Different paths to make LCA more practical

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

Lecture by:

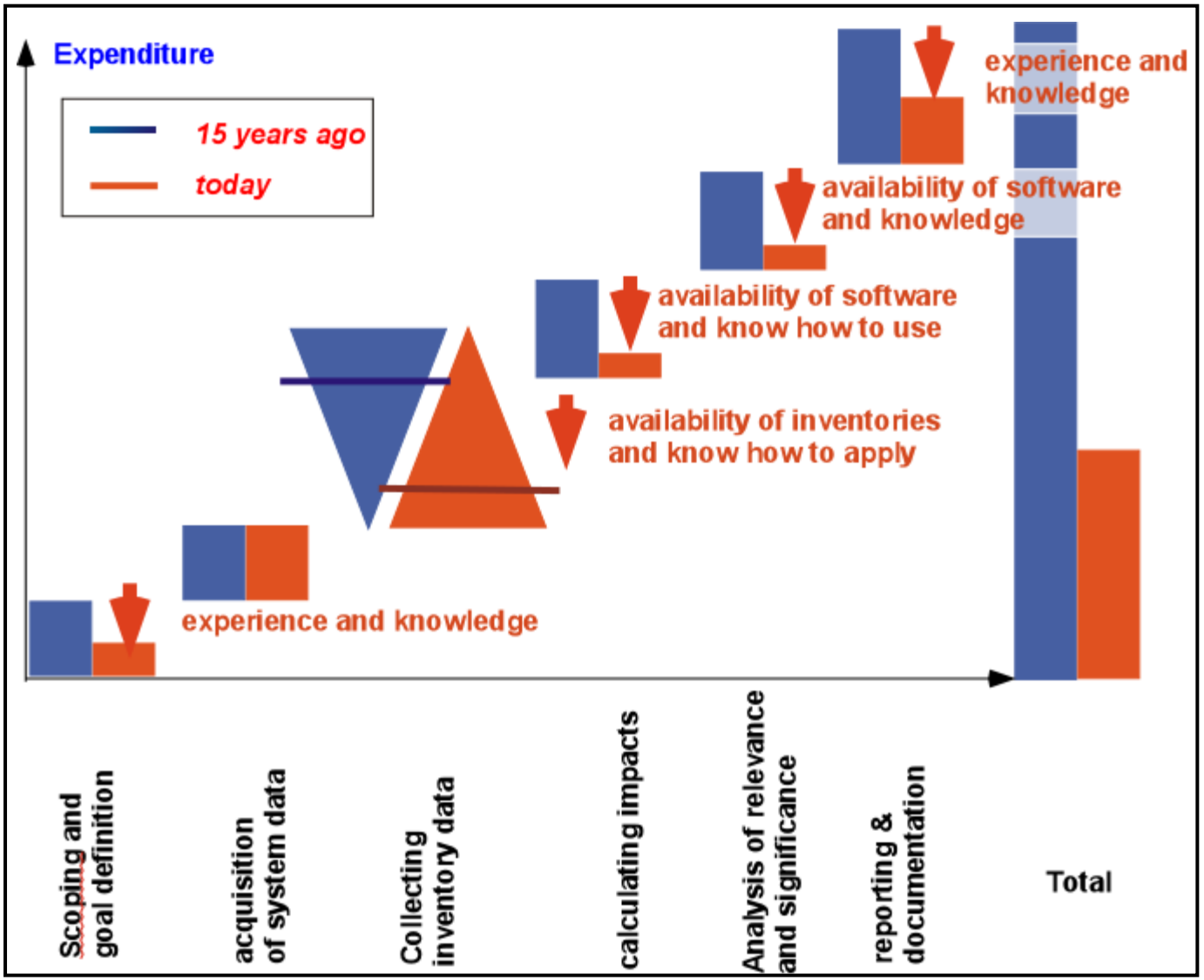
Dr. Fredy Dinkel, Carbotech Inc., Basle

f.dinkel@carbotech.ch

carbotech

UMWELTPROJEKTE/
BERATUNG/ANALYTIK

