PROMOTING THE SHORT CHANNELS
FROM DEMOLITION WASTE
TO CONSTRUCTION MATERIAL

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The authors are conducting a French research project named REVIsurVI (Reconstruire la Ville sur la Ville or Rebuild New Town on Old Town with Recycled Materials). It focuses on circular economy of inert construction materials from the demolition or deconstruction of buildings to their reuse as new building materials after on-site recycling.
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The partners of REVIsurVI are:
- Specialists of the LCA of building materials and products (ENPC, CSTB (Building Scientific and Technical Centre), University and INSA of Strasbourg).
- Academics and professionals specialists of urban and building project managing, and industrial ecology (laboratories LGCgE (Civil Engineering), TVES (Urban Planning) and CLERSE (Socio-economics) of Lille1, KALEA (project manager technical assistant)).
Developing this sector requires convincing building projects managers to consider the renovation as a continuous process instead of the traditional step by step approach that currently leads to exporting waste materials from the construction site and later importing new materials.

The project objective is to produce a “pitch” targeting building projects managers, highlighting the economic, environmental and societal gains of this approach and to develop tools that would take into account the geographical context.
Economic gains are mainly achieved by optimizing logistics. The environmental benefits are assessed using territorialized LCA tools. The assessment of societal benefits is based on control of inconvenience to users.
GENERAL DESCRIPTION OF THE CYCLE
The cycle such as it is organized today is marked by a high impact of the transport of construction waste and materials, which is made almost exclusively by road with heavy trucks, on the way out by leaving the site of demolition with waste as on the way back towards the site of construction with clean construction materials.
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The project aspires to develop as short as possible channels. Demolition materials could be stored (black circle), then recycled (black square), then stored (black circle) on site. It is also possible to produce new materials on site (black square). The short channel induces a minimum of transport and traffic charge but needs a severe control of environmental impacts and nuisances on the urbanized site.
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By comparison with large channel, more than the gain in transport, it must be demonstrated that the short channel is relevant in the present context of environmental protection, which imposes to limit the land filling, the city air pollution and more globally the emission of greenhouse gas to limit the climatic change, and the urban surface water pollution.
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One Site, different actions, different times

No transport, just storage

Environmental and societal impact

Time of demolition

Environmental and societal impact

Time of reconstruction

Urban renovation site

Environmental and societal impact

Time of recycling
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By comparison

Site of demolition

Environmental and societal impact

Site of reconstruction

Mixing of materials

Environmental and societal impact

Natural materials

Transport

Environmental and societal impact

Site of recycling

Construction materials time scale
CONCLUSIONS

The main originality of the project REVlsurVI is the quality and the various spectres of specialities of the partnership. It aims to develop the analysis of the links between a given territory and a lot of indicators concerning transport impact, availability of natural resources, nuisances in urban site, actors game between contracting owners, their assistants, project managers, producers of waste and natural materials, and building companies. It has to prove the socioeconomic and environmental efficiency of short loops from demolition waste to reconstruction materials.