



**Swiss Centre for Life Cycle Inventories**

A joint initiative of the  
ETH domain and Swiss  
Federal Offices

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3rd International ecoinvent meeting

## ecoinvent v3 – an overview of new data

Saint Malo, 5 October, 2012

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# Overview of new data in v3

Sofia Parada Tur

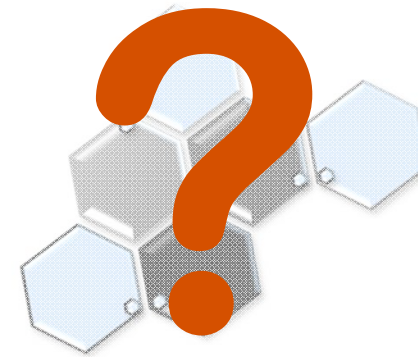
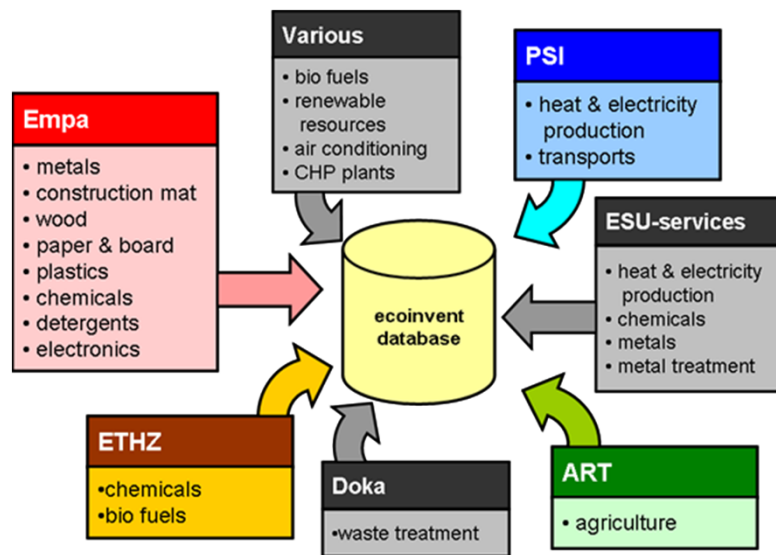
ecoinvent Centre, St. Gallen (Switzerland)

# Introduction



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## ecoinvent v2.2



## ecoinvent v3

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## 1. Mayor data collection projects

