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

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Roland Hischier
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
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
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;

<table>
<thead>
<tr>
<th>SimaPro</th>
<th>GaBi</th>
<th>OpenLCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>umberto</td>
<td>EMIS</td>
<td>KCL-ECO</td>
</tr>
<tr>
<td>Regis</td>
<td>Green-e</td>
<td>KCL-Eco</td>
</tr>
<tr>
<td>Team</td>
<td>CMLCA</td>
<td>Team</td>
</tr>
</tbody>
</table>

the example „Switzerland“

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

ecoinvent – more than a Swiss NDI ...

On which end should a NDI start to work?

(i) From “scratch”? (ii) With existing data?

- i.e. starting with an empty bookshelf and filling this shelf little by little ...
- i.e. starting with a already filled bookshelf containing “books” from a different region. Then little by little these “books” are exchanged ...

slide 8  Trust in Transparency!
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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⇒ “the way to more internationalisation” ...

- 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
- More frequent updating
- Improved uncertainty estimation and calculation facilities
... 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 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.
... the international Advisory Council

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

**International**
- 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

**Europe / Switzerland**
- 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
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  - Depending on sponsor funding: Open access to more database facilities
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Parametrisation in ecoinvent v3

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

<table>
<thead>
<tr>
<th>1 kg Product X (Swiss)</th>
<th>Technology-related information</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ INPUTS</td>
<td></td>
</tr>
<tr>
<td>Material A</td>
<td>Europe 0.5 kg</td>
</tr>
<tr>
<td>Material B</td>
<td>France 0.6 kg</td>
</tr>
<tr>
<td>Chemical Auxiliary C</td>
<td>Global 0.05 kg</td>
</tr>
<tr>
<td>Electricity, low voltage</td>
<td>UCTE 15.4 kWh</td>
</tr>
<tr>
<td>Transport, lorry, 28 t</td>
<td>Swiss 0.65 tkm</td>
</tr>
<tr>
<td>@ OUTPUTS</td>
<td></td>
</tr>
<tr>
<td>SO2, to air</td>
<td>0.005 kg</td>
</tr>
<tr>
<td>NOx, to air</td>
<td>0.0075 kg</td>
</tr>
<tr>
<td>Waste W1, to incineration</td>
<td>Swiss 0.0215 kg</td>
</tr>
<tr>
<td>Waste W2, to recycling</td>
<td>Swiss 0.1 kg</td>
</tr>
</tbody>
</table>

... resulting in a pure technology database
(independent from geographical application etc.)!
### Introduction

#### “parent-child relationship“

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!

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#### Technology database

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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!

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!
Thank you!

More information:
ecoinvent Centre
c/o Empa, Lerchenfeldstrasse 5
CH-9014 St-Gallen, Switzerland

support@ecoinvent.org
www.ecoinvent.org