CAMBIUM

CirculAr Material flows in BelgIUM

DURATION
01/09/2022 – 01/12/2025

BUDGET
247 500 € (BELSPO)
+ 27 500 € (FPS Health, Food Chain Safety and Environment)

PROJECT DESCRIPTION

There has been a significant amount of work to identify metrics and indicators to measure progress towards a circular economy at different scales. The CAMBIUM project will gather and develop best available data and knowledge on the material flows entering, internally circulating, and leaving Belgium. The resulting guidance on methods and data sources will allow professional data providers and developers, at both federal and regional level, to produce material footprints that inform policy makers and the general public in the role of circular economy strategies in developing a sustainable economy. The insights in the material footprints, the shares of self-sufficiency and (critical) dependence changing over time are fundamental to understand how the Belgian economic metabolism (including social and environmental impacts) develops. CAMBIUM will make a transparent distinction between material flows entering Belgian for intermediate production, final Belgian consumption, and (re)-exports, which allows environmental and economic policy makers to define policies, under own control, that raise the resilience of the Belgian economy.

Raw materials are crucial to the Belgian economy. Either via a direct dependency by manufacturers on these materials, or via an indirect dependency through the use of these materials in upstream production networks linked to products they use. The use of raw material is, at least indirectly, linked to all industries across all supply chain stages. Also, the technological progress and quality of life rely on access to a growing number of raw materials. In addition, the forecasted use of (critical) raw materials in emerging technologies, cleantech, and renewable energy will continue to increase the awareness on this topic. With a low volume of extraction of primary raw materials from nature in Belgium, even zero for metal ores and fossil energy materials/carriers, the reliable and unhindered access to the raw materials is a growing concern within Belgium, but also in the EU and across the globe. While the direct use of material and resources by the Belgian economic actors is relatively well known, it is not the case for the imported goods, resources, and materials, nor for their composition of materials. A detailed insight in the global resources needed to produce these imported goods is not known either. In turn, the knowledge is missing on the dependence of our economy on these (partially hidden) imported resources.

The main goal of CAMBIUM is to develop a holistic framework and assessment on material flows and footprints and to enable the identification of the critical materials and resources for the Belgian economy, which will allow to define priority areas for setting Belgian policy objectives. The following research objectives of CAMBIUM are identified to reach this goal:
- Development of a material flow framework for Belgium combining and linking available methodologies, data, metrics, and indicators;
- Assessment on the material footprint indicators of consumption and production with a focus on the material rucksack of imported products, and the circularity of material flows;
- Develop criteria for criticality and identify the critical material flows for Belgium, and the products (and activities) related to those flows; and
- For a selection of the most critical materials, we will identify and characterise the routes/channels and technologies used.

CAMBIUM will build on existing datasets and methodologies and improve or expand them in the following ways. A mapping exercise provides a structured overview of available data sources, methodologies, indicators, and policy areas and to identify blind spots. To cover some blind spots, we will explore and elaborate a limited number of data sources and indicators, including at least the development of waste accounts for Belgium. A downscaled EC's criticality methodology, to the level of Belgium, with the possibility to add other materials and/or criteria, will result in a list of those materials that are identified as most critical to the Belgium economy. For these most critical materials, CAMBIUM will create the detailed domestic routes of these material flows. By focusing on the full cycles of material flows and taking the different material cycle stages, (secondary) resources, materials, products and waste, into account to allow for a material footprint approach, we will fill a gap in scientific knowledge present in Belgium allowing policymakers to catch-up on international evidence.

CAMBIUM

CAMBIUM will allow policymakers to better assess material flows and material footprints of Belgium, and to assess the criticality of materials for Belgium. Our results will allow for evidence-based policymaking in several key domains when it comes to (the drivers of) material use/consumption and criticality of specific materials in strategic technologies and sectors. These insights are needed to increase awareness, to anticipate and to create resilience to the impact of the expected increase in specific material uses in the energy transition, e-mobility, and other emerging technologies. The methodological advances pursued in the project will also contribute to the scientific knowledge in the fields of material footprints, circularity indicators, national/regional criticality assessments and waste accounts.

CONTACT INFORMATION

Coordinator

Dr. Maarten Christis
Vlaamse Instelling voor Technologisch Onderzoek (VITO)
maarten.christis@vito.be

Partners

Dr. Marco Orsini
Institut de Conseil et d'Etudes en Développement Durable (ICEDD)
marco.orsini@icedd.be

BELGIAN SCIENCE POLICY

WTC III - Simon Bolivarlaan 30 bus 7 - Boulevard Simon Bolivar 30 bte 7
1000 Brussels - Tel. +32 (0)2 238 34 11
http://www.belspo.be/brain-be/ • Email : BRAIN-be@belspo.be

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