

IECOMAT

Integrated economic modeling of material flows

DURATION
 15/12/2014 - 15/03/2019

BUDGET
 797.280 €

PROJECT DESCRIPTION

Sustainable material management is high on the agenda of policy makers in many industrialized countries, see for instance EPA (2009), European Commission (2011), OECD (2011a,b,c), Deckmyn (2014), BmU (2012). The peak in resource prices of 2008, looming exhaustion of some critically important resources in the long term (such as indium), and short and medium term supply risk as a result of changing political and strategic operating environments (for instance rare earths) have spurred interest in alternative concepts of material use in our economy. Against this background the IECOMAT project aims to investigate the **potential for the Belgian economy of the transition towards a more circular economy model**.

The IECOMAT team will develop a set of **complementary numerical and analytical tools** that are each designed to study a particular aspect of sustainable material management. The models to be employed and to be developed range from Input-Output models over partial and general equilibrium models and analytical industrial organization models of economic incentives. Some of these models adopt a macro perspective and look at economic impacts and resource streams at the level of aggregated sectors or even a country. But the IECOMAT project will also dig deeper in the micro level incentives of economic actors (consumers, businesses, ...) to adopt alternative material management models. Some models focus more on the **short term** and current state of affairs (for instance static Input-Output modelling), others on the **medium term** (time series of Input-Output and computable general equilibrium models) and some even on the **long term** (dynamic general equilibrium model). By having these different time perspectives, the IECOMAT project will be able to assess the potential for a transition towards a more circular economy taking into account the current starting position of the Belgian economy. It should be stressed that no single type of model exists that can be used to formulate well-grounded answers to the research questions of the call. A collection of different approaches is therefore necessary. This requires also a well-managed scenario building plan to ensure consistency across the different exercises in the project.

The IECOMAT project brings together a **multidisciplinary** team of experienced scientists from material and environmental engineering, environmental economics, industrial organization and stakeholder consultation practice. This multidisciplinary team from a leading Flemish research institute on sustainable material management (VITO) and two research intensive universities (KU Leuven and UCL) will interact intensively. This will lead to an **interdisciplinary** analysis of key scenarios for the Belgian economy. Some specific areas of expertise will be subcontracted to national and international specialists in their domain. In all approaches, three fundamental perspectives will be included: physical material flows, environmental effects and socio-economic impacts, and business incentives. Therefore, the IECOMAT project is about **integrated assessment** models for the transition towards a circular economy. In order to strengthen a transdisciplinary dimension, the input of policy makers, practitioners and business stakeholders will be actively sought.



IECOMAT

The output of the IECOMAT project consists of different modeling frameworks, scenario analyses, a wide variety of policy analyses and ultimately an assessment of the potential of a more circular economy model for Belgium. Special attention will be given to factors in the Belgian economy that can stimulate or limit the development of circular economy. Apart from **scientific output** (publications in peer-reviewed journals, PhDs), the IECOMAT project also wants to have **impact on policy discussions** and business practice. For the policy aspects the IECOMAT project will seek close collaboration with a follow-up committee that consists, among others, of representatives of Belgian federal and regional environmental authorities. Furthermore, the partners have access and links to several relevant international networks also investigating the potential of the circular economy concept. A dedicated work package on **business cases** will collect early in the project's time line information on innovative business models that are currently already used (or envisaged) by Belgian companies. In addition, the project will evaluate the potential leverage effects as well as the willingness among selected businesses to adopt the novel business models of the IECOMAT project.

CONTACT INFORMATION

Coordinator

Johan EYCKMANS - Sandra ROUSSEAU
Katholieke Universiteit Leuven (KU Leuven)
Johan.Eyckmans@KULeuven.be
sandra.rousseau@kuleuven.be

Partners

Theo GEERKEN
Vlaamse instelling voor technologisch onderzoek
(VITO)
Theo.Geerken@vito.be

Thierry BRÉCHET
Université catholique de Louvain (UCL)
Thierry.Brechet@uclouvain.be