54th Swiss LCA Discussion Forum 'Ecological Scarcity 2013'

Using Ecological Scarcity in Companies

based on the experience
of McDonald's (CH) and other companies

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Typical questions in company environmental management

- 'Where to look for the coin?' (What is relevant? Where to set priorities?)
- How does our environmental performance develop over time? (Eco-controlling)
- How to compare sites, processes, products? (Eco-Benchmarking)
- Where to invest an available budget? (Analyze cost-benefit ratios)
- Where to improve products & services? (Strategy)
Ecobalance and LCA – for which situations?

<table>
<thead>
<tr>
<th>Application of LCA (* = acc. to ISO 14040)</th>
<th>Product view</th>
<th>Organisation view</th>
</tr>
</thead>
<tbody>
<tr>
<td>- *Develop and improve products</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>- *Strategic planning</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>- *Political decision-making</td>
<td>✓</td>
<td></td>
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<tr>
<td>- *Environmental Management</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>- *Communication (Information, PR, Marketing, etc.)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>- *Product Design</td>
<td>✓</td>
<td>(√)</td>
</tr>
<tr>
<td>- Controlling</td>
<td>(?)</td>
<td>✓</td>
</tr>
<tr>
<td>- Comparisons, Benchmarking</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>- Cost-Benefit-Analysis</td>
<td>-</td>
<td>✓</td>
</tr>
</tbody>
</table>
Company or product view

When moving between company and product (or service) view:

What changes in …
- Scoping: What we analyse → life cycle vs. organisation
- Inventory → type of primary data
- Impact assessment? (no change)
- Interpretation? → Management view

Environmental management system EMS ISO 14001
Product versus Company assessment: Scope

Product and Service life cycle (process chains / systems):

- Coffee beans
- Milk
- Packaging Material
- Polystyrene
- Aluminium
- Steel
- Glass
- Injection moulding
- Extrusion
- Pressing & forming
- Forming
- Assembly and transport
- Coffee machine
- Water
- Electricity
- Production of 1000 Espresso macchiati
- End-of-life
- Rinsing

Company (organisation) footprint (based on GHG protocol):

- Sc.1: 'We'
- Sc.2: Electricity
- Sc.3: All other

Similar to ISO 14040 LCA: PAS 2050 (UK GHG-LCA standard)

Similar to GHG protocol: ISO 14064

In the making:
- Water footprint standards
- EU initiatives for organisation's assessment
- Next to older approaches (as e.g. applied in CH)
EcoBalance (env. company assessment) as management tool

Environmental performance data is key for a reasonable orientation of the environmental management. Data in the format of an 'ecoBalance', based on a reasonable single score method, supports oriented decisions:

1. Organisation
2. Environmental assessment
3. Environmental policy
4. Planning: Goals, targets & measures
5. Implementation & operation
6. Controlling and Corrective action incl. Management Review
Environmental Controlling: Annual development

Strong market growth (from ca 75 to 150 restaurants)

Turnover, size & market share developed similarly, therefore .... see below

Calculation:

**Foreground Inventory** = Company energy use, emissions, materials use, etc.

**Background Inventory** = Data of Ecoinvent on the up- & downstream processes

**Impact Assessment** = Swiss Ecopoints of these inventories
Environmental Controlling: specific impact per service

- Environm. Impact Pts. (UBP’06) per GC

- Misc. Material
- Cooling agents
- Waste water
- Solid waste
- Logistics
- Business trips
- Heating
- Electricity
- Toys
- Trsp. packaging
- Sales packaging
Alternative to single score: single issue ...

GHG emissions McDonald's CH 2000-2009 (in 1000 t CO2-eq)

- Cooling Agents
- Waste water treatm't
- Waste treatment
- Materials trsp
- People trsp.
- Fossile
- Electricity
- Miscell.
- Toys
- Product-/Trsp.-Pack'
- Service-Pack'

Carbon balance / Greenhouse gas analysis
  ➔ easy to understand
  ➔ internationally accepted, even based on standards
  ➔ yet only covers one environmental issue
  ➔ useful for an energy/CO2-'oriented' business
Alternatively, a single score quantitative analysis can be used once, or every few years – just to set priorities. Controlling then is done on inventory level, e.g. in a financial service provider, focusing on electricity consumption, travel mileage, fossil heating consumption. Again, the single score result may differ substantially from e.g. a CO2 result.
Setting priorities and controlling in a group structure

Industrial Group: EIP per company (2002/3)

Industrial Group: EIP per process group 2002/3

EcoBalance per Environm. Aspect

UBP 2000  UBP 2002  UBP 2003
Linking company with product / service view (1/2)

At first: company priorities

Mio. EIP’97; Core Balance Canon (Schweiz) Ltd, plus selected additional transport processes

- Business Trips
- Service Cars
- Electricity
- Paper use
- Solid Waste
- Heating
- Transport to clients
- Incoming Trsp. to CH

Source: Environmental Report 2003 Canon (Schweiz) AG
Linking company with product / service view (2/2)

Core Balance 1997 of Canon (Schweiz) AG
- Service cars
- Energy
- Trsp, Waste

Electricity production for running the copiers etc. (1997)
- Installed Copiers, Fax Machines & Printers of Canon (Schweiz) AG

Paper production and disposal (1997)
- Installed Copiers etc. of Canon (Schweiz) AG

Stand by
Reycled Paper

Source: "Umweltbericht 1998/1999 der Canon (Schweiz) AG" und direkte Mitteilung
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Conclusions: Positive Aspects of Ecoscarcity application

- Identify relevances; setting priorities
- Eco-Controlling, analysis of performance over time
- Eco-Benchmarking: Compare sites, processes, products
- Cost-Benefit analysis: Where to invest an available budget
- Strategy: Where to improve products & services?
Conclusions: Where we need to be careful

- Does the company profile match with the weighting method? If major aspects of the company are not covered, application needs to be very cautious. (E.g.: a sports stadium, re its noise and light emissions)

- If processes of the company take place far away from Switzerland, and if no adaptation (such as with fresh water use) is possible, one has to be aware of the fact that the ecofactors still represent the weighting according to the goals of the Swiss environmental policy.

- Updates of the ecofactors, taking place +/- every 5 to 7 years, may of course change relative weights of certain impacts. This however, should be seen as a standard procedure.