



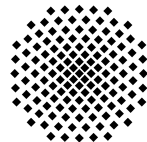
Social LCA – Requirements and Needs

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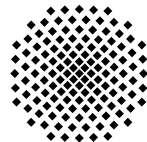
Contact:

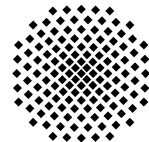
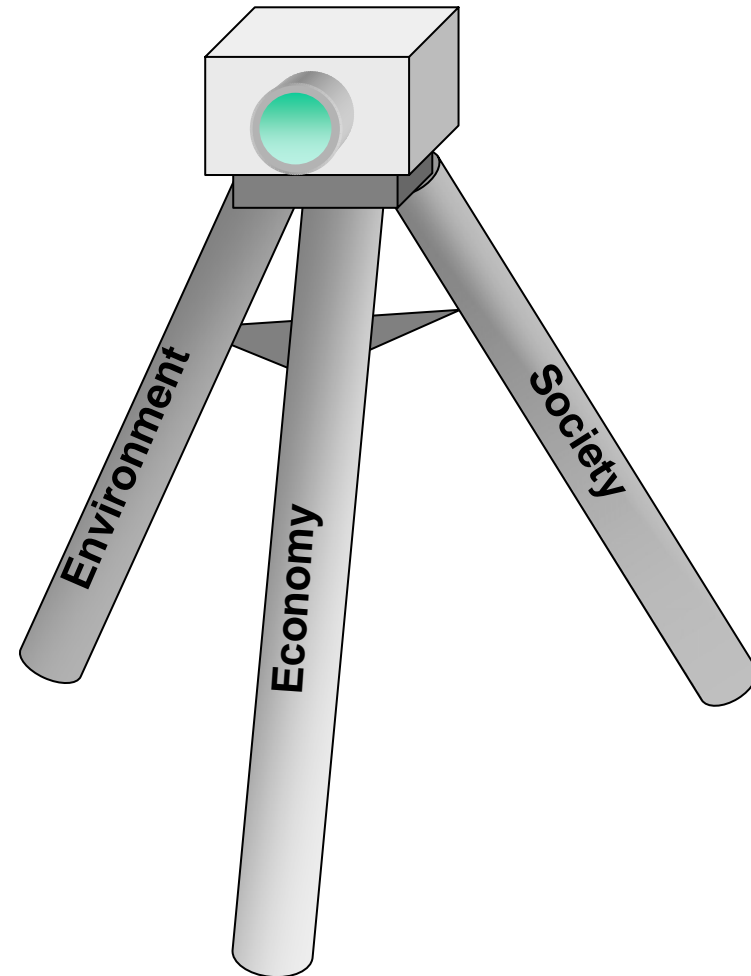
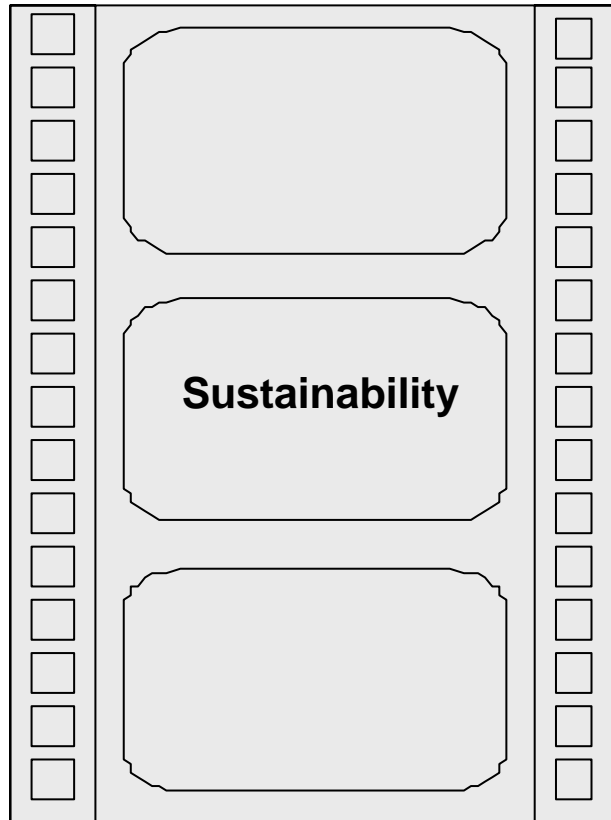
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- Motivation
- Requirements for Social Indicators
- Requirements for Social LCA
- Methods available
- LCWE Approach
- Conclusions and Outlook







