

# e-LICCO: Evaluation tool for Low Impacts and Costs Constructions



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## CONTEXT & OBJECTIVE

Life Cycle Assessment (LCA) can be a powerful tool to drive society toward sustainability if used for decision support. Decision-making process comes at the planning phase of a construction project where very few data are available. Challenge is therefore to succeed in conducting a reliable LCA to get credible results for decision-makers, taking into account availability of data, analysis' allotted time and resources, and skills and knowledge of the building team. Cycleco lead a consortium of

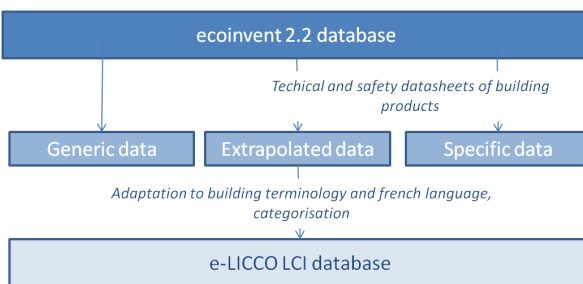
## METHOD: THE SOLUTION IS DEVELOPED PERFORMING THE FOLLOWING TASKS



### A. Methodological guidelines

- Description of the goal and scope
- Compliant with ILCD Handbook requirements

### B. Inventory database



### C. Costs database



Material costs database is elaborated taking into account geographical and temporal variability. Key parameters of costs fluctuation are identified and variables are defined.

### D. Default data for foreground system

A field research is conducted to establish default data for the following parameters:

- plant to stock transport
- stock to construction site transport
- use of construction site equipment
- construction waste treatment
- material and building life span
- end of life scenarios

### E. Database of ratios

Ratios are compilation of material in a specific amount and describe one part of the building. Two kinds of ratios are developed: constructive systems and fluid works packages

### F. Integration in a web application

The solution is then integrated in e-LICCO, a user-friendly LCA tool for buildings

## CASE STUDY

### Functionnal unit:

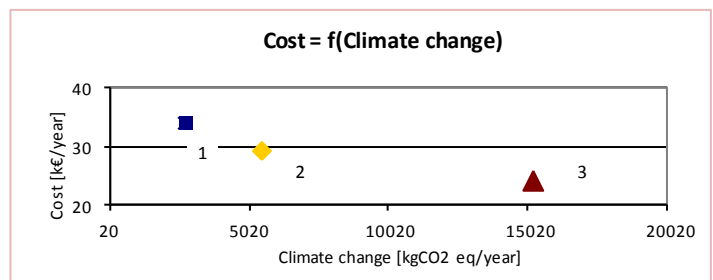
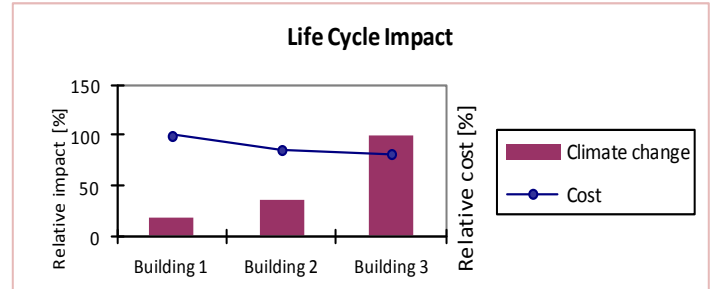
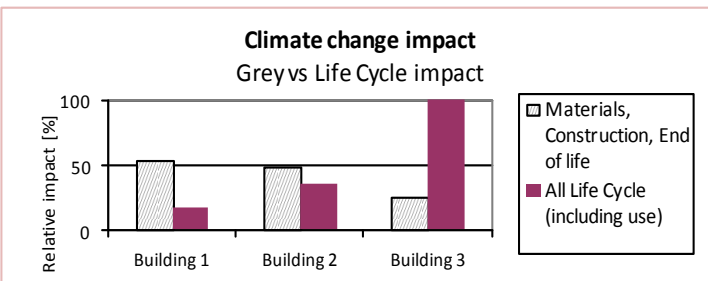
A building of 1200m<sup>2</sup> living area located in Macon (France) which fulfill decision-makers requirements in terms of functional and technical characteristics, and of 100 years lifespan.

### Scenarios :

Building 1	Wood frame. PV south oriented. Nearly-zero energy building.
Building 2	Wood-Concrete. PV south-east oriented. Nearly-zero energy building.
Building 3	Concrete. Passive building.

### Results:

Results are presented in the following figure for Costs and Climate change impact. Only one environmental impact category is shown here but all impacts categories required in EN15804 standard are assessed .



→ Building 2 appears to be the best compromise taking into account climate change impact and cost criteria

### KEY POINTS

Once completed, the solution will allow to:

- ✓ Easily achieve a reliable LCA at the planning stage for decisions support
- ✓ Calculate environmental impacts categories required in EN15804
- ✓ Compare grey impacts and life cycle impacts
- ✓ Estimate Life Cycle Costs
- ✓ Edit LCA report compatible with ISO 14040-44 and ILCD requirements

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Funders and decision-makers of e-LICCO development:



Technical partners:

