demand is accompanied by a large import dependency. Since the launch of the EU Raw Materials Initiative and the formation of the European Innovation Partnership on Raw Materials, there has been an effort to support research and innovation projects that increase the knowledge about raw material in a European context. Geological Survey Organisations are supporting this effort, for example through GeoERA, which builds on a wide variety of earlier projects funded nationally and through H2020. During this GeoUtrecht 2020 conference more presentations and discussions about minerals and metals are available in session 1.4 Raw materials and their societal relevance for Europe.