

Discover ecoinvent Version 3

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Key Features of ecoinvent Version 3



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- ➔ More system models
- ➔ New datasets
- ➔ New water flows
- ➔ New properties
- ➔ New global supply chains
- ➔ More consistency

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Basic Database Elements

System Models

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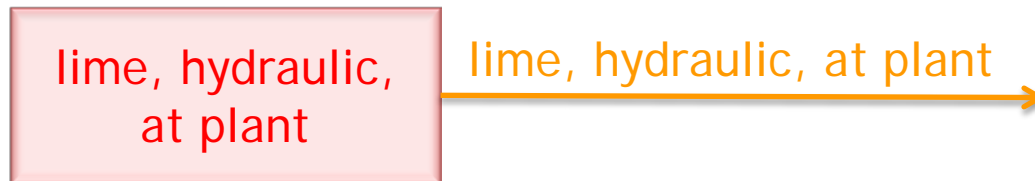
What are Processes, Activities and Products?



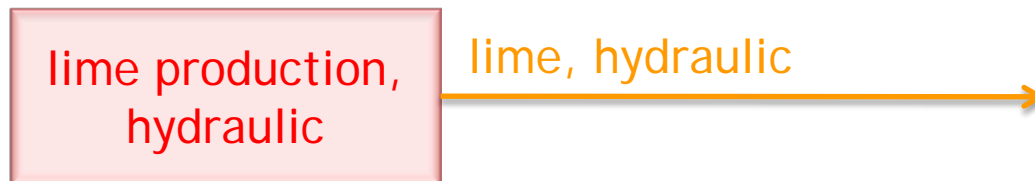
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- In ecoinvent v2, the same name was used for a process and the resulting product. “Process” is now called “activity”, and activity names and product names are now separate.

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ecoinvent v3



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Direct and Indirect Linking

- ➔ While in ecoinvent v2 datasets were always linked directly, ecoinvent v3 mostly links datasets indirectly through the markets.
- ➔ Direct linking is still possible in v3 when relevant.



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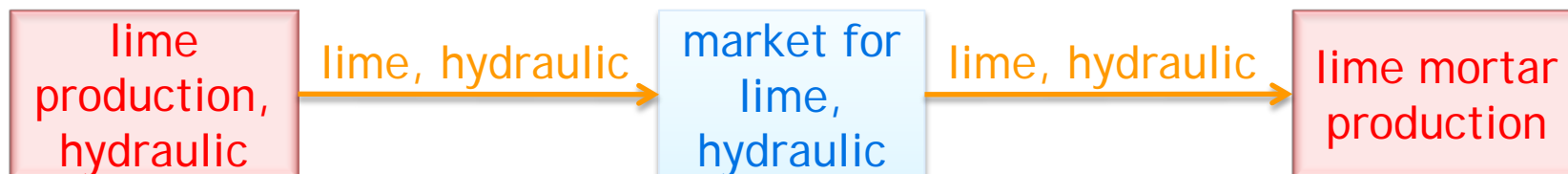
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Direct linking (ecoinvent v2)



Indirect linking (ecoinvent v3)

