

A strategy towards National LCI Databases based on a common international, technology LCI database



ETH



CILCA 2009

session « Life Cycle Inventory »

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ecoinvent Centre

Content

- Introduction
 - the key characteristics of ecoinvent
- NDI
 - National Database Initiative - how to begin ?
- Proposed Strategy
 - Step 1 - Cooperation with National DB Initiatives
 - Step 2 - Technology DB as common Basement
- Conclusions



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ecoinvent – that is ...

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

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EPFL

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EMPA

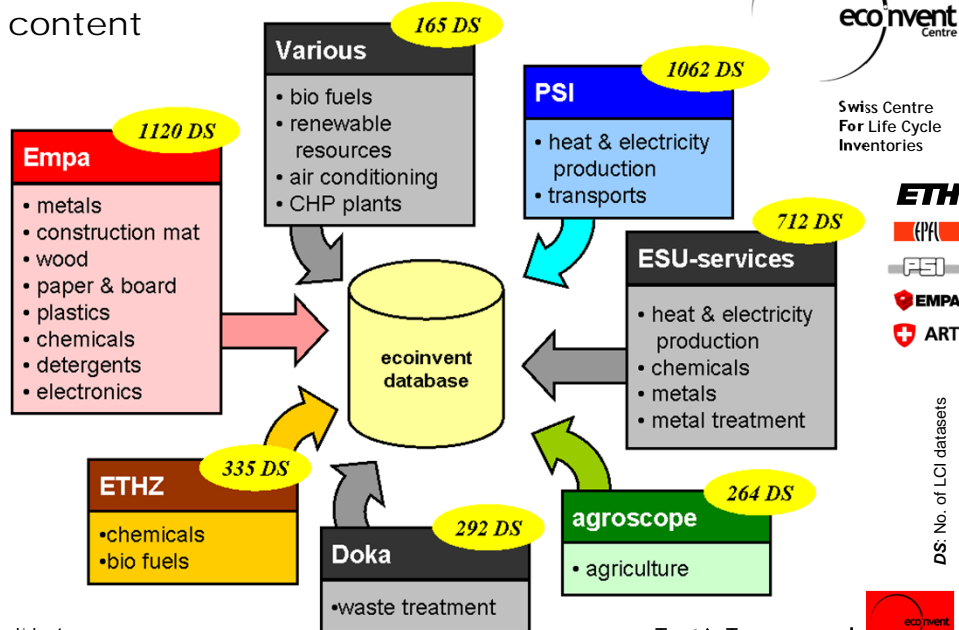
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content



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ecoinvent – a global success story!

- more than 1500 customers use ecoinvent data in more than 40 countries all over the world;
- data are embedded and/or importable in all major LCA software tools:



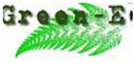






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More about ecoinvent ?

→ Round table „World LCI: databases and formats »
April 28, 2009, 18:00 to 20:00 hours

 	 Green-e	 EMIS	OpenLCA KCL-ECO KCL-Eco
		 CMLCA	

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the example „Switzerland“

1975- LCA of packagings & materials (e.g. yogurt glass, plastics, aluminium, paper and board)


1984 1st edition „Life Cycle Inventories of Packagings“ (BUS 24 report)

1992 - LCAs of food, chemical products, detergents, etc.






1993-96 Update of „Life Cycle Inventories of Packagings“ (from BUWAL SRU 132 to SRU 250)


1997-98 Life Cycle Inventories of ingredients for detergents (EMPA report 244)

