

### ecoinvent

# ecoinvent database as a tool for waste treatment modelling and LCA

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AGENDA

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- Introduction to ecoinvent database
- Waste sector overview
- Challenges and actions waste sector
- Future goals



## WHAT IS THE ECOINVENT DATABASE?

- 19 000 datasets: the world's largest library of sustainability data for human activities Focus on very high quality and yearly updates
- The database covers all sectors (agriculture, construction, chemicals, plastics, energy, forestry, wood, fuels, metals, infrastructure, waste, textiles, transport, water, etc.)







## HOW TO USE ECOINVENT?

- Support decision making tool
- High-quality, science-based environmental assessments
  - ✓ Life Cycle Assessment (LCA)
  - ✓ Green House Gas (GHG) reporting
  - Environmental Product Declaration (EPDs)
  - Sustainable Product Design
  - Corporate Sustainability Reporting





### WASTE SECTOR

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- More than 300 wastes
- Solid waste management (SWM)
- Wastewater treatment (WWT)
- Sorting/Recycling for plastics, paper, WEEE etc.
- More than 50 countries worldwide
- Average waste transport distance accounted
- Waste tools





### WASTE DATASETS

#### Treatment dataset

- treatment activity
- dedicated technology
- ✓ specific geography
- Market dataset
- ✓ transport of waste to treatment plant
- ✓ specific geography
- ✓ including losses



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#### **CHALLENGES TO OVERCOME**



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Aggregated treatment datasets

sanitary landfill		sanitary Iandfill	leachate
(a)			





(a) example of aggregated dataset, (b) example of disaggregated dataset



#### Full disaggregation of the sector is carried out

- ✓ System boundaries are respected in terms of time and space
- Transparent and realistic waste modelling
- ✓ Adaptable data to user`s needs
- Market datasets are introduced between the newly disaggregated treatments
- Enabling GHG reporting
- ✓ Wastes as valuable inputs, to support circular business models

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#### **CHALLENGES TO OVERCOME**

### 2 Geographical and technological representativeness

- Average composition of Municipal Solid Waste in Europe
- Average treatment mixes



treatment of municipal solid waste, sanitary landfill, CH

> treatment of municipal solid waste, incineration, GR



#### **2** Regionalization of MSW in Europe

- Customized waste composition for each country
- ✓ Specific treatment mix
- Regionalized transport distances



#### (er)

#### **CHALLENGES TO OVERCOME**



#### Naming conventions

- Variety of wastes and treatment technologies
- Misunderstanding of datasets naming
- Misinterpretations of the dataset context



treatment of municipal solid waste, sanitary landfill, CH

> treatment of municipal solid waste, incineration, DE



#### **Product Information (PI) feature** 3

- A short, concise and descriptive text attributed to every waste of the database  $\checkmark$
- $\checkmark$  Wastes` type (residential, industrial, construction & demolition, or institutional & commercial)
- Key physical and chemical details (water content, dry mass, elemental composition of C, N, P etc.)
- Hazardousness status  $\checkmark$
- ✓ Generation activities
- Treatment options



### **FUTURE GOALS**

- Strengthen sorting and recycling of various materials, like plastic, paper, metals, glass, etc.
- Enhance regionalization in other regions apart from Europe and for more waste fractions





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# Thank you

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