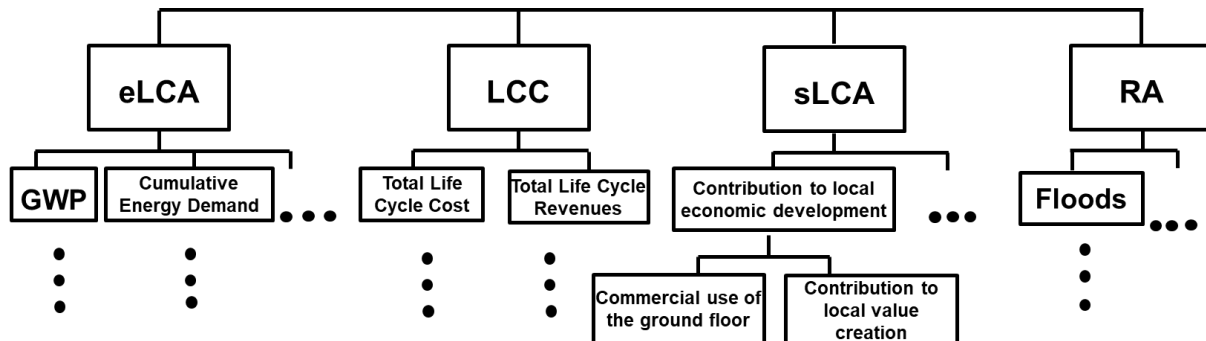


Life cycle sustainability assessment Framework (LCSA-F) for building retrofit



Issue / Challenge

The overall sustainability assessment from a life cycle perspective is needed to avoid burden shifting to other sustainability dimensions and to other life cycle phases of renovation measures to implement. The balance between environmental benefits and the costs as well as the social impacts (e.g. on users or the local community) is crucial to achieve overall sustainable solutions while focusing on decarbonization.

Description

The LCSA-F developed in SP 1.4 will be utilized to develop an Excel-tool, which enables different user groups to compare renovation measures for multi-family buildings regarding their overall sustainability and resilience. The tool provides information on life cycle sustainability from an economic, environmental, social and resilience point-of-view. Furthermore, an overall sustainability index will be calculated by integrating a specific multi-criteria-decision-analysis (MCDA method). Users are informed regarding trade-offs between different dimensions, categories, and indicators (see figure above for hierarchical structure) and based on the system boundary for construction and level of process detail provided by EN 15978:2011.

Type of solution:

- ☐ Service ☒ Tool ☐ Other: ...
☐ Product ☐ Guidelines

Involved partners

- Research: ZHAW INE, ZHAW IFM
- Implementation: Stadt Winterthur, SGNI - Swiss sustainable building council, Intep GmbH, Implenia Schweiz AG

Implementation and Distribution

End users / Added value

The LCSA tool provides a basis for decisions on the most sustainable and resilient renovation measures for multi-family buildings from a life cycle perspective. It is developed to provide different user groups with different interests with the relevant information for decision making. It shall enable following user groups to make decision supported by comprehensive sustainability information: architects, building

owners, consulting companies (e.g. Intep), construction companies (e.g. Implenia), investors, and public authorities (e.g. Stadt Winterthur).

Implementation

The LCSA will be distributed to interested research and implementation partners from the RENOWAVE consortium. Furthermore, it will be provided online (on a ZHAW github page and the RENOWAVE website) as a free download including documentation.

Ownership and Distribution

Ownership:

☐ Single owner ☒ Multiple owner ☐ Other:

Type of distribution

☒ Free ☐ Monetarized ☐ Other: ...

Comment: The LCSA tool is intended to be provided open access by ZHAW INE for supporting a wide-spread use.