

LCA of territorial contexts: upscaling the Life Cycle Thinking to business clusters, neighborhoods, urban agglomerations and territorial entities

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May 8, 14:20 - 16:00, Hall 100

Life Cycle Assessment methodology is a constantly evolving method, which is enlarging its context of application moving from the environmental performance of products and services up to organizations and more complex systems. In fact, besides organizations, larger and complex systems exist and may need a likewise systematic and rigorous analysis adopting life cycle thinking. Territorial entities are a dense reality, they host several hundreds or even thousands of people in small areas. They represent a condense entity with huge amounts of energy, materials, water and wastes which form an intricate input and output network of fluxes whose share of environmental impacts is evident. Insight in these impacts are an important step to evolve towards a more sustainable entity, but is still at its early stage. As LCA is recognized as the most comprehensive method to evaluate the environmental burdens, a further step in order to enlarge the current scope of evaluations is highly desirable. For this reason, territorial LCA studies are increasing in number in the last years as robust methodology for the optimization of resources, reduction of environmental impacts (both direct and indirect) and, ultimately, as support to policy making. The aim of this session is sharing new practices, case studies and methodological developments in the field of LCA for territorial contexts, including all applications related to LCA studies and their integration in the urban metabolism concept, combining LCA and planning tools. The latter for instance can be used to support and improve the data collection and management when applying LCA in territorial contexts. The following topics are therefore encouraged and welcomed in this session:

- o LCA studies of wide-ranging systems, such as communities, neighborhoods, cities, urban agglomeration and even larger territories.
- o Integration of LCA with other top-down approaches for territorial contexts, namely Urban Metabolism, Material Flow Analysis, Environmental Input-Output Tables, etc.
- o Use of the LCA methodology in support of land use and planning policies
- o LCAs combined with land planning tools such as GIS, BIM, remote sensing, etc. which support the inventory phase
- o LCAs regarding case studies of industrial symbiosis, circular economy and other large business organizations experiences for environmental efficiency and optimization of resources and the reduction of environmental burdens.