

# National LCI Databases based on a **common international, technology LCI database**



Swiss Centre  
For Life Cycle  
Inventories

**ETH**

PSI

 **EMPA**

 **ART**

LCA IX conference

session « International Capability Development Activities on Life Cycle Topics »

Boston, USA / September 30, 2009

**Roland Hischier**  
ecoinvent Centre

# Content



Swiss Centre  
For Life Cycle  
Inventories

- Introduction

**Problem setting / what do you need ?**

- NDI

**Strategies to build up a national LCI database**

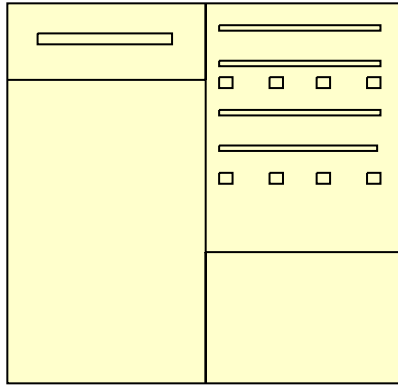
- Support possibilities of ecoinvent
  - **Cooperation with National DB Initiatives**
  - **Technology DB as common Basement**
- Conclusions





# Problem setting

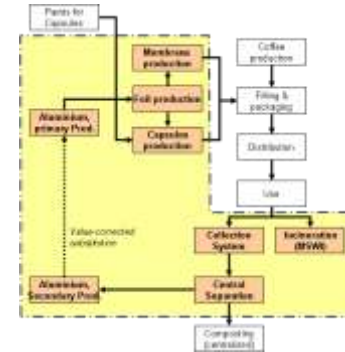
## LCI Database



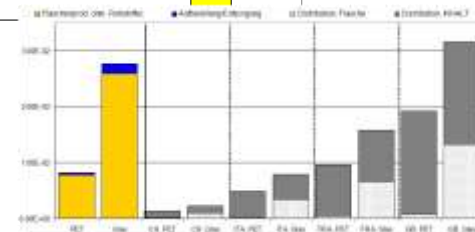
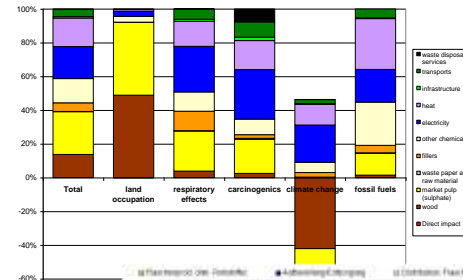
(LCA) Software



LCIA Method(s)

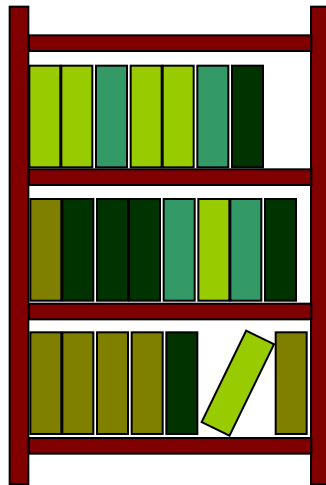


Swiss Centre For Life Cycle Inventories



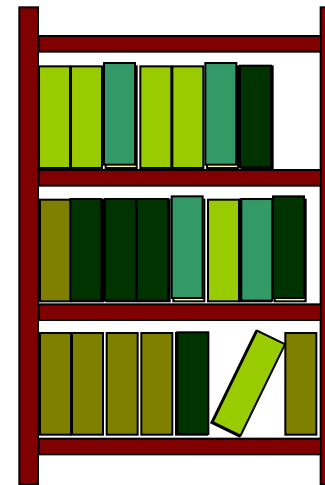
## Two possible strategies to start ...

(i) From “scratch”

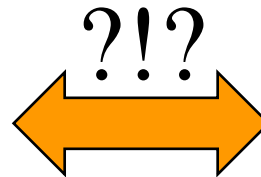


i.e. starting with an **empty bookshelf** and filling this shelf little by little ...

(ii) With existing data



i.e. starting with a already **filled bookshelf** containing “books” from a different region. Then little by little these “books” are exchanged ...



Swiss Centre  
For Life Cycle  
Inventories

**ETH**

PSI

EMPA

ART



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 PSI (Paul Scherrer Institute), consisting of the letters "PSI" in a bold, black sans-serif font, enclosed within a horizontal rectangular border.

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

The logo for ART (Art - Applied Research Technology), featuring a red shield with a white cross to the left of the letters "ART" in a bold, black sans-serif font.