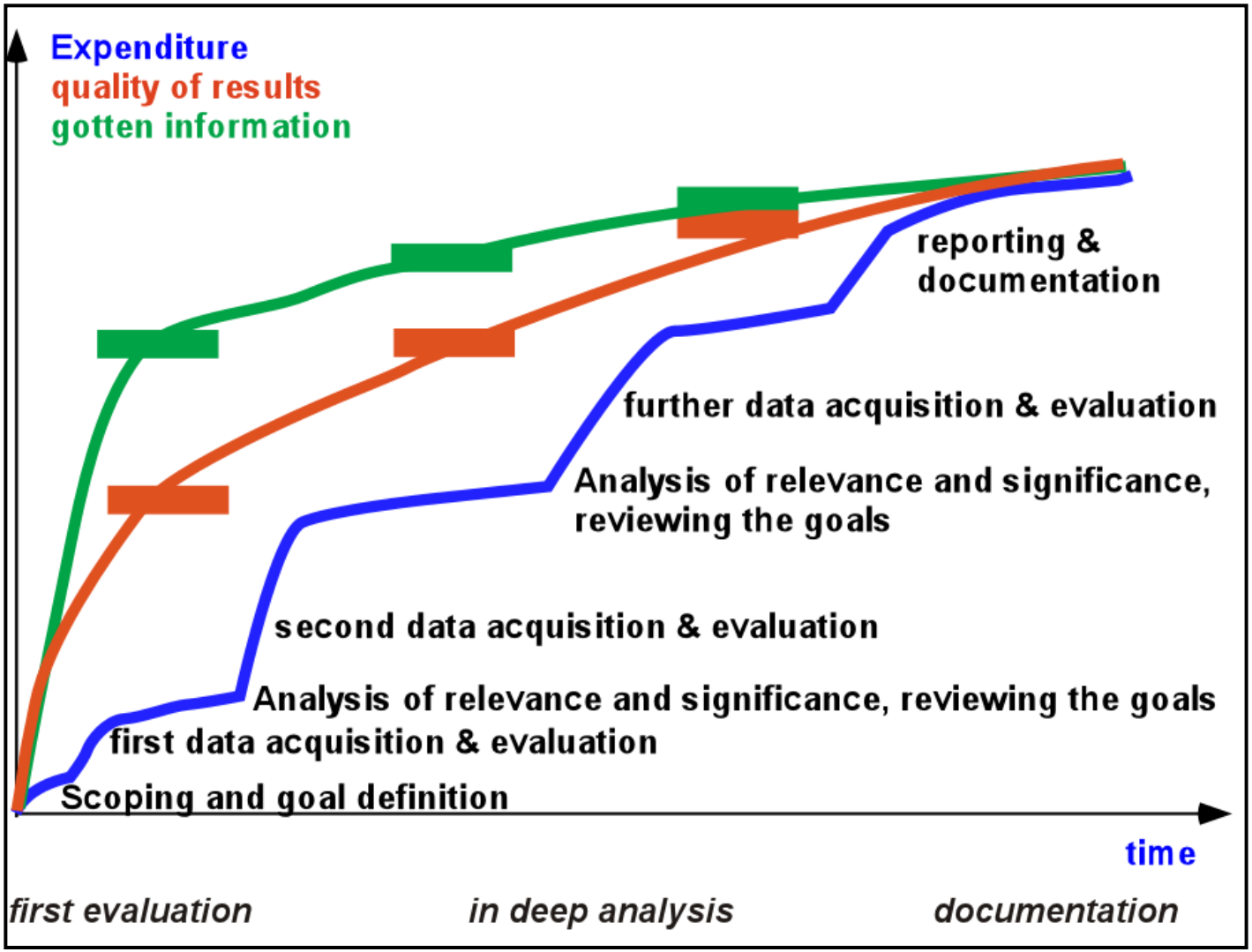
Time needed to performing a LCA
15 years ago and today



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

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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.

