



Swiss Centre for Life Cycle Inventories

A joint initiative of the
ETH domain and Swiss
Federal Offices

ETH

EPFL

PSI

EMPA

ART

Swiss Discussion Forum on Life Cycle Assessment

ecoinvent v3 – an introduction to the new features & data

DF LCA No. 48, Dübendorf, June 13, 2012



Swiss Centre
For Life Cycle
Inventories

ETH

EPFL

PSI

EMPA

ART

Overview of new data

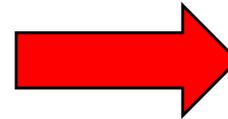
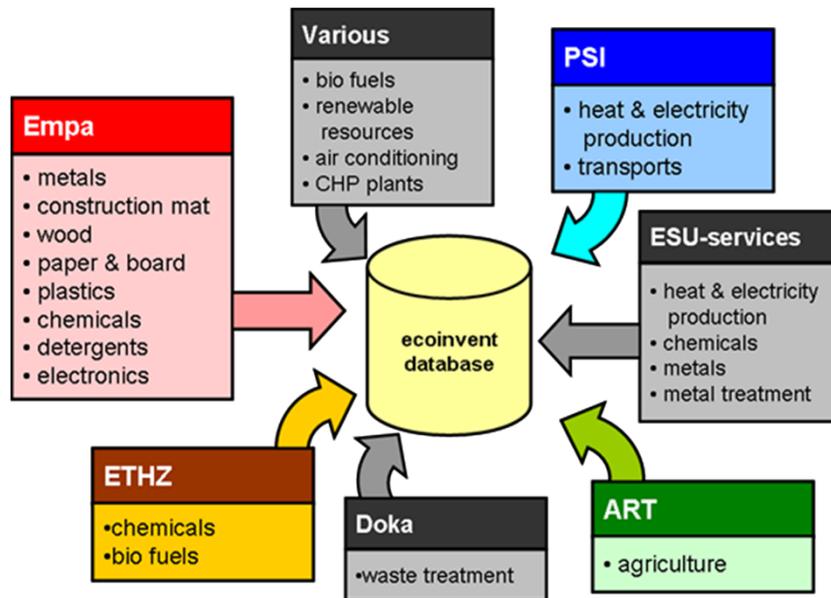
R. Hischier, E. Moreno Ruiz, G. Wernet
ecoinvent Centre, St. Gallen (Switzerland)

Introduction



Swiss Centre
For Life Cycle
Inventories

ecoinvent v2.2



ecoinvent v3



Introduction



However, I won't further speak about ...

- ... all the **market processes** that have been created;
- ... all the **global average datasets** that have been added to the database, using the – existing – local dataset as a proxy (and simply adjusting the uncertainties);
- ... nor adding of **price, production volume, dry mass, and carbon content** information (for linking via markets and application of system models).

Swiss Centre
For Life Cycle
Inventories

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, black sans-serif font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), consisting of the letters "EPFL" in a white sans-serif font inside a red rectangle.

The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white sans-serif font inside a grey rectangle.

The logo for EMPA (Empa - Swiss Federal Laboratories for Materials Science and Technology), consisting of a red shield with a white cross and the letters "EMPA" in a bold, black sans-serif font.

The logo for ART (Association of Research and Technology), consisting of a red shield with a white cross and the letters "ART" in a bold, black sans-serif font.

Introduction



Here I speak about **new transforming activities** ...

- ... that are **funded internally** (i.e. from the ecoinvent Centre), by **(Swiss) Authorities** (using ecoinvent as their “official” database), or by – independent – **third parties** ;
- ... and can have **internal** (i.e. belonging to one of the institutes behind ecoinvent – or is done by a member of the ecoinvent management) or **external authorship**.

Swiss Centre
For Life Cycle
Inventories

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, black font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), featuring the letters "EPFL" in white on a red rectangular background.

The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white, outlined font on a grey rectangular background.

The logo for EMPA (Empa - Eidgenössische Anstalt für Materialprüfung), featuring a red shield with a white cross and the letters "EMPA" in black.

The logo for ART (Anstalt für Ressourcennutzung, Recycling und Umwelttechnik), featuring a red shield with a white cross and the letters "ART" in black.

