

BUILDING AS FEEDSTOCKS FOR TOMORROW - LIFE CYCLE ASSESSMENT OF BUILDINGS AND CONSTRUCTIONS (LCA-BC)

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Context

Sustainable Housing and Construction in Europe (I)

Synopsis

Waste management has a high social, economic and ecological dimension. **Waste from the building sector** forms a huge portion of the overall waste accumulation in Europe. To the authors' point of view the question how buildings can be designed in order to optimise their deconstruction and disposal has not been given enough attention during the last years.

In the study 'Building as feedstocks for tomorrow - Life cycle assessment of buildings and constructions (LCA-BC)', which is sponsored by the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) within the programme 'Building of tomorrow', **disposal scenarios and allocation rules** are defined for all relevant construction materials and the impact assessment regarding **customary LCA indicators** is carried out.

The results are adopted to the **best practice residential and office buildings** which have been realised within the 'buildings of tomorrow' – programme. With the study at hand it shall be shown if this 'buildings of tomorrow' are also environmentally friendly regarding to their suitability for proper disposal.

The project will be finished in January 2009 and is also of great value for other European countries since the main results are not Austrian specific.

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Abstract

Waste management has a high social, economic and ecological dimension. **Waste from the building sector** forms a huge portion of the overall waste accumulation in Europe (second largest fraction after excavated earth, app. 20 % of the overall waste accumulation without excavated earth). Although this fraction has a very high recycling potential it is still recycled to a small extend. At the same time the building sector is the economic sector which forms the largest material stock and requires the largest material input (app. 40 %). To the authors' point of view the question how buildings can be designed in order to optimise their deconstruction and disposal has not been given enough attention during the last years.

The study 'Building as feedstocks for tomorrow - Life cycle assessment of buildings and constructions (LCA-BC)', which is sponsored by the Austrian Federal Ministry of Transport, Innovation and Technology (BMVIT) within the programme 'Building of tomorrow', wants to improve the situation on the following levels:

- **Impact assessment of building disposal:** While impact assessment for manufacturing construction materials and the use phase of buildings is rather advanced the impact assessment of the deconstruction and disposal phase poses still a challenge. In the project at hand disposal scenarios and allocation rules are defined for all relevant construction materials and the impact assessment regarding customary LCA indicators is carried out.
- **Adoption to best practice buildings:** The results are adopted on the best practice residential and office buildings which have been realised within the 'buildings of tomorrow' – programme. These "buildings of tomorrow" differ from current building practice in Austria by fulfilling the following criteria:
 - higher energy efficiency throughout the whole life-cycle of the building
 - greater use of renewable energy sources, especially solar energy
 - greater use of sustainable raw materials, and efficient use of materials
 - increased consideration of user needs and services.

With the study at hand it shall be shown if this 'buildings of tomorrow' are also environmentally friendly regarding to their suitability for proper disposal.

The project will be finished in January 2009 and is also of great value for other European countries since the main results are not Austrian specific.

In the presentation the methodology for the impact assessment of building disposal will explained shortly and the results for the buildings of tommorrow will be given.