Different paths to make LCA more practical

Experiences, conclusions & developments from 15 years of experience in research & consulting

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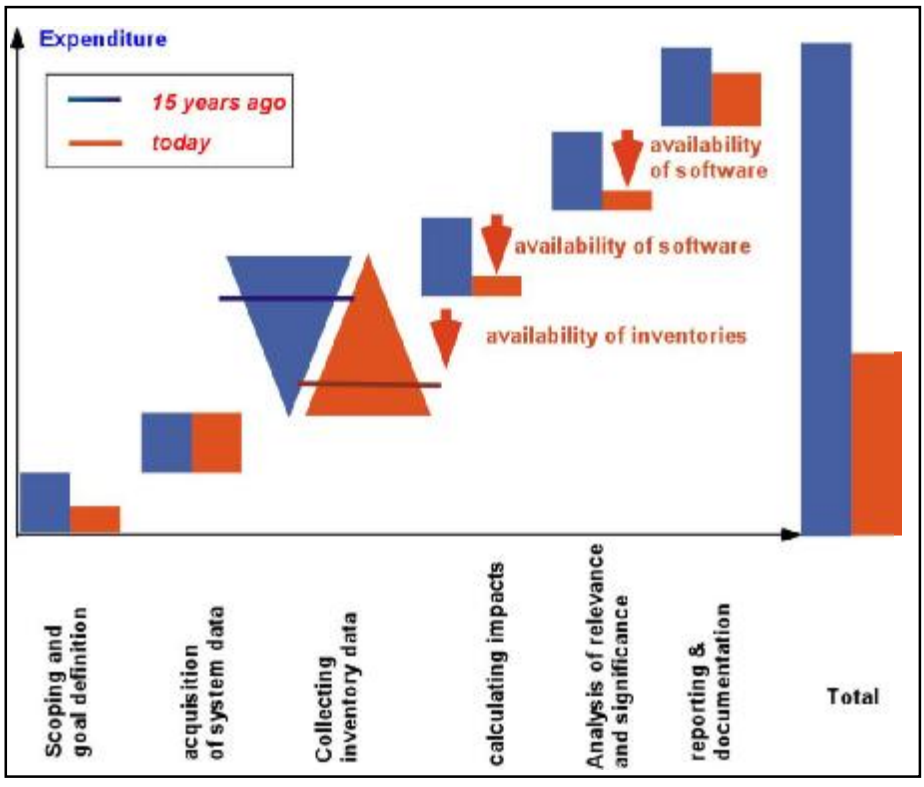
Time needed to performing a LCA 15 years ago and today



For a lot of applications the time needed to perform a LCA has reduced, because of available inventories and software tools.

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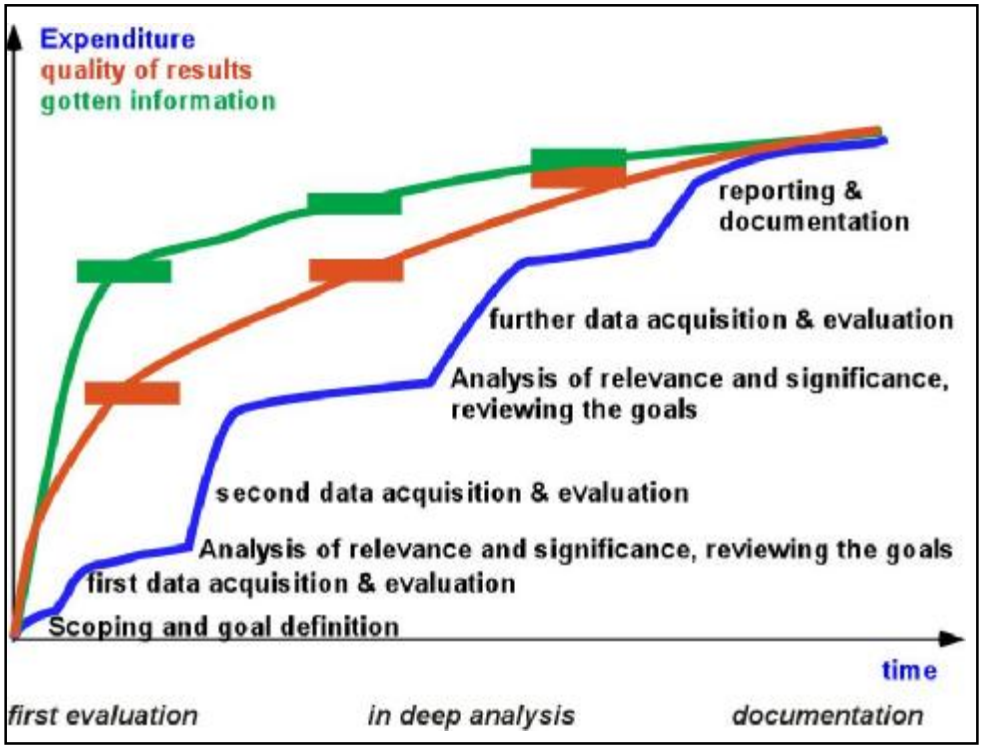
Expenditure in time & quality of results in most LCA projects