2003 Release of ecoinvent data v1.0




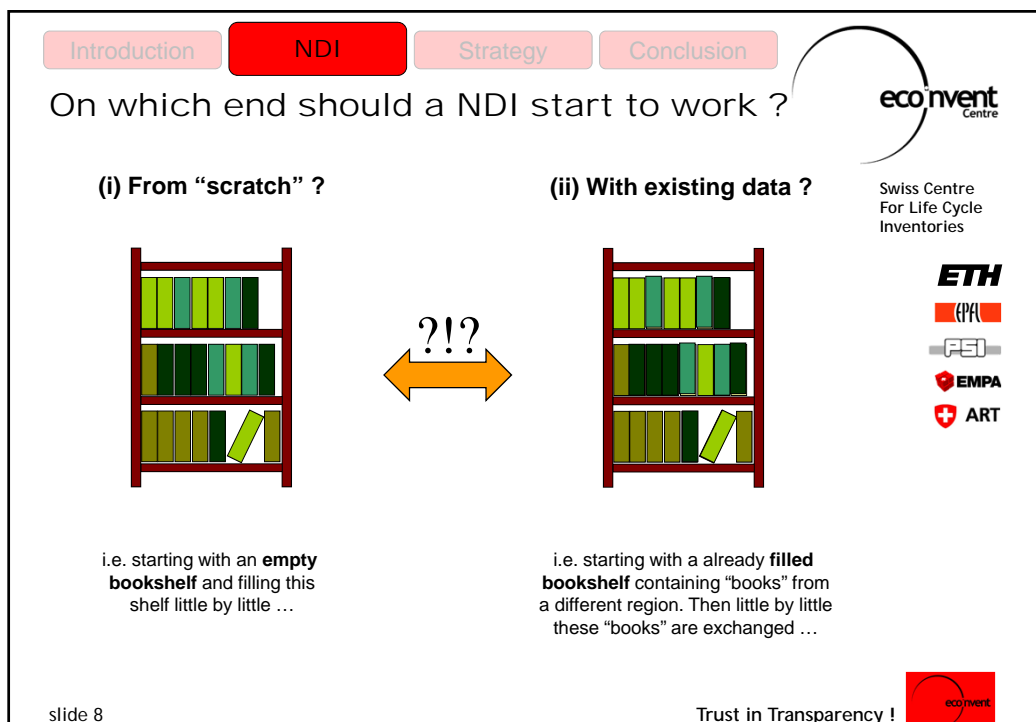
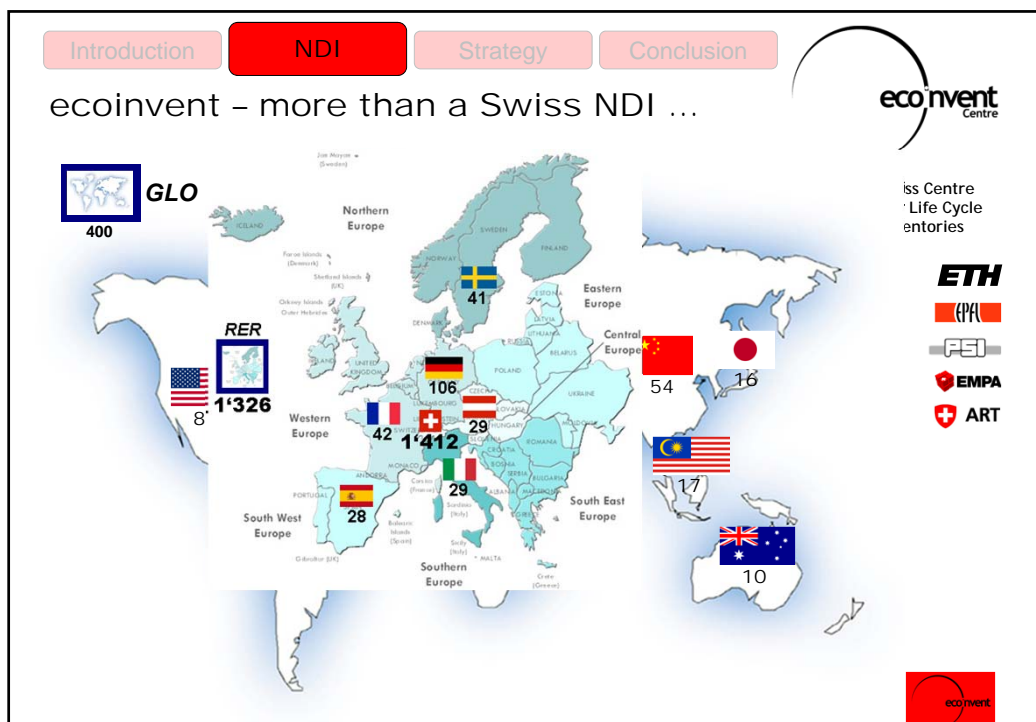
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Empa
SG

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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 !**



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ecoinvent v3






→ " the way to more internationalisation " ...

• Co-operation with national database initiatives STEP 1

- 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
- More frequent updating
- Improved uncertainty estimation and calculation facilities



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... 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.