Relevance and Consensus

The social goals should have an actual social relevance and a broad international consensus. If necessary, they should allow for inclusion of other societal or cultural values. They are not necessarily measurable (e.g. corporate policy).

Impartiality

The indicators and their ascertainment should be impartial and revisable.

Comparability of targets and indicators

The goals and indicators should be comparable in an international context and between different branches of industry.

Understandable and useable

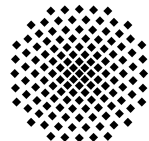
The indicators should be clear, comprehensible and easy to handle.

Temporal stability and time series

The calculation of the social indicators should be repeatable for other years, too; which means that time series show the actual changes.

Data availability and effort

The data collection should be viable under justifiable time and work effort.





Measurable value

The indicator should comprise a quantitative measure in order to be aggregated over the whole life cycle.

Pertinence of indicator sum

The sum of the indicator values of all processes of one site, company, industrial sector or country should accurately describe the overall situation.

No Overlap

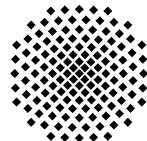
There should be no overlap between the different indicators to avoid double counting and therefore overvaluation of single effects.

System boundaries, cut-off criteria, reference system

They are chosen in accordance with the ISO 14040 ff (**CEN 1997**) whereas the “environmental relevance” is substituted by the “social relevance”.

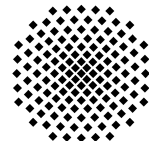
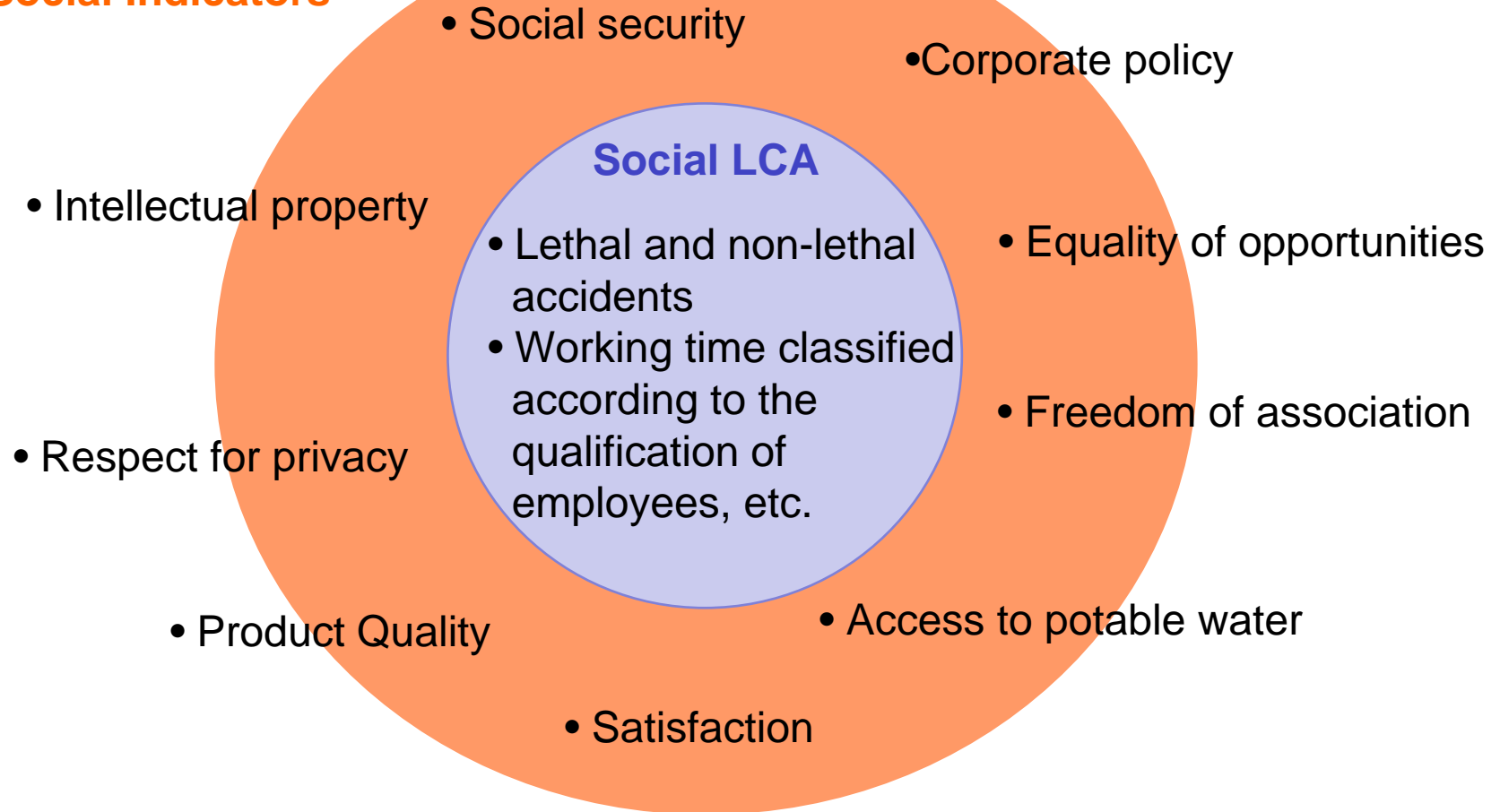
Product/Process-relatedness