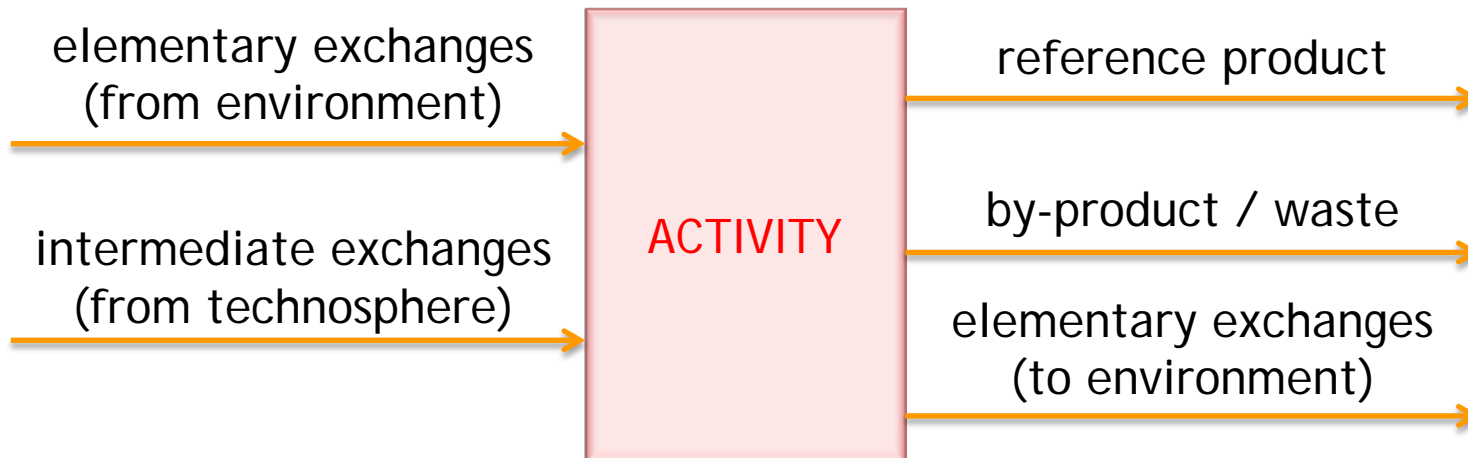


Activity Overview



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- ➔ activities always have to have a reference product which is the driver of the activity
- ➔ activities may have several by-products/wastes
- ➔ no distinction is made between a by-product and a waste



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Handling of co-products

- ➔ distinction between products which are materials for treatment and which are not
- ➔ materials for treatment need to be treated
- ➔ all by-products/wastes are being handled consistently
- ➔ attributional linking - allocation at the point of substitution
- ➔ consequential linking - system expansion



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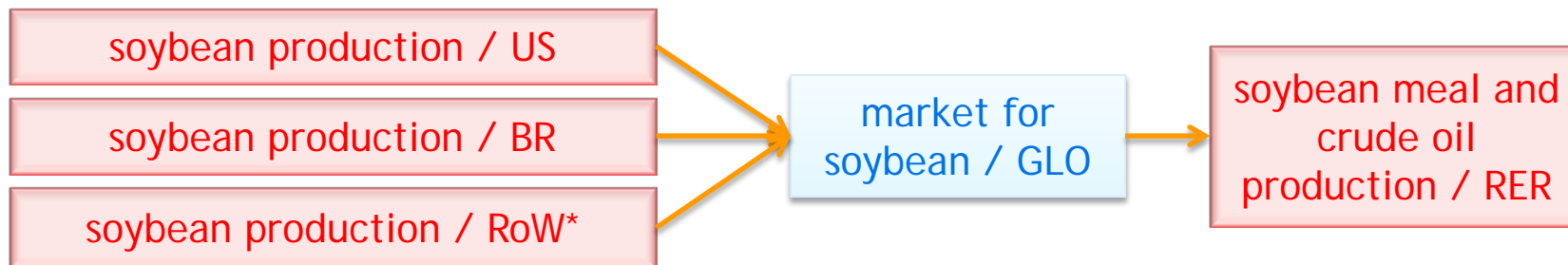
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Market Activities and their Functions



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- ➔ market activities do not transform inputs
- ➔ market activities instead transfer (link) the output from one transforming activity to another that consumes the output as an input



- ➔ the linking is done automatically by the database service layer
- ➔ the market can contain transport, losses, import and exports

*RoW; rest of the world, global production (GLO) minus all other local productions



Algorithms of Linking in System Models



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- ➔ the multi-output activities on the unit process level can be linked together into system models using different algorithms
- ➔ two fundamentally different classes of system models exist

1. System model with partitioning (attributional linking)

- ➔ all activities supply the markets
- ➔ by-products are allocated at the point of substitution

2. System model with substitution (consequential linking)

- ➔ only unconstrained (marginal) activities supply the markets
- ➔ by-products are treated by substitution (system expansion)

