

More Information on Topics in Introduction to LCA and SimaPro

Unit vs. System Data

Both unit vs. system level data are classified as "process life cycle inventory" data, that is detailed data compiled from one or more processing plants. Unit level data is more transparent and allows you to see network, the bill of materials (e.g. inputs from technosphere, materials, fuels, electricity and heat, output wastes, etc.), and identify environmental hotspots. Unit level data is labelled with a "U" in the ecoinvent process name. System level data is aggregated data. You only see the inputs from nature and emissions to air, water and soil. You cannot see the hotspots. System level data can be calculated faster, but the results will be the same as its unit level counterpart. System level data is labelled with an "S" in the ecoinvent process name. [This article might be helpful in describing this further.](#)

<https://support.simapro.com/s/article/How-do-I-choose-between-unit-and-system-libraries>

Already modeled in system data and want to switch to unit-level, or vice versa? **Try the Library Switch feature:** <https://support.simapro.com/s/article/Library-Switch-Function>

Market vs. Transformation

The *Market* processes include the product (transformation process(es)), transportation to the next user (an average global transport model) and any transport or trade losses. The *Transformation* processes are the product. More information from Ecoinvent [here](#) and a blog post LTS wrote about the topic [here](#).

Adding Use and Disposal in Processes

If you are interested in modeling other life cycle phases (e.g. the use phase and disposal) to expand your model to cradle-to-grave, you can model both of these phases within the processes we created, or as separate processes. It depends how you want to see the impacts. If you choose to model within the processes we created, you can open up a process (e.g. the cork) and add a "Known output to technosphere. Waste and emission to treatment" at the bottom of the process (e.g. Waste polypropylene {GLO}| market for). Conversely, you can create a process called "Disposal of cork" and only pull in the disposal process. You can also create a "Use phase" process where you pull in the electricity for keeping the beer cold, transportation to the store, etc. You would then create a "Beer and bottle with flipper cap cradle-to-grave" process which pulls in the beer and bottle with flipper cap, the use phase and disposal processes to account. There is quite a bit of flexibility which how you set-up your model. Keep your audience in mind and how they think about the product.

Uncertainty

In accordance to the ISO 14040/14044, uncertainty analysis must be included in comparative assertion that are disclosed publicly (along with a third-party panel review). Uncertainty information is included in most library data including ecoinvent and can be added to your own processes. Monte Carlo analysis can be conducted on a single product or comparing two products. Instructions on adding uncertainty information are in the Course Materials for reference.

Common Ecoinvent Geographies

GLO = global, RoW = Rest of World, RER = Regional European

Project Libraries in SimaPro

More information on all the available databases in SimaPro [is here](#).

Environmental Product Declarations

Webinar on [Creating EPDs with SimaPro](#).

More on [EPDs here](#). EPDs are expensive because they are very tedious and require multiple parties.

ReportMaker

Report Maker User Manual, which has very clear instructions: <https://simapro.com/wp-content/uploads/2021/06/Report-Maker-3-User-Manual.pdf>

In the Advanced Use section, there are two valuable videos that show you how to use the advanced features:

<https://support.simapro.com/s/article/Linking-Data-to-Excel>

<https://support.simapro.com/s/article/Importing-Scenarios-from-Excel>

Cut-Off vs. APOS Ecoinvent System Models

Attributional system models:

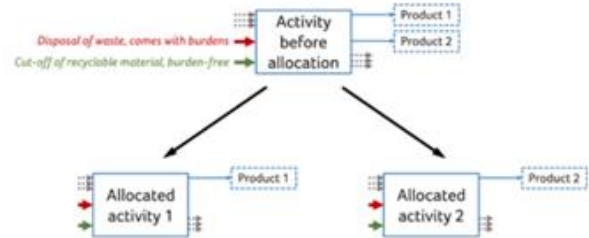
allocation is applied in both cut-off and APOS. In ecoinvent, economic allocation is applied apart for certain cases (e.g. for energy, allocation is done based on exergy).

Cut-off:

Cut-off does apply allocation in case of valuable by-products produced by a non-treatment activity (see schema below and more on the ecoinvent [website](#)). In the case of wastes, the impact of their treatment is fully allocated to the producing activity. Recyclable materials are provided burden-free and include only the impacts of the recycling (from the pick-up from the producer).

Handling of Ordinary By-Products

After the handling of wastes and recyclable materials, allocation takes place over all remaining products produced within the activity. This uses the allocation factors defined in the dataset by the dataset author. As wastes and most recyclable materials (except within recycling chains, where they remain as products) are at this point moved to the input side of the activity, they will be considered just like other inputs and allocated over the different co-products of the activity.



APOS:

Allocation at the point of Substitution (APOS) is an approach that uses expansion of product systems to avoid allocating within treatment systems. APOS allocates the valuable by-products of treatment systems together with the activity that produced the material for treatment.

*You can read more about this in: Wernet G., Bauer C., Steubing B., Reinhard J., Moreno Ruiz E., Weidema, B. (2016) **The ecoinvent database version 3 (part I): overview and methodology**. *International Journal of Life Cycle Assessment*. [Full article in IJLCA](#)*

Learn more in this [free Ecoinvent course \(Module 3 and 4\)](#).