The goals and indicators should have a direct relation to products or processes or should facilitate to be related to them.



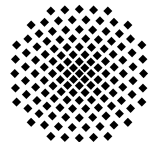


Social Indicators





- All Social LCA indicators belong to the available social indicators, but not all social indicators fit into the Social LCA frame. Indicators for Social LCA just cover part of all socially relevant problems.
- In order to give a complete picture of the reality, a combination of both sets of requirements, social and LCA, is needed. Only in this way, we assure that relevant social impacts related to the product/system under study are considered properly.
- A consensus on the most relevant social indicators should be reached.
- If relevant social indicators seem not to fit directly into LCA frame, a way should be found in order to integrate them.
- A proper unit that fulfills both requirements of social impacts and LCA goals should be chosen.
- In this sense, an interesting approach was presented by LCWE Method, in which different categories were brought into working seconds/product.





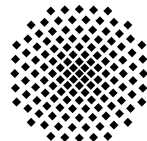
Assumptions:

Within an industry sector (with similar types of processes):

- Social impacts of a process-step are proportional to the amount of human work carried out
- The amount of human work carried out is proportional to the added value of the process-step
- Only the number of employees is not an indication of the amount of work carried out, since employees have different working contracts (full-time job, part-time job, shift, etc.) and different countries present different working time. The amount of work is obtained by the relation between number of employees and the production hours for the manufacture of a certain product.