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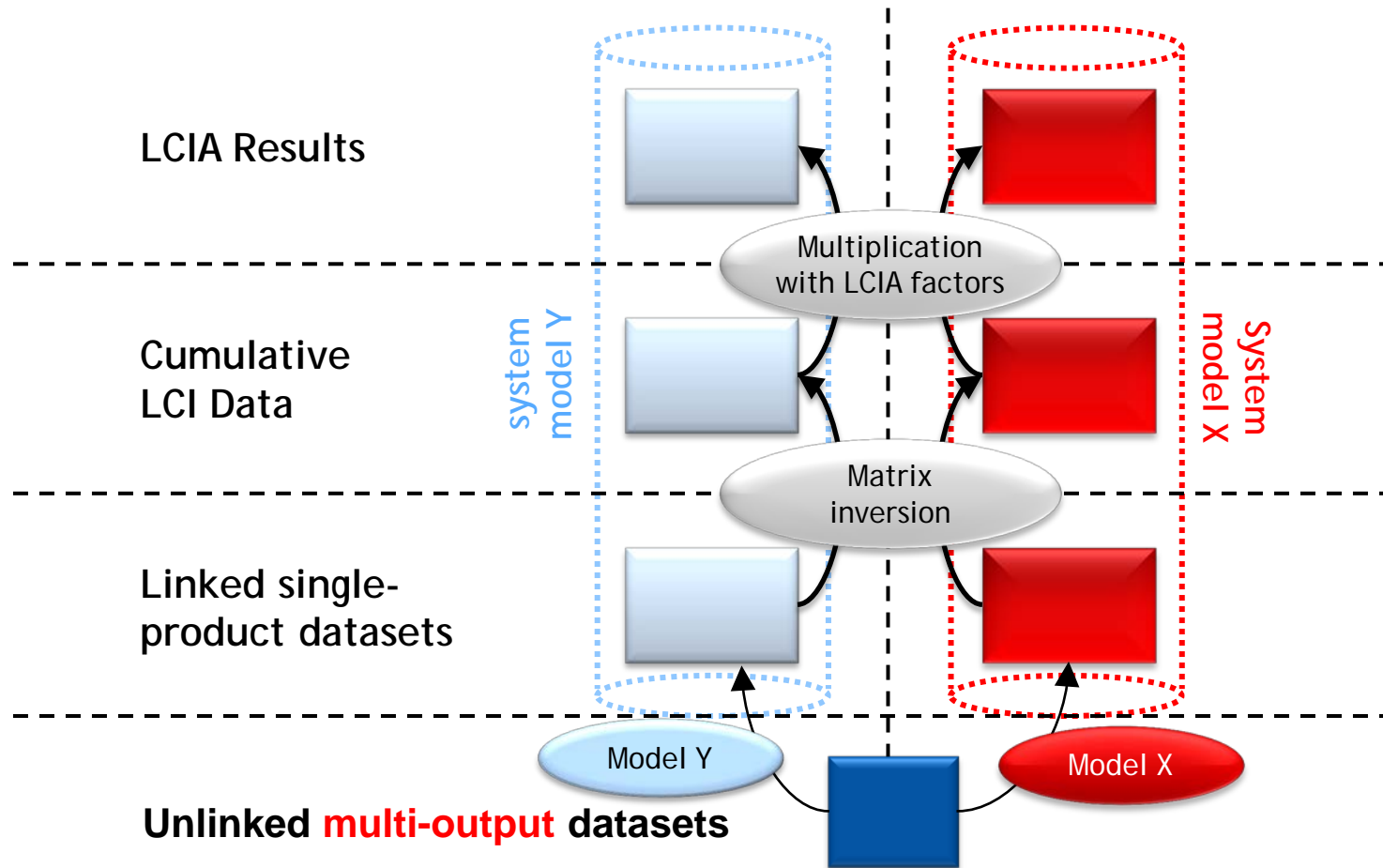
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Calculation Scheme for System Models