In accordance with the rule of Parreto 80% of the information can often be get with 20% of the invested effort, if there is the needed experiences.

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From this one could concluded:
"Today it is easy to perform LCA. The only need is a powerful software and an extensive inventory"

Such a software costs between 6'000 & 12'000 CHF
But the expensive part, is the training and the time to get the know-how, to perform a LCA, to the right use of the inventories and the software.

An in house LCA group can be the right choice for large-scale enterprises performing a lot of LCA

Advantages:
- In house knowledge
- Short ways for decisions
- Prompt action
- No problems with confidentiality
- flexibility

Disadvantages:
- Expensive
  - time to perform the LCA,
  - time for education and training
- Acceptance outside the company can be low

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For those not having an in house LCA group, we have developed different solutions according to their needs

From time to time a good base for decisions

- development,
- investment,
- purchase,
- marketing,
- ……

Quick answer to standardised questions

- development,
- purchase,
- evaluation of variants
- ……

Controlling in an environmental management system.

- decisions,
- investment,
- controlling,
- communication,
- ……

BasicLCA*compare*© or BasicLCA*analyse*©

Outsourcing the in house LCA group

Specific excel tools like:

Eco-tool Expo 02
Elena waste water treatment plants

Development of key figures:

based on the results of a **BasicLCA*analyse*©** or an **AdvancedLCA*analyse*©**

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BasicLCA© & AdvancedLCA©

Because of our experience and the standardized procedure, it can be performed for low prices.

BasicLCA*compare*© (**€ 2'000.-** excl. additional options) *&* **AdvancedLCA*compare*©**
Compares two products, processes, variants, companies, etc. concerning environmental impact

BasicLCA*analyze*© (**€ 3'000.-** excl. additional options) *&* **AdvancedLCA*analyze*©**
Analyzes a product, process, variant, company etc. for sources of relevant environmental impact

Low Cost does not mean low Quality

Also BasicLCA & AdvancedLCA will be checked by an internal review process:

Our internal review is an on going process:

- **Starting when the order is given to perform an LCA**
- **When the first rough results are calculated**
- **When the results are calculated**
- **On the report and documentation**

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Review process in LCA projects by Carbotech

1. preliminary discussion

Checklist

System bou

Functional u

Allocation:

General con

Procedure d

Selection of

Discussion o

2. Review Calculations

Documents for the LCA-review given to the reviewer:

¨ Input d

¨ Printou

¨ Printou

¨ Printou

¨ Printou

The review

Re-check che

Understandi

Check the pl

Plausibility c

Current prin

3. Review report

Documents for the LCA-Review given to the reviewer:

¨ Copy of the report

¨ Copy of proposal / order

¨ Printout analysis

¨ Printout

¨ Docume

Consistency

Check the r
orthograph

Re-check pr
especially c

Critical test
recommend

4. Final review

Documents for the LCA-Review given to the Reviewer:

¨ Copy final document

¨ Documentation of the changes since last review

Re-check previous review remarks especially changes in the LCA	¨ OK à
Review-signature on the original document:	¨ OK à