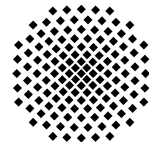
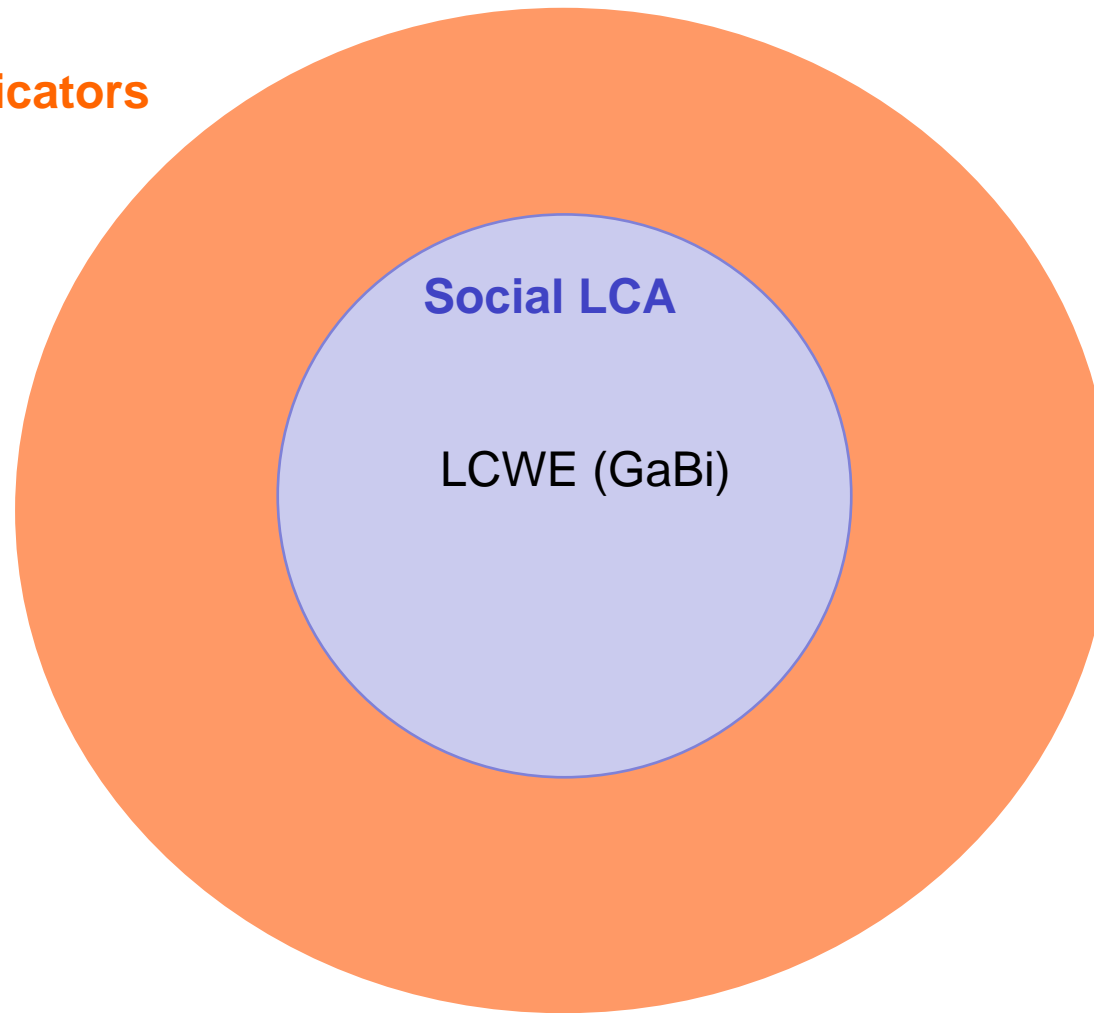
Approach:

- Statistic data on the level of industry sectors is prorated to single process-steps by relating it to the added value of that process step
- Social categories are measured in *working seconds per process*





Social Indicators

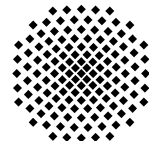




Qualified Working Time - QWT

- Paid working time (=base indicator)
- Qualification profile of work
- [Vocational training]
- [Contract periods, dismissal protection]
- [Minimum wage]

[] = Difficult to implement quantitatively

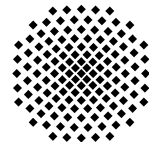




Health & Safety of Working Time - HSWT

- Lethal accidents at work
- Non-lethal accidents at work
- [Hazardousness of work (noise, dust, heat, chilliness, hazardous substances (MAC), odor, etc.)]
- [Work-related diseases]