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New LCI Options; ecoSpold2 Format

All the datasets present in ecoinvent v3 are in the ecoSpold2 data format, which allows the use of several new features

- ➔ Mathematical relationships described by functions within datasets
- ➔ All exchanges can have properties, usable within calculations, and additional parameters can be introduced
- ➔ Detailed uncertainty and data quality descriptions for all values
- ➔ More precise descriptions of geographical areas
- ➔ A better documentation within the dataset, including references, sources, description of modelling choices, etc.
- ➔ The option to add pictures, etc. to the documentation within the dataset



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New Datasets



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Many new datasets have been added with ecoinvent v3

- ➔ Electricity, heat and power - ecoinvent 3 covers 90% of the world's electricity generation with country-specific data
- ➔ Chemical production
- ➔ Transport (including new data on electric mobility)
- ➔ New recycling activities and new production routes
- ➔ Production of fruits and vegetables and other agricultural products
- ➔ Many new datasets for expanding the geographical coverage of the database
- ➔ Many updates of existing data

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Number of Datasets in ecoinvent v3.0



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- ➔ the number of datasets is only a rough indicator of database content
- ➔ through the thorough re-structuring of the database, the number of datasets in version 3 is not directly comparable to the number of datasets in previous versions
- ➔ thanks to parameterization less datasets can contain more information
- ➔ numbers on the following slide are meant only as a rough guidance for the users, the numbers are rounded

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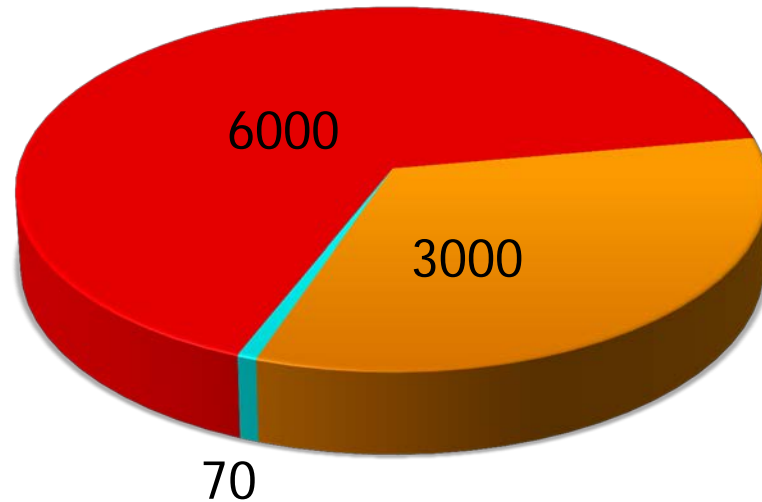
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Number of Datasets in ecoinvent v3.0



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- Markets
- Production Mixes
- Transforming Activities

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Database-wide Updates



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- ➔ Consistent modeling of global transport requirements, improving the representation of global trade flows
- ➔ Relevant by-products have been added to many activities
- ➔ Annual production volume data are added to many activities
- ➔ Properties: price data is added to many products
- ➔ Six mandatory properties are added to all products present in the database (see following slides)
- ➔ Consistent water use data have been introduced for most activities and water withdrawal data have been updated, allowing an assessment of water use and consumption