General overview



Swiss Centre
For Life Cycle
Inventories

“Internally funded projects”

[i] by partners (internal/external)

- **electricity mixes** [PSI, Villigen]
-> details: [presentation Christian Bauer, PSI](#)
- **(Global) plastics production** [CIRAIG, Montréal]

[ii] internally, from the management & data analysts

- **(additional) processes** for recycling / by-products
-> details: [presentation Tereza Levova, ecoinvent Centre](#)

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, black sans-serif font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), consisting of the letters "EPFL" in a white sans-serif font inside a red square.

The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white sans-serif font inside a grey square.

The logo for EMPA (Empa - Eidgenössische Anstalt für Materialprüfung), consisting of a red shield with a white cross and the letters "EMPA" in a bold, black sans-serif font.

The logo for ART (Anstalt für Ressourcennutzung, Technologieentwicklung und -bewertung), consisting of a red shield with a white cross and the letters "ART" in a bold, black sans-serif font.

General overview



Swiss Centre
For Life Cycle
Inventories

“from authorities funded projects” (part I)

■ Chemicals

established by ETH Zürich

funded by the Swiss Federal Office for the Environment (Bafu)

The logo for ETH (Eidgenössische Technische Hochschule) Zürich, consisting of the letters "ETH" in a bold, italicized, black font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), consisting of the letters "EPFL" in a white font inside a red square.

The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white font inside a grey square.

■ Food (fruits and vegetables)

established by ETH Zürich

-> details: [presentation Franziska Stössel, ETHZ](#)

The logo for EMPA (Empa - Eidgenössische Anstalt für Materialprüfung), consisting of a red shield with a white cross and the letters "EMPA" in a bold, black font.

The logo for ART (Anstalt für Ressourcennutzung, Technologieentwicklung und -bewertung), consisting of a red shield with a white cross and the letters "ART" in a bold, black font.

■ Biomass and biofuels

established by agroscope, Empa, PSI, and various consultant companies

funded by the Swiss Federal Office for Energy (BfE)

-> details: [presentation Thomas Nemecek, agroscope](#)

General overview



Swiss Centre
For Life Cycle
Inventories

“from authorities funded projects” (part II)

- **International data**

*established by various partners in the concerned countries,
funded by the Swiss State Secretary for Economic Affairs (seco)
-> details: [presentation Gregor Wernet, ecoinvent Centre](#)*

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, sans-serif font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), featuring the letters "EPFL" in a white, sans-serif font inside a red rectangular box.

The logo for PSI (Paul Scherrer Institute), showing the letters "PSI" in a white, sans-serif font inside a grey rectangular box.

- **Solar collectors**

*established by ESU-services
funded by the Public Work Service (Hochbauamt) of the City of Zürich*

The logo for EMPA (Empa - Swiss Federal Laboratories for Materials Science and Technology), featuring a red shield with a white cross and the letters "EMPA" in a bold, sans-serif font.

The logo for ART (Association of Research and Technology), featuring a red shield with a white cross and the letters "ART" in a bold, sans-serif font.

- **Recycling Paper & Printing Services**

*established by Carbotech
funded by the Swiss Federal Office for the Environment (Bafu)*

General overview



Swiss Centre
For Life Cycle
Inventories

“third party-funded projects”

- **Aluminium**

*established by CIRAIG (Montréal),
funded by the International Aluminium Institute (IAI)*

- **Person transport**

*established by Empa & PSI,
funded by Swiss Competence Center Energy and Mobility (CCEM)*
-> details: [presentation Andrea Delduce, Empa](#)

- **Update of water data**

based on the Water Database project of Quantis Intl.
-> to this topic: [presentation Stefan Pfister, ETHZ](#)

- ... and a **variety of small projects !**

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, black sans-serif font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), consisting of the letters "EPFL" in a white sans-serif font inside a red square.