[] = Difficult to implement quantitatively

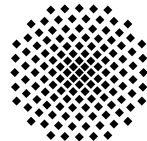




Humanity of Working Time - HWT

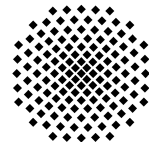
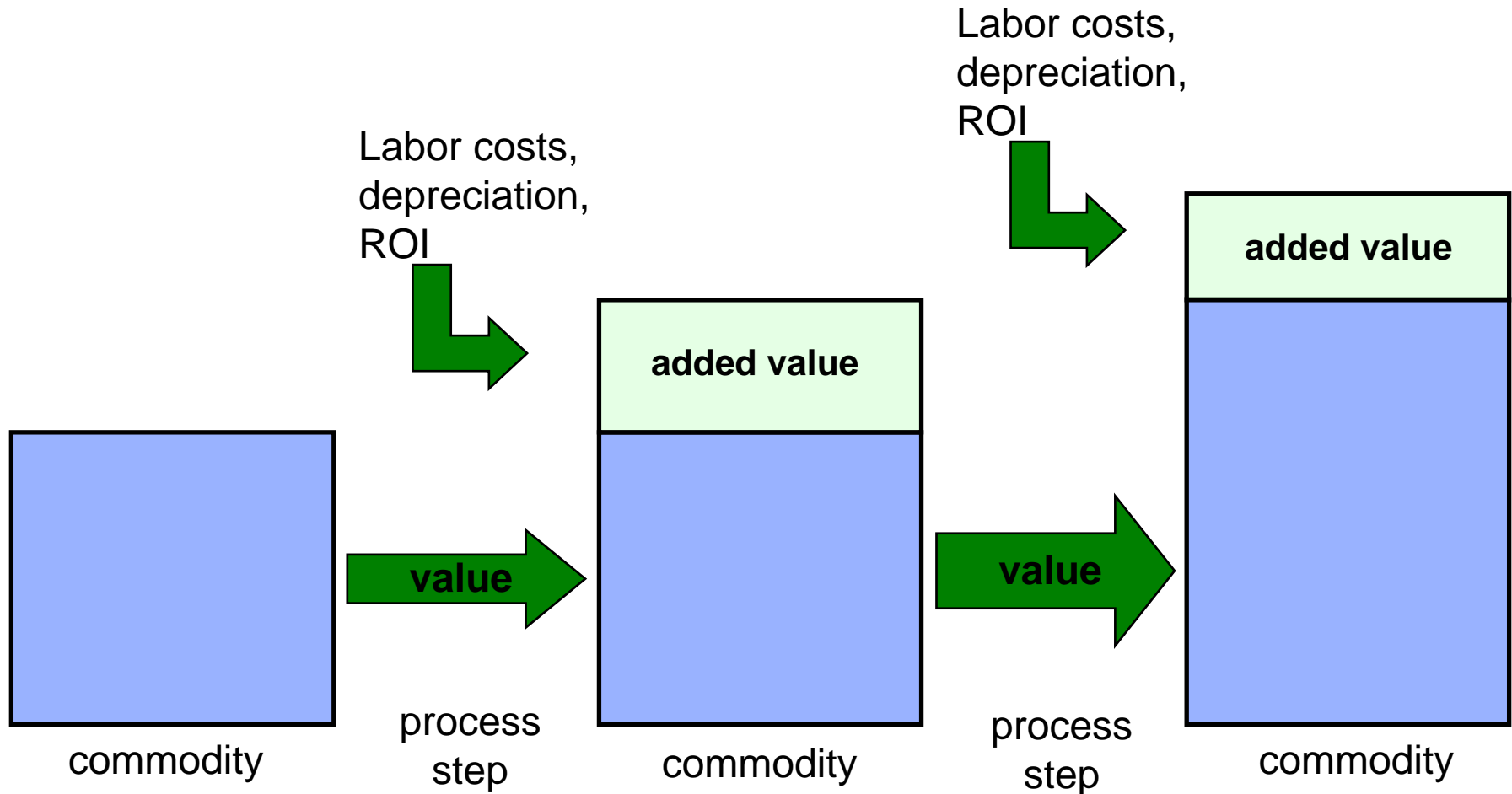
- Prohibition of hazardous child labor
- Prohibition of child labor
- Prohibition of forced labor
- Equal right to work independent from sex, race, national origin, religion, color of the skin, handicap etc.
- Same wage for men and women doing the same work
- Actual share of female labor
- Right of labor union and bargaining
- [Breaks, daily and weekly maximum working time], [Flexibility of working time], [Participation culture und opportunity of promotion], [Satisfaction of the employee]