## Consequences if starting ...

### ... « from scratch » :

- Need to establish all data of a **complete production chain** ...
- ... otherwise, it is possible that **relevant impacts are not taken into account** - leading in the application of the data to **wrong conclusions !**

### ... with existing data:

- Data represent not the real situation in your country ...
- ... it is possible that **relevant impacts are inadequately taken into account** - leading in the application of the data to **wrong conclusions !**

→ First adaptation step is of high importance



# ecoinvent data v2

## the most comprehensive public LCI DB today



Swiss Centre  
For Life Cycle  
Inventories

- An Online database with **fully interlinked data**;
- a simultaneous calculation of about 4'000 product systems;
- Link inventory to major LCIA methods;
- **Independent quality assurance mechanism**;
- **full access to unit process data and rolled-up data**;
- all Multioutput datasets with **unallocated data provided**;
- using an ISO-compatible format in XML technology:
  - easy data exchange
  - one format for LCI & LCIA
  - working, widely applied and accepted

**consistent**

**reliable**

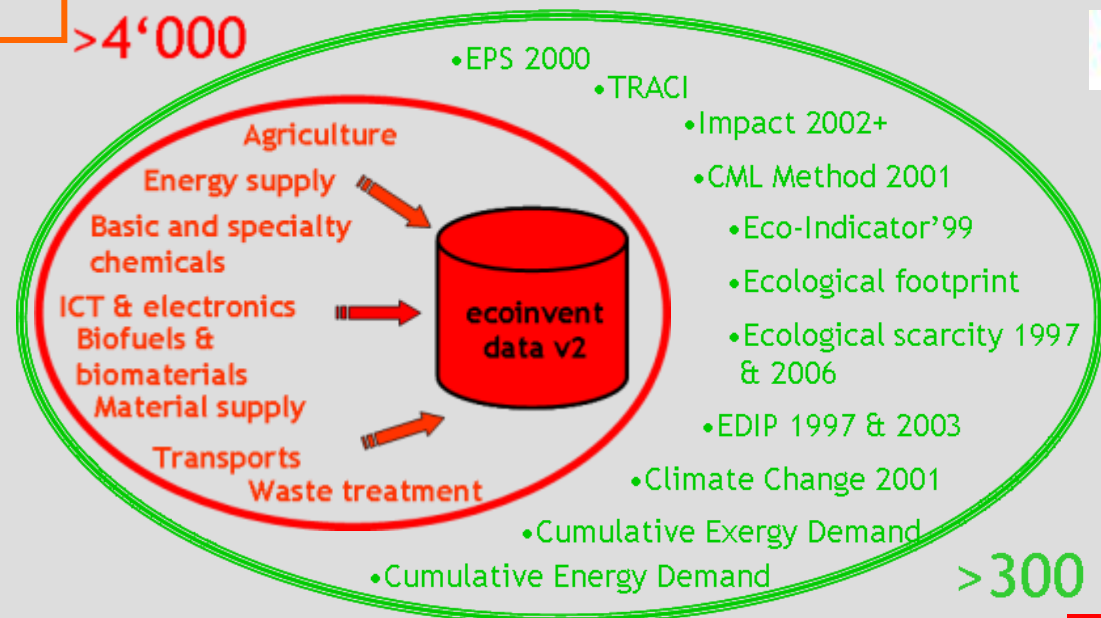
**transparent**

**ETH**

**PSI**

**EMPA**

**ART**





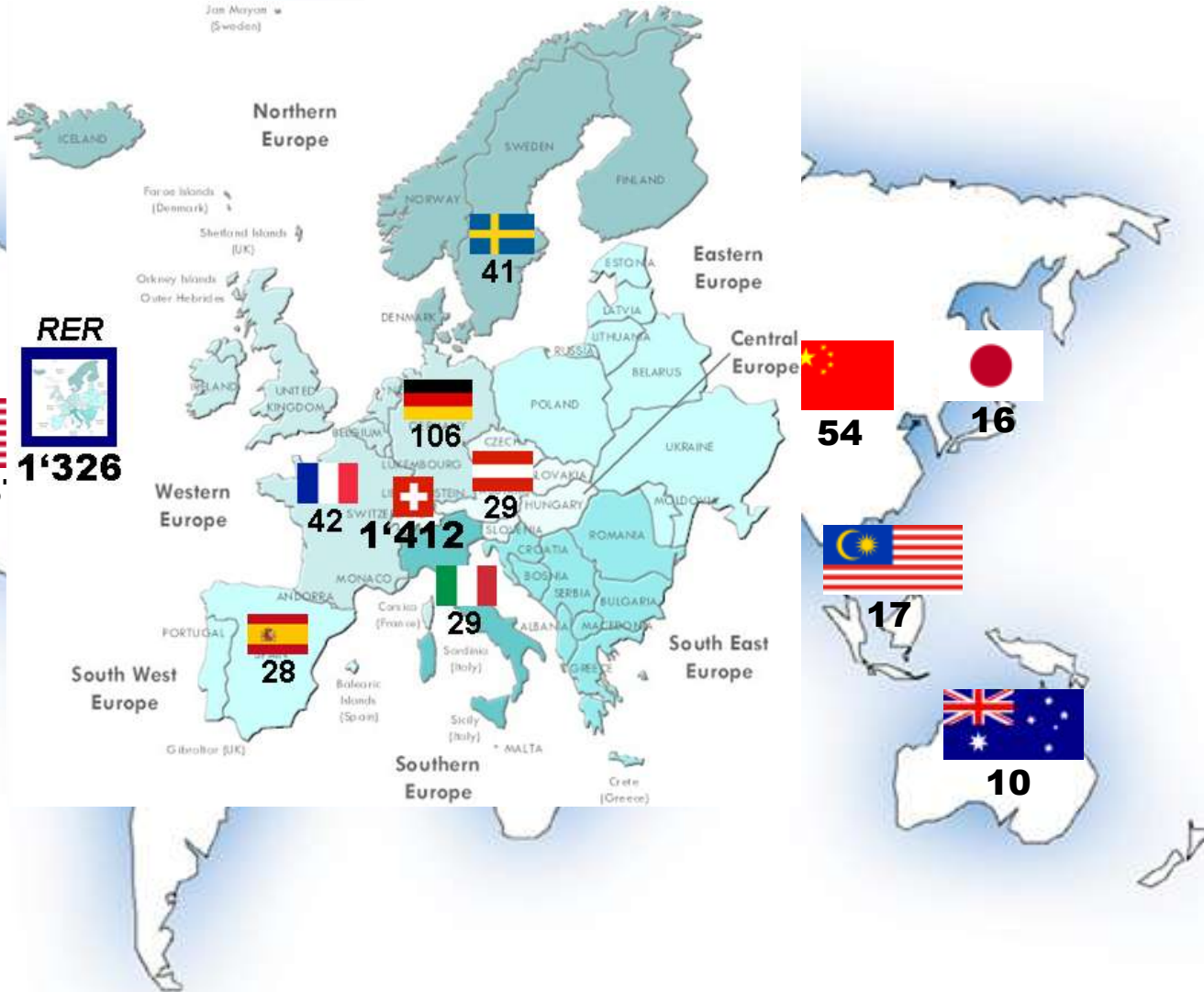
# ecoinvent – more than a Swiss NDI ...

Life Cycle Inventories



**GLO**

400



**RER**



1'326



8



# strategy ofecoinvent

→ “more internationalisation “ ...



Swiss Centre  
For Life Cycle  
Inventories

- Co-operation with national database initiatives
- More detail, more technologies, more completeness:
  - International editorial board and broader supplier base
  - Parameterization (geography, time, technologies, markets)
  - New data structure based on supply-use framework, allowing easier production of national versions
  - New indicators
- Depending on sponsor funding: Open access to more database facilities - initially limited to specific customer groups
- etc.





Swiss Centre  
For Life Cycle  
Inventories

## ... co-operation with NDIs

- The national initiative is responsible for its own local data collection programme, and retains the right to license these collected data to third parties, while providing the collected data for publication in the ecoinvent database.
- ecoinvent provides the necessary infrastructure for validation and publishing of the data as part of the ecoinvent database;
- ... provides free licenses to all active in the national initiative; and
- ... supports the national database initiative with an annual financial contribution [subject of negotiation].
- **Either side** can terminate the co-operation by giving one year's notice to the end of a calendar year.

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

The logo for PSI (Paul Scherrer Institut), featuring the letters "PSI" in a bold, sans-serif font with a horizontal bar through the middle.