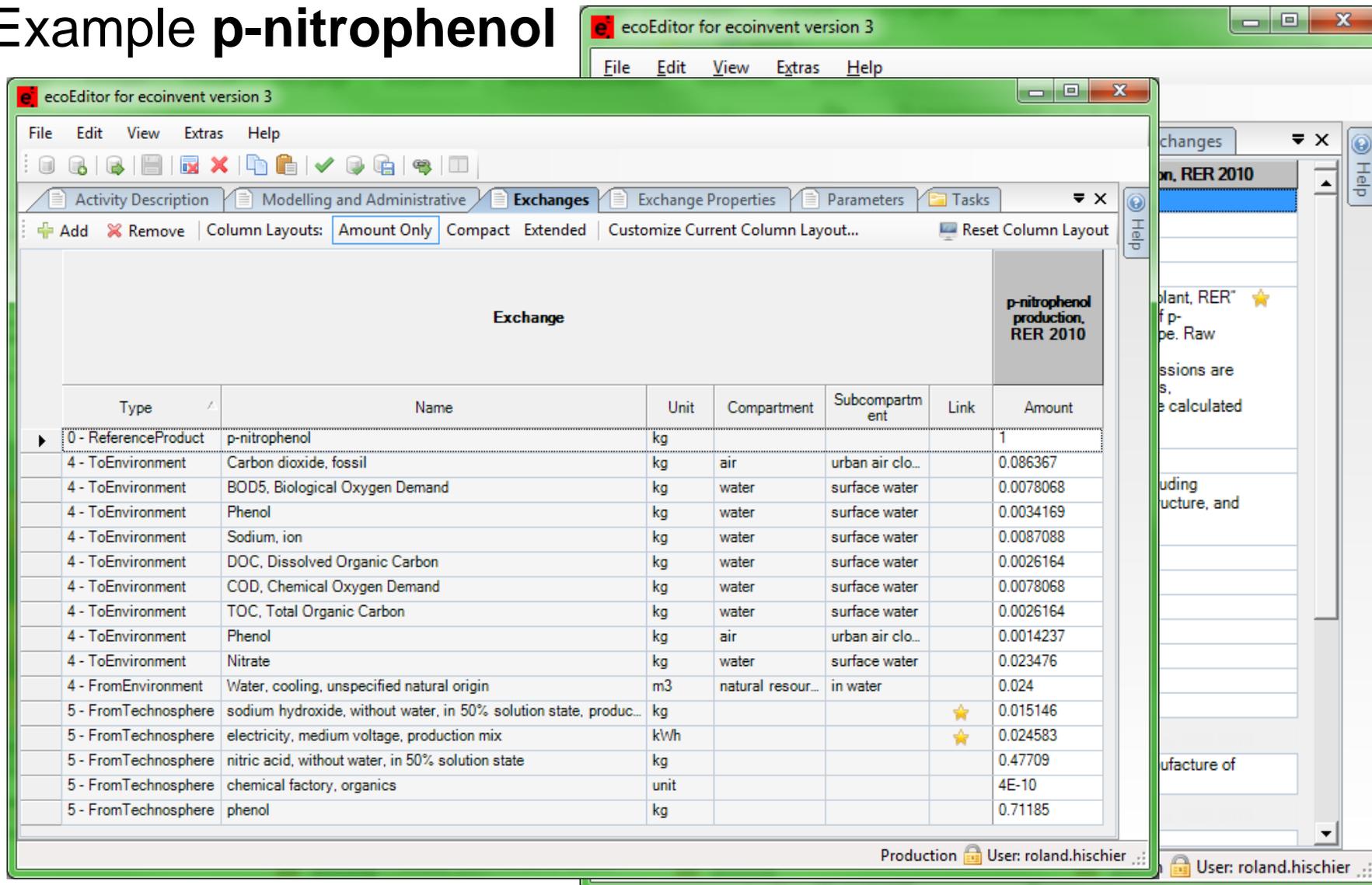
The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white sans-serif font inside a grey square.

The logo for EMPA (Empa - Swiss Federal Laboratories for Materials Science and Technology), consisting of a red shield with a white cross and the letters "EMPA" in a bold, black sans-serif font.

The logo for ART (Association of Research and Technology), consisting of a red shield with a white cross and the letters "ART" in a bold, black sans-serif font.