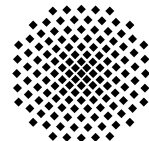
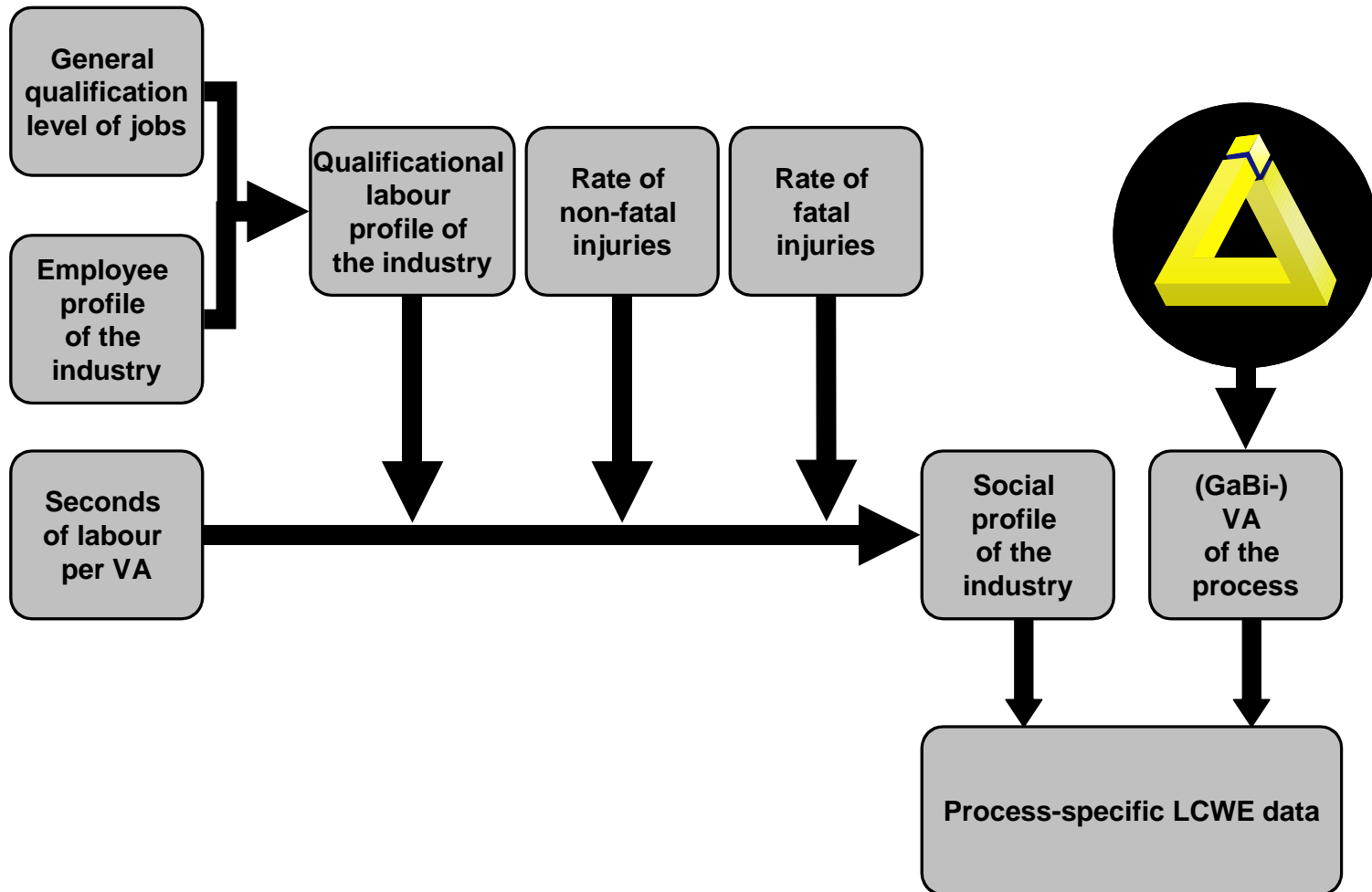
[] = Difficult to implement quantitatively