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... the **international** Advisory Council

- Supports strategic positioning and networking of ecoinvent database within the national and international context, the political system and the scientific community.
- Advises with respect to the synchronization with other projects on content-related topics by maintaining good relations to NDIs and to national authorities.**
- Supports in the realisation of the proposed developments, including suggestions for possible avenues for financing of updates, development of new data sets, and other strategic tasks.
- Important criterion for the selection of members is their own genuine interest in the ecoinvent Centre, on behalf of their offices, clients and customers.




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... the **international** Advisory Council

- The council will meet the first time in June 2009.
- The council is composed of the following members:


International	Europe / Switzerland
Atsushi Inaba, Japan Cassia Ugaya, Brasil Claudia Peña, Chile Greg Norris, USA Jianxin Yang, China Pascal Lesage, Canada Pippa Notten, South Africa Tim Grant, Australia	Andreas Ciroth, Germany Mark Goedkoop, the Netherlands Patrick Hofstetter, Switzerland Rolf Frischknecht, Switzerland Roland Högger, Switzerland Norbert Egli, BAFU, Switzerland Lukas Gutzwiller, BfE, Switzerland

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→ " the way to more internationalisation " ...


- Co-operation with national database initiatives **STEP 1**
- More detail, more technologies, more completeness:
 - International editorial board and broader supplier base
 - Parameterization (geography, time, technologies, markets) STEP 2**
 - 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
- More frequent updating
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Parametrisation in ecoinvent v3


- Introduction of a **parent-child relationship** in the processes ...
with the **production technology** defined as „parent“

geography-
related
information


		1 kg Product X (Swiss)
<i>(i) INPUTS</i>		
Material A	Europe	0.5 kg
Material B	France	0.6 kg
Chemical Auxillary C	Global	0.05 kg
Electricity, low voltage	UCTE	15.4 kWh
Transport, lorry, 28 t	Swiss	0.65 tkm
<i>(ii) OUTPUTS</i>		
SO ₂ , to air		0.005 kg
NO _x , to air		0.0875 kg
Waste W1, to incineration	Swiss	0.0215 kg
Waste W2, to recycling	Swiss	0.1 kg

