

LCA as additional analyzing tool

SINTEF Building and Infrastructure aim to introduce LCA as additional tool for analyzing performance, risks and costs related to the management of infrastructures, by adding as a dimension for analysis the environmental impact during the whole life cycle of the physical asset or aggregation of assets under examination.

Sustainable development is a key factor in the management of urban infrastructure. According to ISO 24510:2007, sustainable development is defined as meeting “the needs of the present without endangering the needs of future generations”. The four primary objectives of such development are to: 1) minimize risk of environmental damage; 2) ecological sustainability; 3) social sustainability; 4) economic sustainability.

VISES

To contribute to these objectives using a systematic approach, SINTEF Building and Infrastructure has started a program to increase our competence within the field of *Life Cycle Analysis* (LCA) by financing the project VISES (Verify and Improve SINTEFs Expertise in Sustainability).

The project activities started in January 2011 with dedicated seminars where the researchers are challenged on testing the usability of LCA in their specific field of research and developing competence. We believe LCA will be an important tool in the planning and execution of construction, rehabilitation and upgrading of physical infrastructure in the future.

There is a considerable request in project calls, and calls from customers, on topics related to sustainability. Project opportunities that call for expertise in LCA include:

- Environmental Product Declaration (EPD) for infrastructure, as done for building materials
- Sustainable infrastructure life cycle, to meet long term goals of urban infrastructure management
- Sustainability assessments using LCA in integrated water resource management
- Decision Support Systems (DSS) including LCA, to complete the SINTEF expertise on the development of DSS for rehabilitation planning.

Unique possibilities

SINTEF has unique possibilities when it comes to using LCA to further improve the technologies and policies developed.

VISES is structured in a way that provides the participating team with the tools to fill the LCA knowledge gaps, to learn by testing, and to develop new research opportunities. Our view on LCA is to use it as a set of tools for continuous improvement of products/process/technologies more than for selling products.

SINTEF has the potential to boost the application of LCA methodologies and adapt them to the needs of the customers by promoting not just the use of LCA as a conventional consulting company would, but by investigating the use of LCA combined with other expertise as for instance risk, reliability analysis, costs analysis and of course performances.

Clear objective

The results of VISES will include:

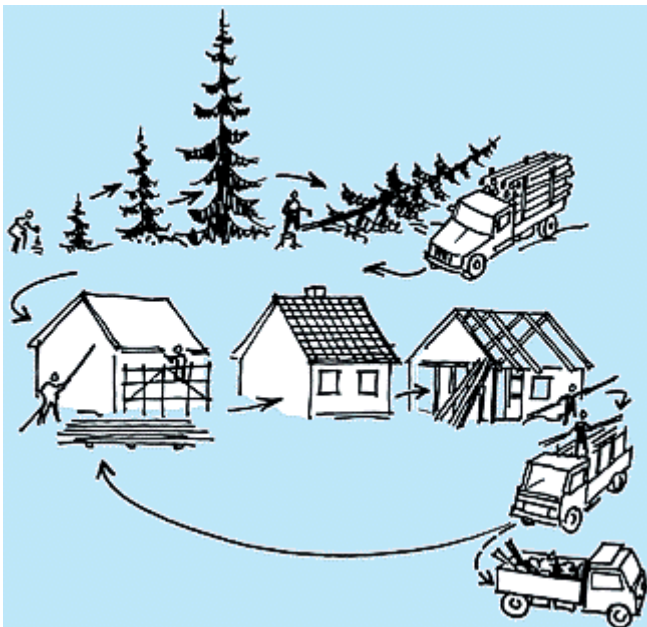
- Consolidate the SINTEF LCA interdisciplinary expert team, well connected with a SINTEF LCA Forum.
- Apply LCA to real case studies dealing with defined research problems.
- Improve the methodological weaknesses of the application of LCA to urban infrastructure management.

- Consensus on specific LCA topics (such as CO₂ weighting on electricity, transport, system boundaries)
- Discover new applications for LCA with a special focus on applications for research purposes in connection to other fields of our expertise: risk assessment, reliability analysis, cost-effectiveness, development of decision support systems.
- Establish a basis for initiation and participation in major national and international research projects linked with LCA.
- Publications presenting outcomes of the project in each specific infrastructure type

SINTEF is interested in pilots for LCAs related studies to improve our competence, but at the same time start the process of informing about the importance of the topic and helping our customers to be ahead given the pressure of EU and national directives regarding sustainability topics.

Read more:

Byggforskserien 470.101 *Livsløpsvurdering av bygninger og bygningsmaterialer*



The life cycle of a building. Source: Byggforskserien 470.101 Livsløpsvurdering av bygninger og bygningsmaterialer