From sector data to single processes' seconds of work

Value added to each process step sum up along the product's life cycle





Implementation of the LCWE into software GaBi 4

Detail



RER: Glucose from corn [Processes] -- DB Process

Object Edit View Help

Name: RER Glucose from corn

Parameter

LCA LCC: 0 € LCWT

Alias/factor: 1 Comment: The data was generated from statistical data of the industry branch "Industrial Organic Chemicals". An added value of 0,0387 Euro was assumed for this process.

Year: 2004

Completeness: All employees considered

Qualified working time (QWT): Defaults

Flow	Quantity	INTERNAL	Unit	Standard	Origin	EXTERNAL	Unit	Standard	Origin
GQL A	Working time (LCWT)	0,13171	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
GQL B	Working time (LCWT)	0,14531	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
GQL C	Working time (LCWT)	0,18849	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
GQL D	Working time (LCWT)	0,51171	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
GQL E	Working time (LCWT)	0,082478	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
Total	Working time (LCWT)	1,0597	Seconds worked	-	-	0	Second	-	-

Health and Safety (HSWT): Defaults

Flow	Quantity	INTERNAL	Unit	Standard	Origin	EXTERNAL	Unit	Standard	Origin
Lethal accidents	Number (LCWT)	7,4752E-12	Cases	0 %	(No statement)	0	Cases	0 %	(No statement)
Serious non-lethal accidents	Number (LCWT)	5,5928E-9	Cases	0 %	(No statement)	0	Cases	0 %	(No statement)
Unhealthy labour conditions	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)

Humanity of working conditions (HWT): Defaults

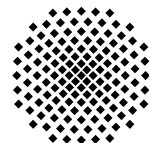
Flow	Quantity	INTERNAL	Unit	Standard	Origin	EXTERNAL	Unit	Standard	Origin
Hazardous child labour	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
Child labour	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
Forced labour	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
No right to organise	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
No collective bargaining	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
Discrimination in job access	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
Unequal remuneration	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)
Actual women employment	Working time (LCWT)	0	Seconds worked	0 %	(No statement)	0	Second	0 %	(No statement)

The methodology for LCWT and the software implementation was financially promoted by EC. Projectnumber QLRT-1999-01298

System: Changed. Last change: System, 12.08.2004 11:12:20

The LCWE functionality is implemented since 2003

The LCWE database is presently build up to be made available around beginning of 2007



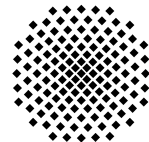


Advantages:

- Requirements for Social LCA are fulfilled and data are process-related.
- Processes/systems can be compared in terms of social impacts.
- Already included in software functions, together with LCA and LCC
- Method for establishing data collection is suggested.

Difficulties:

- Statistics from different countries have different structure.
- Important social indicators, specially non-quantifiable ones, are not taken into consideration, e.g. quality of work, product satisfaction, etc.
- Method for collection of data for HWT categories is still unclear.
- Foreground data (direct data collection) would not be viable in terms of time and effort at the moment.



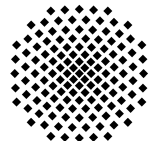


General:

- Social aspects should be integrated into sustainability assessment of products
- Many important social aspects can be quantitatively assessed along product's life cycle
- Integration with existing product life cycle models provides efficient starting point for database build-up
- Social indicators should be chosen according to the specific social needs and then adapted to the LCA frame. It should not be the LCA that dictates the rules for the choice of social indicators.

Social LCA:

- Certain social aspects cannot be quantified or added up along the life cycle – qualitative inclusion is to be foreseen in discussion of results
- Database with background data (following the above named approach) is required to efficiently start work; consistency with foreground data (collected directly at process) has to be guaranteed methodologically
- Integration of sector-based data with process step data in product life cycle model yields sufficient quality of results while being affordable - link via added-value is the key.





Thank you very much for your time and attention !

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