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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 experience and know-how, to perform a LCA, the adequate 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**

A lot of experiences are needed

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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,
- ……

BasicLCA*compare*© or BasicLCA*analyse*©

Outsourcing the in house LCA group

Quick answer to standardised questions

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

Specific excel tools like:

Eco-tool	Expo 02
Elena	waste water treatment plants

Controlling in an environmental management system.

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

Development of key figures:

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

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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

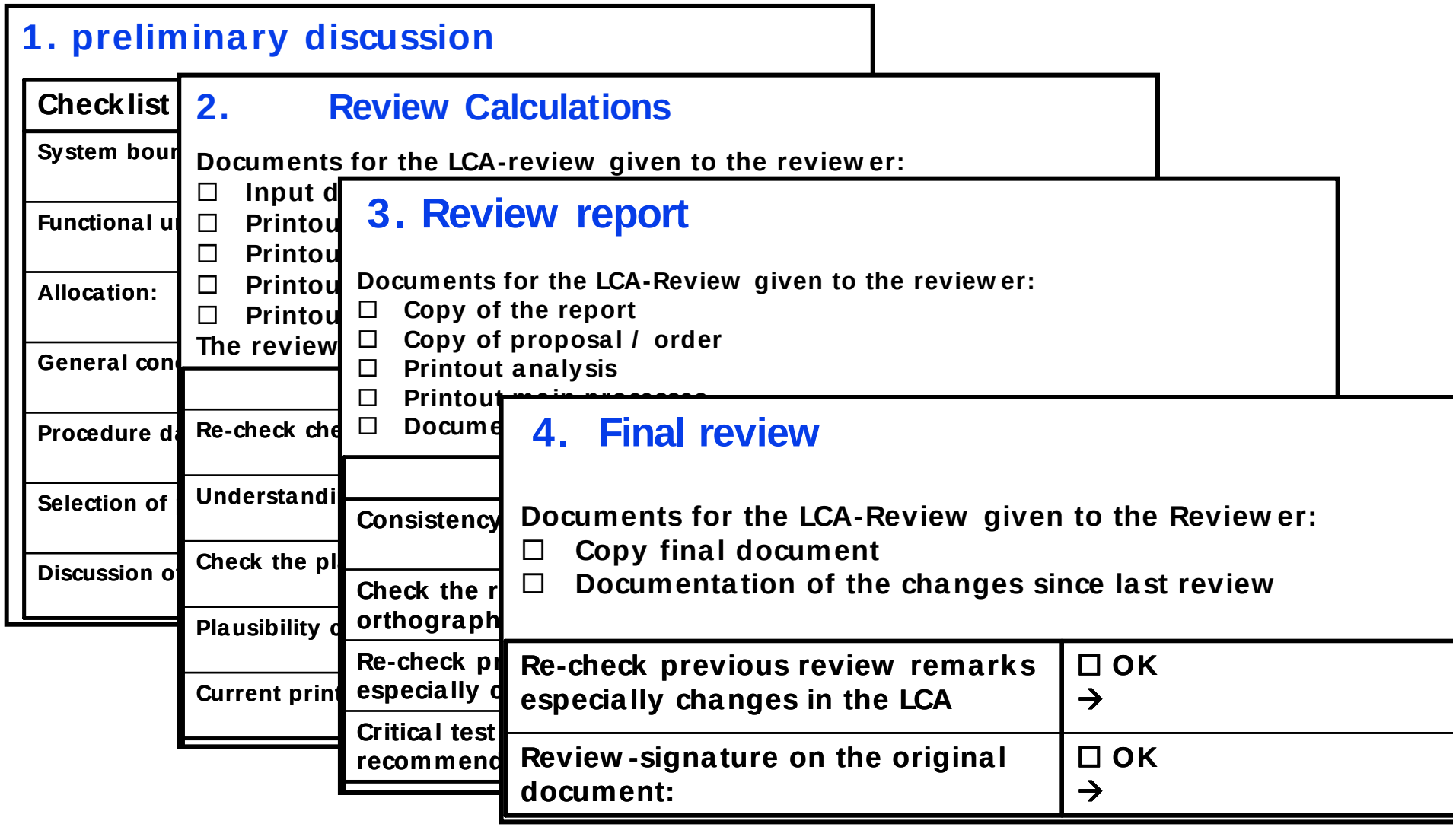
Also BasicLCA & AdvancedLCA will be checked by an internal review process:

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**

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

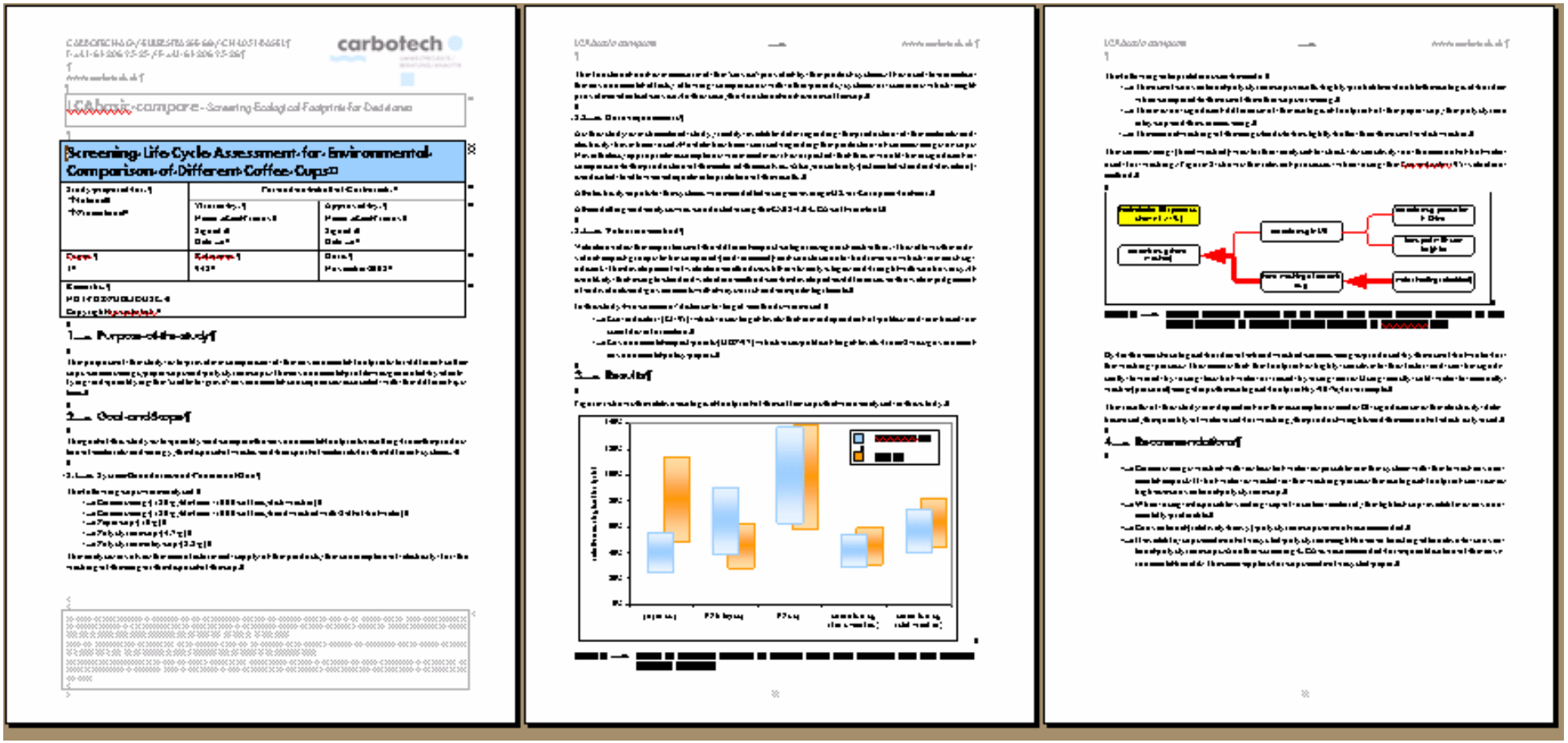
Review process in LCA projects by Carbotech



carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

BasicLCA: a sound decision base

Example of a short report



carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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 some 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
Consumer goods	• Production of insulation material	Manufacturing Comp.
	• 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	• Transportation of construction waste	Construction comp.
Agriculture	• Production of mineral and organic lenses	Producer of optical lenses
		Swiss agency
Energy	• Plant production	Public agency
	• District heat	
	• Renewable energies	Swiss agency

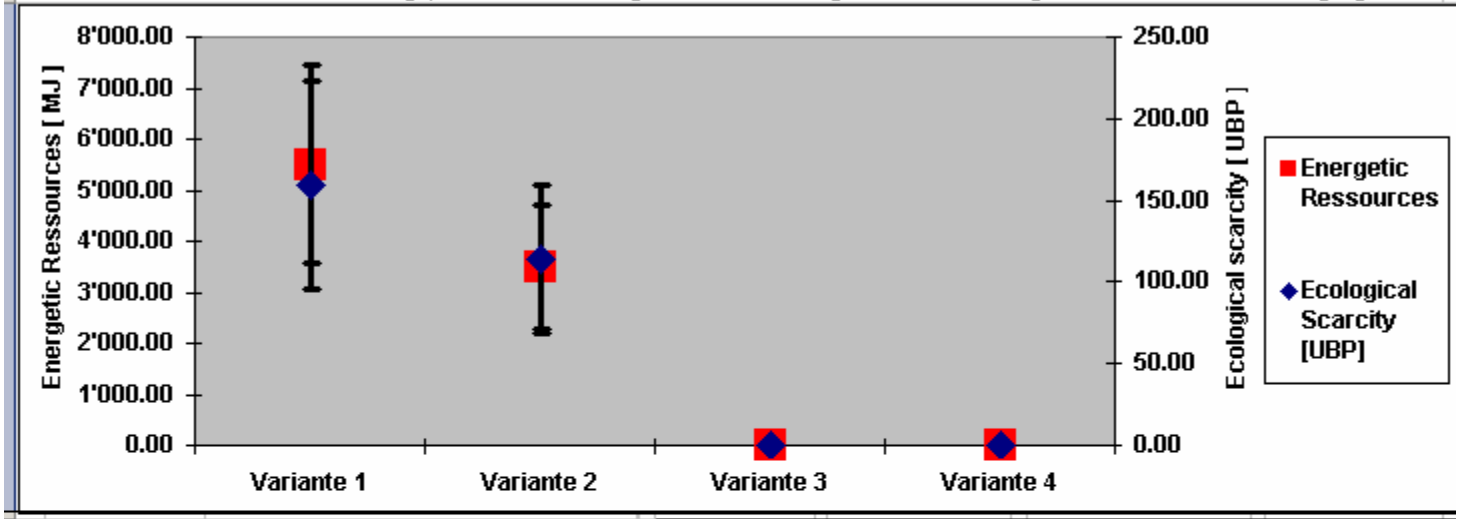
carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

Tools based on Excel

Environmental impacts of materials, energies, transports & disposal

Durch Eingabe der benötigten Materialien und Energien in die gelben Felder können die Umweltbelastungen abgeschätzt werden.

Bei den Materialien ist nur der Herstellungsprozess berücksichtigt. Nicht berücksichtigt ist die Verarbeitung zu Produkten und die Entsorgung.



