

# Critical Peer Review (CPR) - strengthening the practitioner

The general goal of a critical review is to guarantee a minimum quality (scientifically, technically) and consistency with the international standard, see 1 and 2. Very often the CPR is understood as a surveillance to detect errors and to do an administrative ISO check. However I think that the main goal should be to strengthen the practitioner and thereby to increase the quality of the study. Based on my experience of the last years I want to stress on three points to better explain my point of view.

## Strengthening the practitioner

In the case that the commissioner of a study comparing the products A and B is the producer of product A, the most important question of the reviewer should generally be:

**"Would results and conclusions of the study be the same if the study had been performed by the producer of product B?"**

The answer is crucial for the objectivity and the credibility of the study, which are very important for the commissioner. Moreover this shows the role of the reviewer to strengthen the practitioner especially if the results of the study are not according to the expectations of the commissioner.

## Being a sparring partner to the practitioner

LCA step		Type of uncertainties	How to deal with it
Goal and scope	Functional unit, system boundaries, used method	uncertainty, fuzziness	Reviewing, Scenario analysis
inventory	System boundaries, allocation process specific, quality of data, error in measurements	fuzziness inaccuracy	Reviewing, Scenario analysis documentation and calculation of errors
Impact assessment	System boundaries: choice of the impacts, uncertainty of impacts	uncertainty, fuzziness, inaccuracy	Reviewing, Scenario analysis documentation and calculation of errors
Valuation	social-political	uncertainty	Reviewing, using different methods

The environment is a complex system. Hence the evaluation of products or services using LCA, despite the software tools and databases, is a challenging job especially because there are different types of uncertainties to take into account.

**Uncertainty** level of decisions  
There is no true or exact value

**Fuzziness** level system, model and data  
Perhaps there is a true or exact value but even with a extensive effort it cannot be evaluated or the transitions are fluent.

**Inaccuracy** level of data (systems, models)  
There exists a true value. It is just a matter of expenditure to evaluate it.

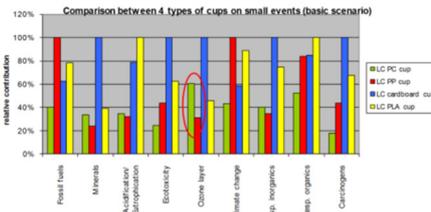
In every step there are uncertainties and / or fuzziness. Appropriate decisions have to be taken and discussed with a reviewer. So a helpful review process must be accompanying the LCA project.

The duty of the reviewer is not only to do an "administrative ISO check" but to be a discussion partner doing the following:

- Evaluating the magnitude of the results; it can be helpful to let someone do it who is not being absorbed within the details.
- Finding and discussing the relevant decisions; in every LCA there are uncertain decisions to take, while there is no clear true or false, e.g. choice of electricity mix, allocation procedures, valuation and interpretation steps etc.
- The reviewer has to find out if the relevant scenarios have been carried out in order to examine the significance of the results.
- In order to show the significance of the results, he should also check if the uncertainties due to inaccuracy are calculated or at least estimated and reported.

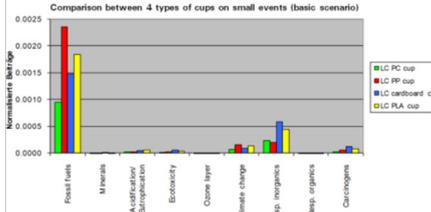
## Detecting significance

In the norm the term significance is mentioned dozens of times and examples are given in the annex to identify the significant issues, especially concerning LCI. On the level of LCIA and their interpretation, a weighting as significance analysis is often not done though, because according to the norm, weighting shall not be used in comparative LCA studies intended to be disclosed to the public, see chapter 4.4.5 of 1. The following example of a peer reviewed study comparing reusable and disposable cups - one being a bio plastic - shows that this could lead to misinterpretations.



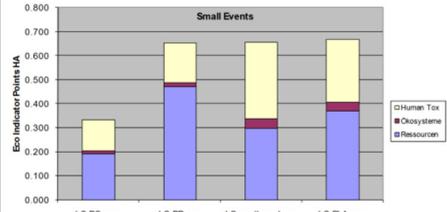
**Comparison between 4 types of cups on small events (basic scenario)**

Legend: LC PC cup (blue), LC PP cup (red), LC cardboard cup (green), LC PLA cup (yellow)



**Comparison between 4 types of cups on small events (basic scenario)**

Legend: LC PC cup (blue), LC PP cup (red), LC cardboard cup (green), LC PLA cup (yellow)



**Small Events**

Legend: Human Tox (white), Ecosystem (red), Resource (blue)

*The authors wrote: "It can be concluded that none of the cups systems has the highest or the lowest environmental score for all environmental damage categories considered in the study."*

*Doing the normalization step leads to another conclusion.*

*An adequate weighting method would have shown that they did not take into consideration the relevant impact for bio plastics "land use".*

Because of the limitation given by the norm, it is recommended to the reviewer to check the magnitude of the results and their significance by using one or two single score methods even if these results are not given in the report. But they can be used to interpret the impact assessment in showing the significance on a well-defined and transparent way. Hence the reviewer should be experienced with these methods.

A good CPR is not a nit-picking audit but a pragmatic process focusing on the relevant points and taking a part of the responsibility. This will enable the review process to be cost efficient as well.

1. ISO 14'044: Environmental management — Life cycle assessment — Requirements and guidelines, 2006
2. ILCD Handbook: Review schemes for Life Cycle Assessment, JRC, 2010