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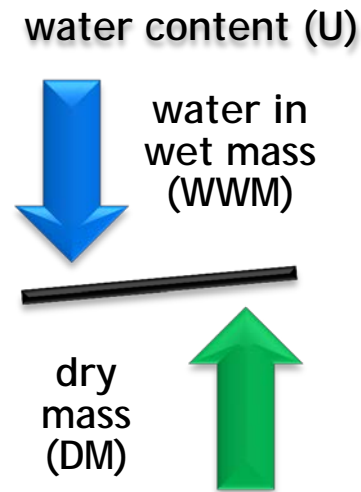
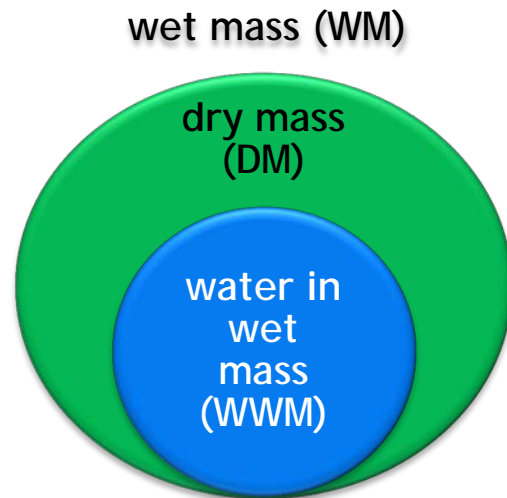
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Properties of Products - Part 1

All products in ecoinvent v3 have consistently been updated with data on six properties

1. Wet mass (this equals the total mass including any water)
2. Water in wet mass (this is the total mass of water in the product)
3. Dry mass (this equals the wet mass minus the water in wet mass)
4. Water content (this equals the water in wet mass / dry mass)



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Properties of Products - Part 2

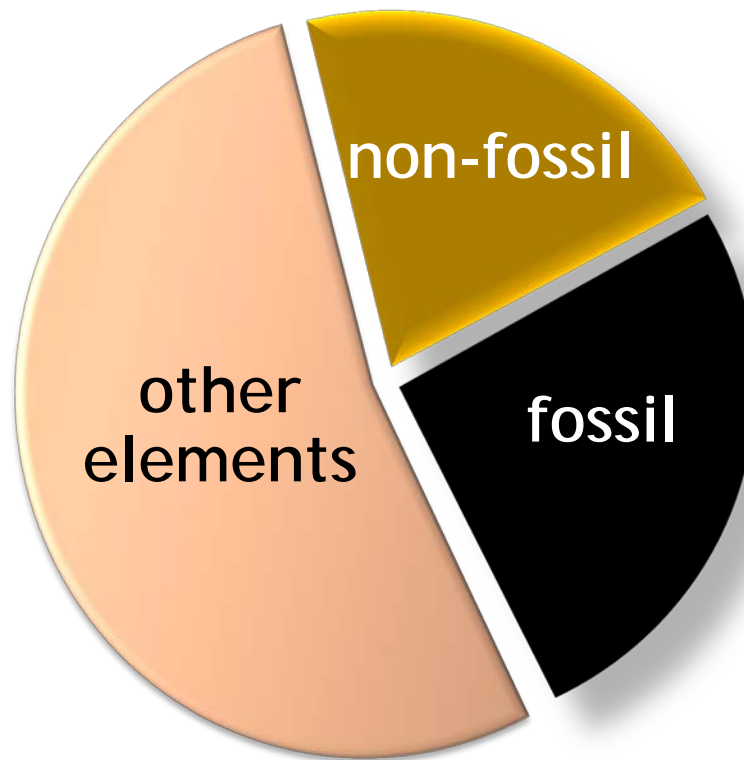


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All products in ecoinvent v3 have consistently been updated with data on six properties

5. carbon content, fossil

6. carbon content, non-fossil



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1. [Introduction to ecoinvent Version 3](#)
2. [Data Quality Guidelines](#)
3. ecoinvent.org, [Support Section](#)
 - ➔ [Glossary](#)
 - ➔ [Frequently Asked Questions \(FAQ\)](#)
 - ➔ [Forum for ecoinvent v3](#)
 - ➔ [List of all documents created by the ecoinvent Centre](#)
 - ➔ [List of all files created by the ecoinvent Centre](#)
3. ecoEditor
 - ➔ Viewing and creating LCI datasets in ecoSpold 2 format

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Easier Data Submission to ecoinvent

Do you have your own LCI datasets?

Are you interested in submitting them to ecoinvent?

Would you want to play a part in shaping the LCI thinking of the future?



CONTACT US!

support@ecoinvent.org



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Thank you for your attention!

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