PROJECT FACTSHEET

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VALUES

VALUing Ecosystem Services for environmental assessment

INSPIRATION

The regulation of natural cycles, the production of wood, fish, or fibres, the natural water purification, the activity of pollinators in crops, natural carbon sequestering in trees, training and maintaining the quality of soils and seas, the biodiversity, etc., are all good and services provided by ecosystems and representing the benefits humans can catch from nature in an active or passive way. The use of these services involves all sectors and actors of our environment: natural, technological, human, and social.

Accordingly, a question is raised: how to ensure sustainable basis for ecosystems and their functionality, taking their support to anthropic production processes into account? This has been the subject of much research and the answer implies measuring the value (whether economical, biophysical or otherwise) given to these services in order o prioritize and integrate them in future development plans; the objective being to measure the long-term road to be taken in order to ensure the sustainable development of human activities.

INNOVATION

In the framework of their research activities in Life Cycle Assessment (LCA), the VALUES project was launched in April 2014 with the aim of improving the assessment of ecosystem services in the LCA methodology. The objective is to use MIMES (Multi-scale Integrated Models of Ecosystem Services) in order to assess the marginal price of ecosystem services. The advantage of this modelling framework is that it integrates all of the different sectors of the environment (human capital, natural capital, built capital, social capital) into one single model. Its integration's capacity for the different geographical and temporal scales as well as its eco-centric perspective constitutes the strength of this model.

From an operational point of view, VALUES aims to develop a method for characterizing environmental goods and services, which are currently not sufficiently taken into account in LCAs. In other words, the project is about assessing the direct and indirect land use impacts on the future provision of ecosystems services (for example the regulation of air quality) to anthropic systems, by modelling the interaction and feedback among human activities, such as the use of chemicals or energy for socio-economic development, and ecosystems, and simulating future space- and time-dependent scenarios. Our researchers then focus on the application of this novel methodology for LCA in the case of life cycle production of different energy crops in Luxembourg, which may potentially impact the supply of pollination services and carbon sequestration. This is also the topic of a PhD thesis, jointly undertaken with the Vrijie Universitei Amsterdam (Prof. Withagen and Prof. Heijungs).

IMPACT

The development of characterization factors for ecosystem services is part of a long-term plan: the method which is developed today may be adapted tomorrow in several decisional contexts of economic activity to assess, through the application of LCA, their impact on the provision of ecosystem services.

VALUES fits in well with activities and initiatives connected to establishing assessment and monitoring methods for ecosystems at international scale, such as TEEB – The Economics of Ecosystems&Biodiversity, and will put a solid foundation for the dialogue among industries, research groups and policy-makers seeking the development of LCA-based projects having a concrete application. The door is eventually open to the management and monitoring of ecosystems' capacity: how can we improve current environmental conditions and, in doing so, the supply of ecosystem services to human activities?

Partners

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