The world’s most consistent and transparent Life Cycle Inventory database

Life cycle inventory generation and data handling in a large LCI database in a global context

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• ecoinvent is a not-for-profit association
• Publishes the ecoinvent database with Life Cycle data since 2002
  ▪ 17,000 datasets covering 3,300 different products
  ▪ Life Cycle Assessment and Carbon Footprinting, also in EPDs (e.g. EN 15804), PEF, water footprinting, resource criticality, Social LCA and other assessments

Discussion today on:
  ▪ Support needed for data collection and preparation to expand coverage of LC-based approaches
  ▪ Better methods needed to combine, merge and adapt data sources in projects and for development of standards
Improving dataset creation

- Need for easy data handling in the SRI project
  - 25 separate data collection projects with often inexperienced data providers
  - Over a thousand datasets for emerging regions in 3 continents

- Excel interface for less experienced users
  - Entire project in one file, easy reviews

- Several data entry tools were developed with partners
  - Waste treatment
  - Wastewater treatment
  - Crop production
  - Petroleum refinery operation

- Make complex models more accessible and adaptable to local conditions
Improving dataset generation

- Example: **waste treatment** models
  - Landfilling, incineration, dumping
  - Flexible waste composition
  - Different technologies
  - Formal, informal and uncontrolled disposal
  - Key parameters such as temperature, humidity for landfills

- By selecting the appropriate **parameters**, users can create **specific data** consistent with **published ecoinvent treatment datasets**
Adapting background data

- As a **background database**, ecoinvent wants to support users in managing their **foreground data** projects
  - From small studies to large, specialized databases, e.g. for specific sectors

- Recent projects for some clients required **replacement** of certain background sectors with **third-party data**

- Database projects often require **multiple iterations**
  - Manual efforts may have to be repeated many times
Adapting background data

- Many parallel systems can be stored
- Consistent IDs or mapping tables allow for simple updating
- Project-independent storage, no disturbance for regular users
Adapting background data - Results

• Projects can go through many iterations with changes on different levels with minimal effort
  ▪ Changes can be introduced to the entire system
  ▪ Linking and substitutions can be centrally reviewed with ease
• Use cases are plentiful
  ▪ Comparing system models or EOL scenarios, sensitivity analysis
  ▪ Forecasting for future energy scenarios
  ▪ Adjusting to different data requirements
• Aim is to handle database-related complexity centrally, then make results accessible to all users
• Increase the application options of the already generated data
  ▪ Data for many sectors is still scarce, global resources for data generation are limited
Reasons and conclusions

- ecoinvent has improved **data handling** with more Excel integration and a web app for conversion and validation

- **Tools** can **support** users in the **creation of specific datasets** in complex sectors

- New **framework** increases support for users working with multiple data sources and supports database developers relying on ecoinvent background data