Considering sustainability in every-day decisions

Better characterizing the uncertainty of environmental sustainability results to improve their utility for decision support

The problem with sustainability

Climate change, air pollution, and pressure on human health and ecosystems from pesticides, pharmaceuticals, and other chemicals are examples of environmental challenges that our society faces today. Ensuring the consideration of environmental sustainability in policy, industry and consumer decisions is therefore becoming more and more relevant. However, the process of estimating the impacts on climate, resources, humans and ecosystems from the life cycle of products involves complex data and models. Hence, results from environmental sustainability assessments come with high and poorly characterized uncertainty. This is a problem as it is challenging to correctly use uncertain results, especially when the uncertainty is poorly characterized, as basis for decision-making.

Solutions for a better decision support

To increase the use of sustainability in decision-making, Professor John Evans from the Harvard TH Chan School of Public Health in Boston (USA) will visit researchers from the Technical University of Denmark (DTU) between August and December 2017. John Evans will collaborate with DTU researchers to find ways to better characterize the variability and uncertainty along the pathways from chemical emissions to impacts on humans and the environment. This will involve DTU researchers from the Division of Quantitative Sustainability Assessment (QSA) and from the Global Decision Support Initiative (GDSI). The collaboration will focus on exposure biology, environmental monitoring and disease surveillance, models of fate and transport and dose-response, and statistical tools in support of life cycle assessment. The goal is to identify and pursue the research needed to understand any joint occurrence of stressors like chemicals, targets like humans and ecosystems, space and time, and how these aspects must be captured to understand disease burden and other impacts.

Toward a more sustainable society

The main outcome of the collaboration effort will be a series of guidelines and published consensus building documents to effectively address uncertainty along pathways from emissions to impacts intended to improve the utility of environmental sustainability results for decision making. These documents should improve understanding of sustainability results and increase the consideration of human health and environmental and sustainability impacts at all levels of decision-making. Society will ultimately benefit from this collaboration as it will be better able to identify choices with lower environmental and health impacts and thereby simultaneously increase the environmental sustainability of product systems leading to reduced impacts from air pollution and emissions of other chemicals.