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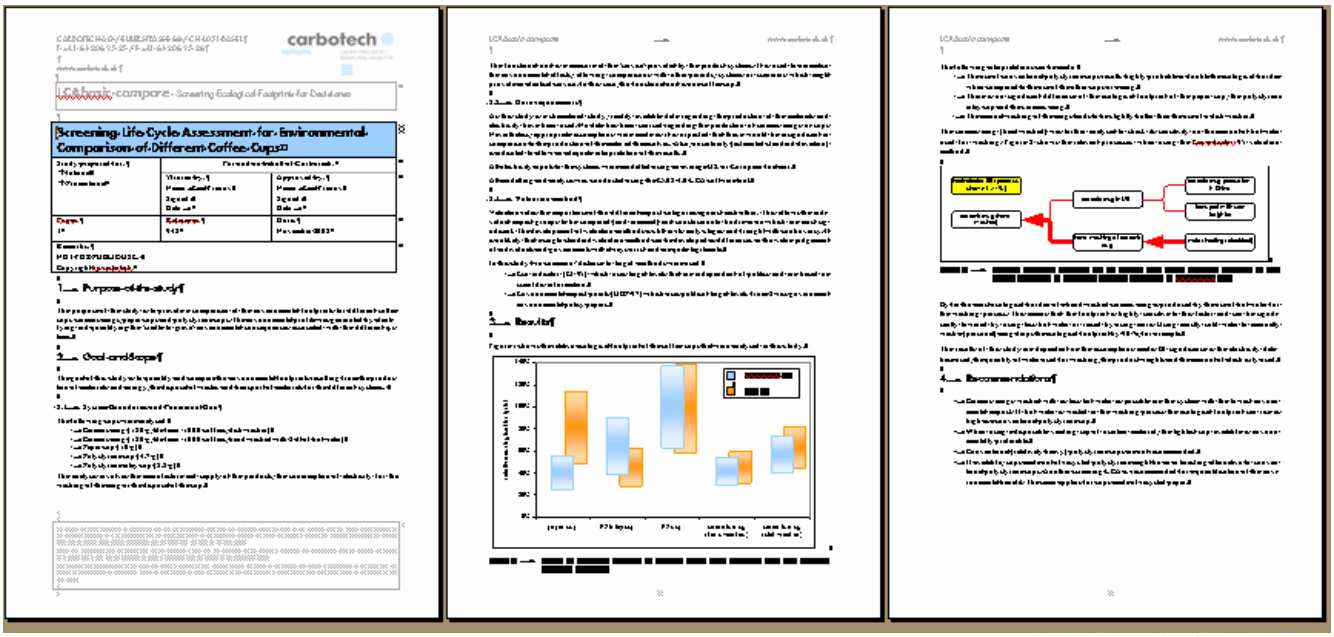
BasicLCA: a sound decision base

Example of a short report



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BasicLCA© & AdvancedLCA©

Our costumers appreciate this offer to get the experience of 15 years in the field of LCA for a very good price.

We have performed dozens of studies in the last years for example for:

Waste water treatment plants	• Use of rotten gas	Public agency
	• disposal of sewage sludge	WWTP
Construction	• Bridge constructions	Engineer comp.
	• Evaluation of office buildings	Bank
	• Construction of shopping centre	Int. furniture group
	• Production of insulation material	Manufacturing Comp.
Consumer goods	• Paper production	Distributor
	• recyclable plastic cups and disposable cups	Public agency
	• Coffee machines	Int. food group
Transport	• Textile cleaning systems	Distributor
	• Transportation of construction materials	Construction comp.
Production Agriculture	• Transportation of construction waste	Construction comp.
	• Production of mineral and organic lenses	Producer of optical lenses
	• Plant production	Swiss agency
Energy	• District heat	Public agency
	• Renewable energies	Swiss agency