			Variante 1			Variante 2
	Einheit	Bezeichnung	benötigte Menge	Energetische Ressourcen [MJ]	Umweltbelastungs-punkte (UBP)	benötigte Menge
Fuels & electricity						
1	kWh	Strom Schweiz und Importstrom	234	1'262.95	38.94	180
1	kWh	Nutzwärme ab Ölheizung				
1	kWh	Nutzwärme ab Gasheizung				
1	kWh	Nutzwärme ab Gasheizung LowNOx				
1	kWh	Nutzwärme ab Wärmepumpe (Luft)				
Plastics						
1	kg	Gummi EPDM				
1	kg	HDPE-Granulat				25
1	kg	HIPS-Formmasse				

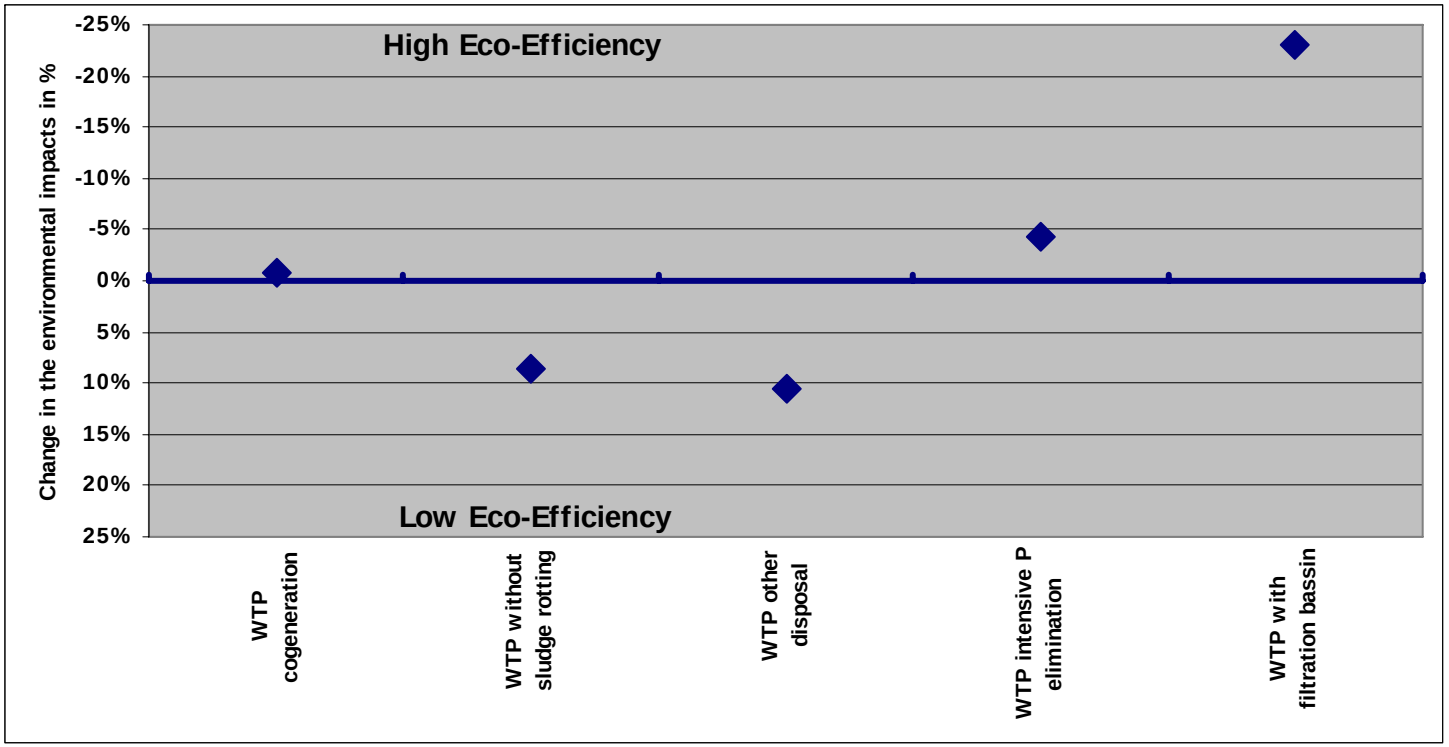
Used in the **project planning** stage (eco design) to detect the relevant impacts and to evaluate alternatives.

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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



carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK

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**©

carbotech
UMWELTPROJEKTE/
BERATUNG/ANALYTIK