Technology-
related
information






Geographical
information

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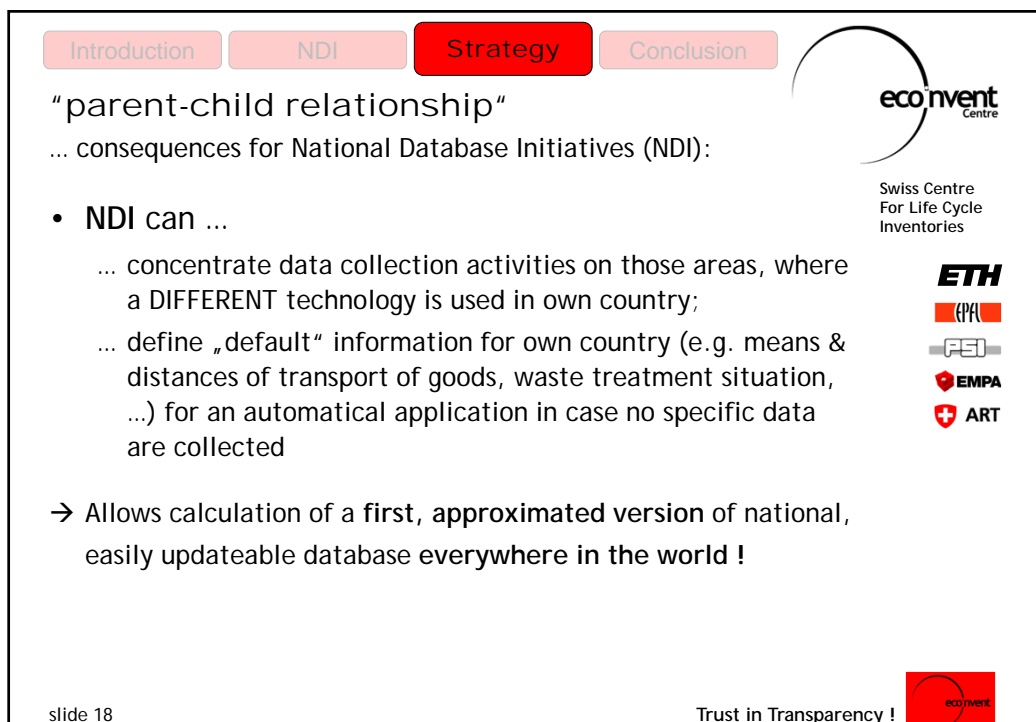
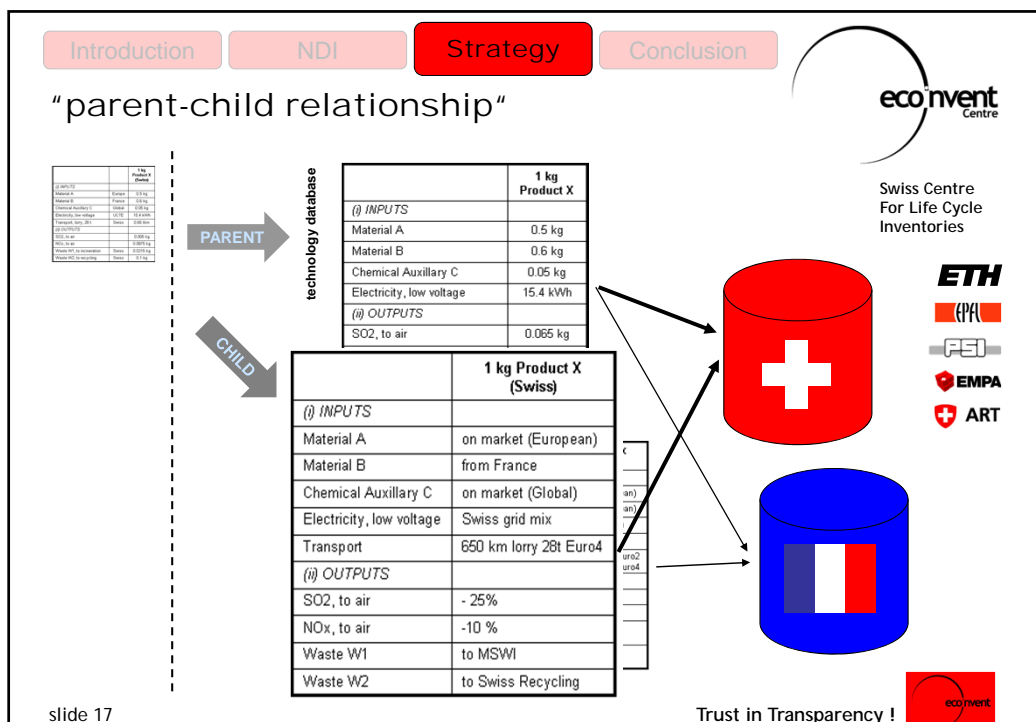






Parametrisation in ecoinvent v3


- ... resulting in a pure **technology** database
(independent from geographical application etc.) !

	1 kg Product X
<i>(i) INPUTS</i>	
Material A	0.5 kg
Material B	0.6 kg
Chemical Auxillary C	0.05 kg
Electricity, low voltage	15.4 kWh
<i>(ii) OUTPUTS</i>	
SO ₂ , to air	0.065 kg
NO _x , to air	0.095 kg
Waste W1	0.0215 kg
Waste W2	0.1 kg






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Current situation

- **Agreements with NDI of several countries are established**
resp. negotiations are **on-going** !
 - Growing LCA community able to work with transparent, consistent and validated LCI data of high quality !
- Editorial Board as new quality insurance mechanism to be prepared to the growing number of datasets that have to be validated
 - ecoinvent will continue to offer the **most relevant, reliable, transparent & accessible LCI data worldwide** !






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the Editorial Board

- The Editorial board **performs the review, validation and editing** of the ecoinvent datasets before inclusion in the ecoinvent LCI database under **supervision of LCI Expert Group** that maintains ecoinvent data quality guidelines and software systems
- Each editor is responsible for a **specific expertise area** - e.g. as **activity editor, geographical editor or language editor**
- For each area, a lead editor and one/more co-editors share the work

→ editors can play a role in stimulating or initiating data collection activities and are also welcome to contribute as data suppliers, ...
... in which case the review and validation will be performed by one of the other editors!

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Thank you!



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