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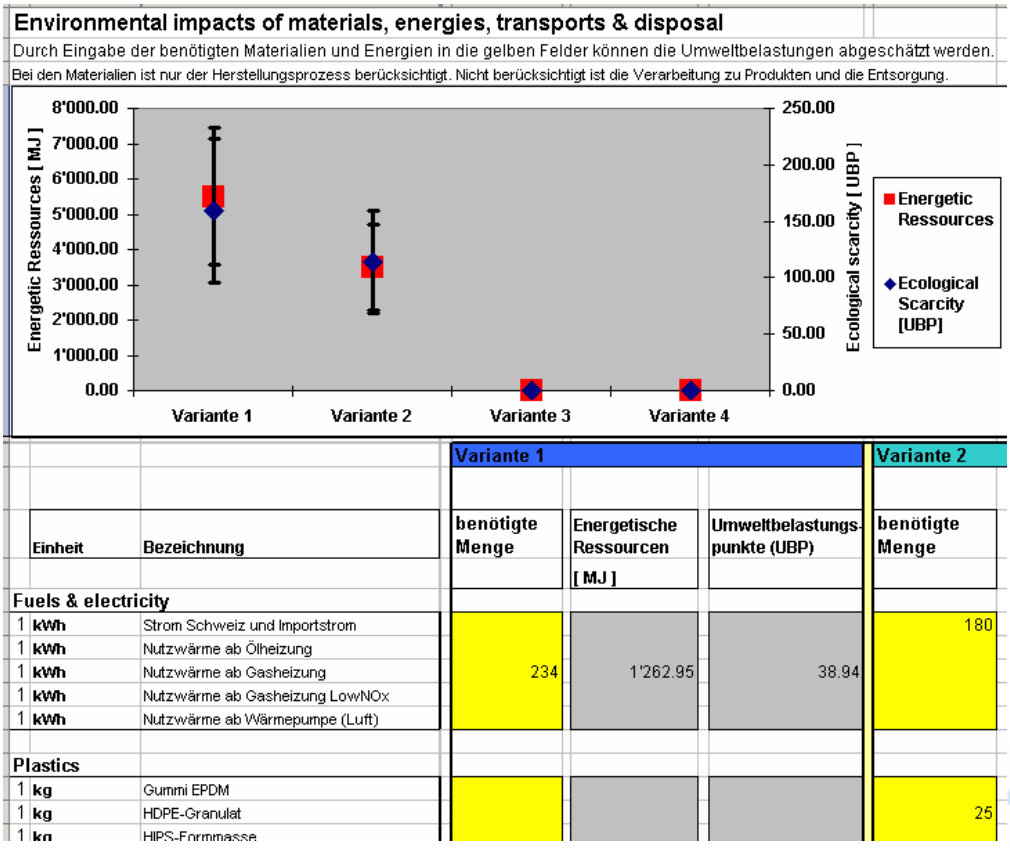
Tools based on Excel



Used in the **project planning** to detect the relevant impacts and to evaluate alternatives.

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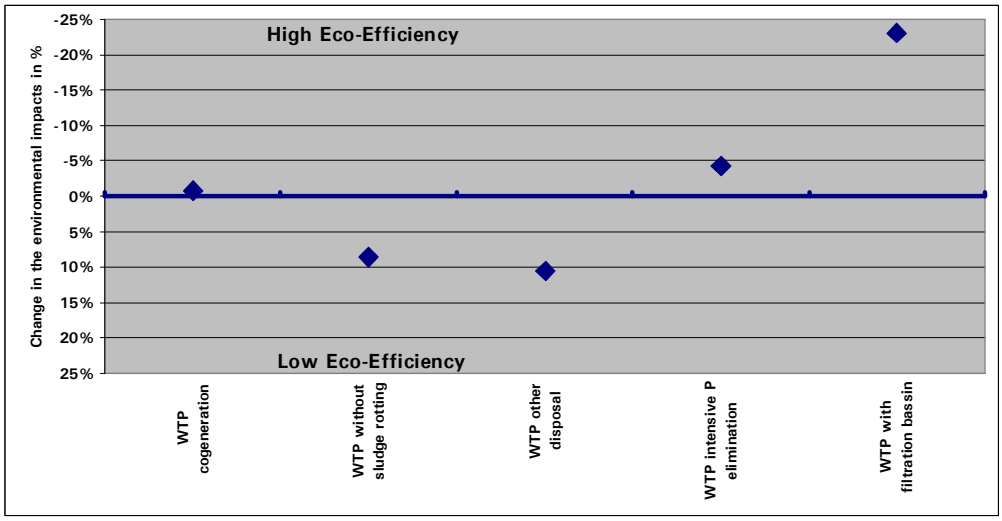
Eco-Efficiency of waste water treatment plants

Input: Main parameter of a WWTP, like
energy consumption, reduction of loads in the water, quality of rivers and lakes, technology used

The results can be used:
- Benchmarking with other WWTP
- Determine the relevant impacts
- Evaluation of reduction potentials and techniques



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Summary

According to your needs there are different possibilities:

Large-scale enterprise with ecology as a strategic target:
In house LCA group equipped with today's tools.

Sound decision base on a high quality level for a good price:
BasicLCA© or **AdvancedLCA**©

Quick tool for standardized question in the project planning or development:
Adapted **tool based on Excel**

Environmental management system
Key figures evaluated with a **BasicLCA**© or **AdvancedLCA**©

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