Chemicals

■ Example p-nitrophenol



The screenshot shows the 'Exchanges' window in ecoEditor for ecoinvent version 3. The table displays the following data:

Type	Name	Unit	Compartment	Subcompartment	Link	Amount
0 - ReferenceProduct	p-nitrophenol	kg				1
4 - ToEnvironment	Carbon dioxide, fossil	kg	air	urban air clo...		0.086367
4 - ToEnvironment	BOD5, Biological Oxygen Demand	kg	water	surface water		0.0078068
4 - ToEnvironment	Phenol	kg	water	surface water		0.0034169
4 - ToEnvironment	Sodium, ion	kg	water	surface water		0.0087088
4 - ToEnvironment	DOC, Dissolved Organic Carbon	kg	water	surface water		0.0026164
4 - ToEnvironment	COD, Chemical Oxygen Demand	kg	water	surface water		0.0078068
4 - ToEnvironment	TOC, Total Organic Carbon	kg	water	surface water		0.0026164
4 - ToEnvironment	Phenol	kg	air	urban air clo...		0.0014237
4 - ToEnvironment	Nitrate	kg	water	surface water		0.023476
4 - FromEnvironment	Water, cooling, unspecified natural origin	m3	natural resour...	in water		0.024
5 - FromTechnosphere	sodium hydroxide, without water, in 50% solution state, produc...	kg			★	0.015146
5 - FromTechnosphere	electricity, medium voltage, production mix	kWh			★	0.024583
5 - FromTechnosphere	nitric acid, without water, in 50% solution state	kg				0.47709
5 - FromTechnosphere	chemical factory, organics	unit				4E-10
5 - FromTechnosphere	phenol	kg				0.71185

Swiss Centre
For Life Cycle
Inventories



Solar collectors



- Author(s): **Matthias Stucki,**
Niels Jungbluth (ESU-services Ltd)

Swiss Centre
For Life Cycle
Inventories

- Commissioner: **Amt für Hochbauten der Stadt Zürich**

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, sans-serif font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), consisting of the letters "EPFL" in a white, sans-serif font inside a red rectangle.

The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white, sans-serif font inside a grey rectangle.

- Coverage:

Eight new solar thermal systems have been investigated. They represent typical solar thermal installations in the city of Zurich. The newly considered solar thermal systems include installations on **flat roofs** and **slanted roofs**, as well as **flat plate collectors** with **copper or alu-copper absorbers**, and **evacuated tube collectors**.

The logo for EMPA (Empirech Materials Processing and Analysis), consisting of a red shield with a white cross and the letters "EMPA" in a bold, sans-serif font.

The logo for ART (Applied Research Technology), consisting of a red shield with a white cross and the letters "ART" in a bold, sans-serif font.

Paper & Printing Sector



- Author: **Cornelia Stettler,**
Thomas Kägi (Carbotech AG)
- Commissioner: **Swiss Federal Office for the Environment (Bafu)**

Swiss Centre
For Life Cycle
Inventories

- Coverage:
the **two most common printing technologies (offset / digital print)** for the production of newspapers, magazines etc. have been investigated & average datasets established.

In addition, a more broad supported average **dataset for (office) recycling paper** has been established and integrated into the database.

The logo for ETH (Eidgenössische Technische Hochschule), consisting of the letters "ETH" in a bold, italicized, sans-serif font.

The logo for EPFL (École Polytechnique Fédérale de Lausanne), consisting of the letters "EPFL" in a white, sans-serif font inside a red rectangle.

The logo for PSI (Paul Scherrer Institut), consisting of the letters "PSI" in a white, sans-serif font inside a grey rectangle.

The logo for EMPA (Empirech Materials Processing and Analysis), consisting of a red shield with a white cross and the letters "EMPA" in a bold, sans-serif font.

The logo for ART (Applied Research Technology), consisting of a red shield with a white cross and the letters "ART" in a bold, sans-serif font.

Insulation Materials



- Author: **Frank Werner, Umwelt & Entwicklung**
Commissioner: **Producer of material**
- Author: **Matthias Klinger, Büro für Umweltchemie**
Commissioner: **Producer of material**
- Coverage:
in each of these two studies, the **insulation materials** (glass wool resp. polystyrene foam) **of the respective commissioner** have been investigated and respective inventory datasets established.

Swiss Centre
For Life Cycle
Inventories

ETH

(EPA)

PSI

EMPA

ART

Thank you



Swiss Centre
For Life Cycle
Inventories



More Information:

ecoinvent Centre
c/o Empa
Lerchenfeldstrasse 5
9014 St. Gallen, Switzerland

support@ecoinvent.org

www.ecoinvent.org