PROJECT FACTSHEET

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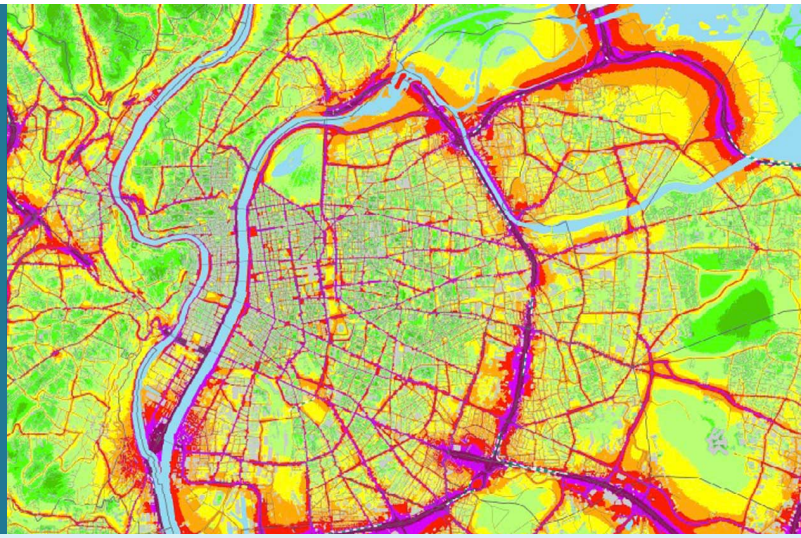
DyPLCA

Environmental assessment of Dynamic Processes - considering time dependency in Life Cycle Assessment



Inspiration

The assessment of the sustainability of human economic systems has moved from a vague concept to a consistent set of methodologies and modelling tools within the area of Sustainability Science in the past years. These methods are nowadays applied in most of the economic sectors, both in industry and in policy making, and are developed in academia worldwide, one of the major outcomes being the eco-design of human activities.
Life Cycle Assessment (LCA), ruled by the ISO standards 14040-44 is at the core of the EU policy making and scientific research. After 20 years of steadily development, efforts are currently oriented toward the deepening and broadening of LCA, to support the development of more environmentally sound products for consumers as well as to steer policy making on key societal issues, like e.g. electromobility, building and construction and biotechnologies. Among these developments, the introduction of time dependency in LCA has been dramatically underestimated and underexplored.

Innovation

DyPLCA is co-financed by the National Research Fund (FNR) and the French National Research Agency (ANR) in the framework of the INTER-ANR programme. The main objective of the project is to develop a comprehensive and operational approach (methodology and tools) for the proper consideration of time dependency in LCA, with strong emphasis on the development of an integrated modelling solution for both the life cycle inventory (LCI, at foreground and background levels) and the life cycle impact assessment (LCIA) phases.
LIST researchers are responsible for the analysis, the development of the mathematical model for the time dependency, and the study of the effect of noise on health. They will bring their expertise in the definition of life cycle scenarios. Results at the end of the project will be a methodology, models and computational tools for true dynamic LCA, well beyond the current practice based on forecasted scenarios, in a form readily usable for LCA practitioners. The modelling framework will be tested and applied to three relevant test bed LCA applications: bio-technologies, buildings, car tire traffic noise.

Impact

DyPLCA will provide new scientific knowledge, clearly beyond the current state of the art of the science of LCA, focusing in particular on the deepening and broadening the scope and modelling of LCAs in an rather unique way, through the combination of temporal characterization techniques and LCA and the harmonization of micro-process level inventories (i.e. Ecoinvent v3 datasets) with time behaviours of large scale systems; and full implementation of these modelling and investigation approaches on three practical application situations of broad societal interest.
Apart from the scientific communication and promotion of scientific and technical culture, higher education will benefit from the project results, thanks to the academic partners involved, and the repercussions on the respective research strategies of the project partners are huge.

Banner image sources : Grand Lyon - Acoucité - DREAL Rhône Alpes - IGN - RFF - Sytral - DAC - CETE Lyon - DDT - Direct access to the online map.

Partners

INSA - National Institute of Applied Sciences (FR) , CSTB - Centre scientifique et Technique du Bâtiment (FR) , Université du Havre (FR)

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