- water
- chemicals
- electricity
- personal transport
- others

## 2. Central data collection & updates



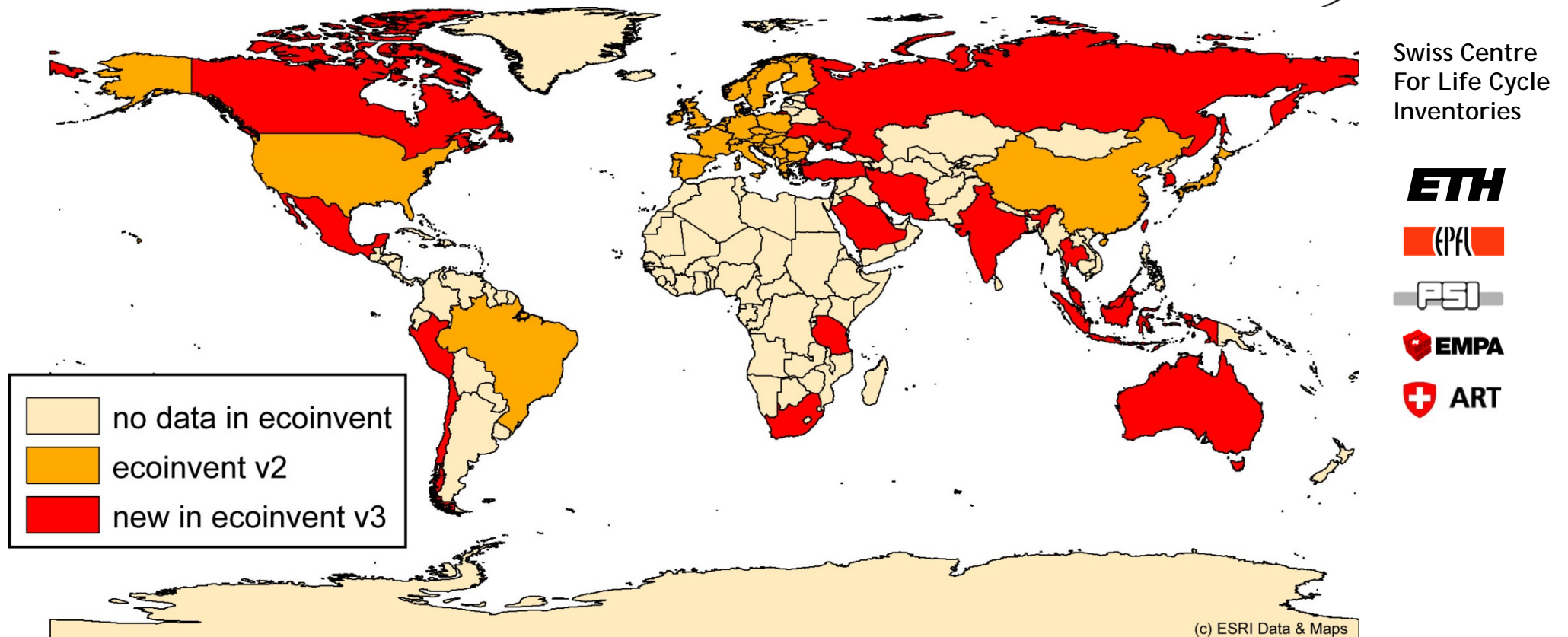
# Water data updates

- based on the Water Database project of Quantis Intl
- Update of water exchanges for database ecoinvent v2



Exchange			esterification of palm oil, GLO 2006
Type	Name	Unit	Amount
4 - FromEnvironment	Carbon dioxide, in air	kg	0.22155
4 - ToEnvironment	Carbon dioxide, non-fossil	kg	0.3037
5 - FromTechnosphere	electricity, medium voltage	kWh	0.042296
2 - ByProduct/Waste	glycerine	kg	0.10908
5 - FromTechnosphere	heat, district or industrial, natural gas	MJ	0.92378
5 - FromTechnosphere	methanol	kg	0.1136
5 - FromTechnosphere	palm oil, crude	kg	1.0281
5 - FromTechnosphere	phosphoric acid, industrial grade, without water, in 85% solution state	kg	0.0046024
5 - FromTechnosphere	potassium hydroxide	kg	0.011356
5 - FromTechnosphere	tap water, at user	kg	0.016716
5 - FromTechnosphere	vegetable oil esterification facility	unit	9.346E-10
0 - ReferenceProduct	vegetable oil methyl ester	kg	1
2 - ByProduct/Waste	wastewater, from residence	m3	6.2531E-05
4 - ToEnvironment	Water	m3	0.00012307
4 - ToEnvironment	Water	m3	0.00021124
4 - FromEnvironment	Water, cooling, unspecified natural origin	m3	0.0003176

# Electricity data



- Extension and update of country electricity mixes (PSI, 90% coverage)
- National specific production technologies
- Regional Canadian data (CIRAIG, more details from P. Lesage)

# Chemicals



- About 80 new basic chemicals

Example:

p-nitrophenol

ecoEditor for ecoinvent version 3

File Edit View Extras Help

Activity Description Modelling and Administrative **Exchanges** Exchange Properties Parameters Tasks

+ Add - Remove Column Layouts: Amount Only Compact Extended Customize Current Column Layout... Reset Column Layout

Exchange

p-nitrophenol production, RER 2010

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

Production User: roland.hischier

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# Personal transport

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- *established by Empa & PSI; funded by Swiss Competence Center Energy and Mobility (CCEM)*
- ICE (petrol, diesel, natural gas) and electric
- Different sizes and EURO classes

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# Data collection – further examples

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- **Agriculture/biofuels** (check presentation from T. Nemecek)
- **Cement and clinker – 12 cement types**
- **Aluminium (primary, hydroxide)**

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**And more...**

# central data updates for v3



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- **global average datasets** for all local processes
- **dry mass, wet mass and carbon content** (for all intermediate exchanges and elementary flows).

5 - FromTec...	sugar beet pulp	kg						carbon content, f...	dimen...	0
								carbon content,...	dimen...	0.44213
								dry mass	kg	0.25
								water content	dimen...	3
								water in wet mass	kg	0.75
								wet mass	kg	1

- **price and production volumes** (where relevant; for linking via markets and application of system models)

# central data updates for v3

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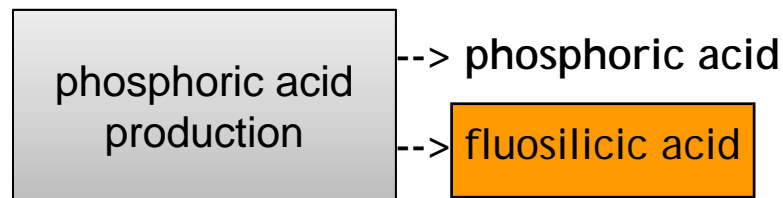
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- **Cut-off approach** is not applied anymore!



- 3 ways for dealing with added by-products / wastes
  - Treatment activity
  - Alternative production route
  - Constrained market

# Summary & Conclusions

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- v3 builds on the prior ecoinvent version, providing database-wide data updates (eg. water database)
- Extensive data collection efforts on key sectors (eg. electricity, transport, chemicals, agriculture/biofuels)
- Important central data collection tasks
- Smaller-scale projects

# Thank you

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More Information:

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

[support@ecoinvent.org](mailto:support@ecoinvent.org)  
[www.ecoinvent.org](http://www.ecoinvent.org)