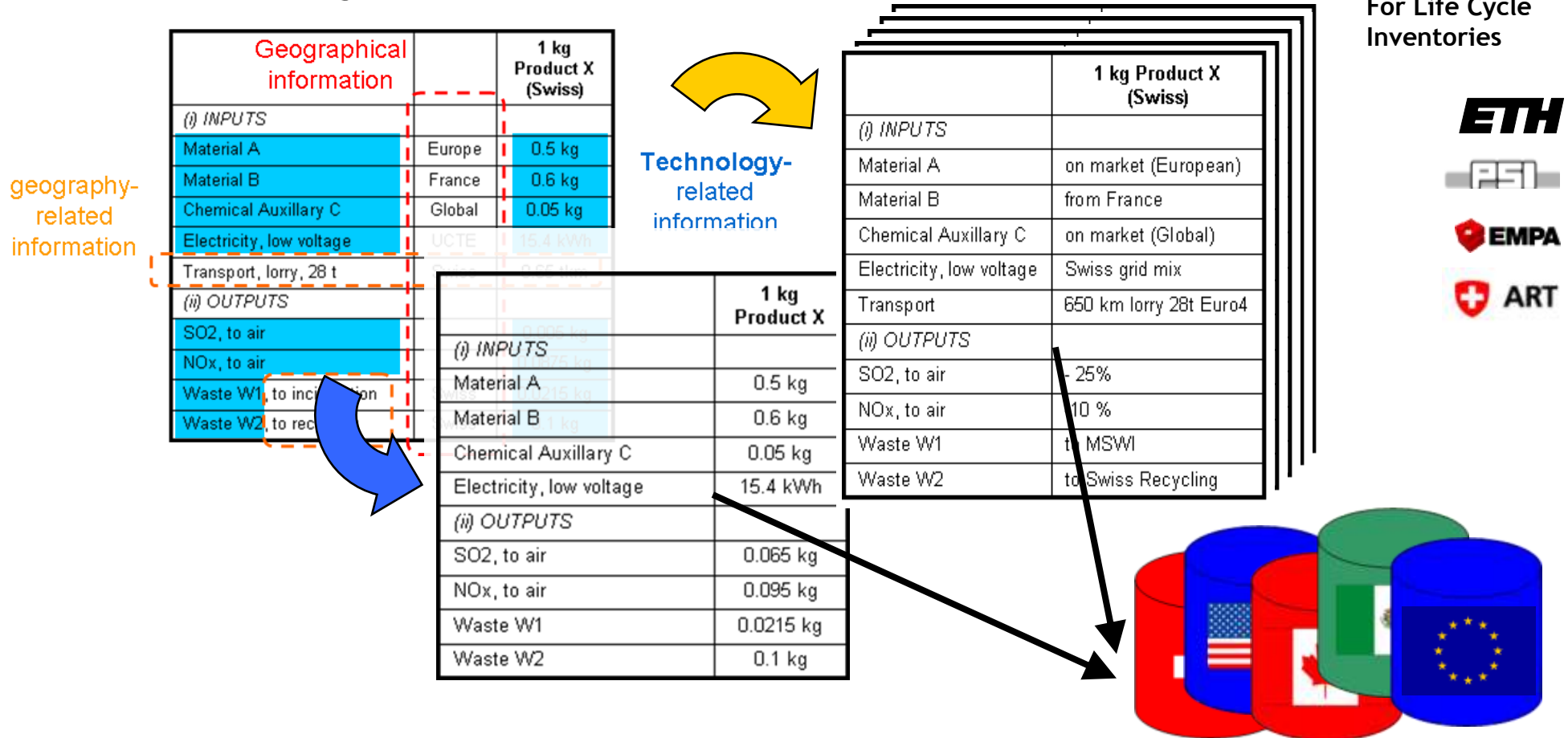
The logo for EMPA (Empfehlungen für Materialprüfung), featuring a red shield with a white cross and the letters "EMPA" to its right.

The logo for ART (Anlagen- und Reaktor-Technologie), featuring a red shield with a white cross and the letters "ART" to its right.



# Parametrisation in ecoinvent v3

- Parent-child relationship allows calculation of specific, national / regional datasets





Swiss Centre  
For Life Cycle  
Inventories

## “parent-child relationship“

... consequences for National Database Initiatives (NDI):

- **NDI can ...**
    - ... concentrate data collection activities on those areas, where a **DIFFERENT** technology is used in own country;
    - ... define „default“ information for own country (e.g. means & distances of transport of goods, waste treatment situation, ...) for an automatical application in case no specific data are collected
- Allows calculation of a **first, approximated version** of national, easily updateable database **everywhere in the world !**





Swiss Centre  
For Life Cycle  
Inventories

## Supply-use table

Principle / how to use this here ?

- All economic activities in society are covered, i.e. the sum of all activities (= national output !) is included here.
1. Can use the national supply-use tables to get an overview of which processes are important in the particular country, and make a dedicated data collection effort for these datasets.
  2. Most countries produce monetary supply-use tables annually, which can serve as a basis for consistent national versions of the core ecoinvent database;  
often, national reporting of emissions follow the same framework;  
this may then be supplemented by specific national process data.





Swiss Centre  
For Life Cycle  
Inventories

- ecoinvent is open for international collaboration;
  - ecoinvent offers its expertise, its technical development so far done in LCI DB development & maintenance;
  - transparent, unit-process based database allows easy adaptation to other national situations;
  - the strategy for ecoinvent data v3 goes in a even more simple, stepwise cooperation between ecoinvent and NDIs all over the world.
- 
- **... allowing fast development of transparent & consistent LCI data everywhere in the world ...!**



# Thank you!



Swiss Centre  
For Life Cycle  
Inventories

**ETH**



 **EMPA**

 **ART**

## More information:

ecoinvent Centre

c/o Empa, Lerchenfeldstrasse 5

CH-9014 St-Gallen, Switzerland

[support@ecoinvent.org](mailto:support@ecoinvent.org)

[www.ecoinvent.org](http://www.ecoinvent.org)

