ecoinvent: A Comprehensive Web-Based Life Cycle Assessment Database

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In late 2000 the life cycle inventory (LCI) database project ecoinvent 2000 has been launched. Several Swiss Federal Offices and research institutes of the ETH domain (Swiss Federal Institute of Technology) agreed on a joint effort to compile, harmonise, and update life cycle inventory (LCI) data for their use in life cycle assessments (LCA). For this purpose a central database (ecoinvent database) is being developed building on past experiences with a large network-based LCI database created at ETH Zürich in the 1990s. The database comprises LCI data from the sectors of energy generation, transport, building materials, chemicals, paper and pulp, waste treatment, and agriculture. Furthermore, several new and/or widespread impact assessment methods such as the Dutch Eco-indicator 99, the CML characterisation scheme 2001, or the Swiss ecological scarcity 1997, as well as EPFL's IMPACT 2002 will be implemented. Quality guidelines have been established in order to ensure a coherent data acquisition and reporting across the various institutes involved. Aspects that require a harmonised procedure involve the reporting of pollutants (e.g., heavy metals), the modelling of electricity generation, the system boundary definitions, allocation, the reporting and quantification of data uncertainty, the treatment of transport service requirements, the naming of processes and elementary flows, etc.

The content of the database will be publicly available via the Internet from fall 2003 at www.ecoinvent.ch. Processes as well as impact assessment methods are documented with the help of meta-information and flow data (in the form of single (raw) process data as well as building blocks with elementary flows). The data format has been structured according to the ISO 14048 data documentation format. The web interface allows for an easy and detailed search for processes, elementary flows, and impact assessment methods. Meta information and flow data can easily be downloaded and imported into commercial or other LCA software. In order to facilitate data exchange between project partner institutes and the database and its clients XML technology is employed.

The presentation will elaborate on the content, capabilities, and specific features of the database and its interfaces as well as its contribution to a more widespread and flexible application of LCA, presently and in the future.