# Interrelationship between True Cost Accounting (TCA) and Life Cycle Analysis (LCA) for the reduction of environmental impacts

**Dr. Ulrike Eberle**

**True Cost Accounting as a Tool for Food Systems Transformation under Climate Change Conditions**

Sharm El-Sheik, 15 November 2022

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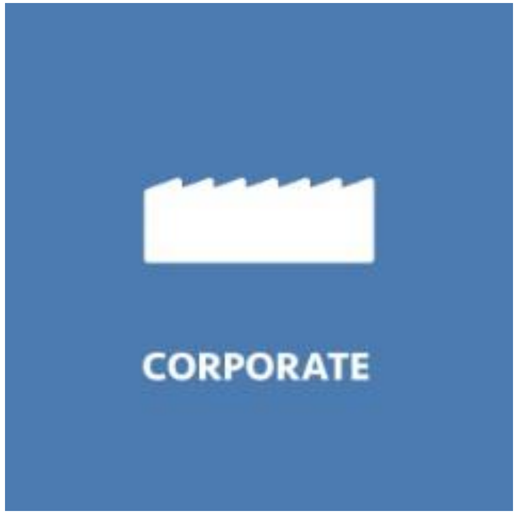



*„We are enthusiastic about making value-oriented changes and inspiring you to embrace sustainability."*

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# corsus - references

*„corsus has been advising us competently on all sustainability topics for many years and always brings the latest findings into the consultation on our sustainability strategy. "*

Ralph Beranek, Executive Director, Seeberger GmbH

*„Your expert opinion is extremely helpful for us and has definitely given us a few "aha" moments. We will be happy to use your advice again "*

Marie Wendling, Sustainability Manager, Danone D-A-CH

*„The accompanying critical review and the well-founded life cycle assessment expertise of corsus greatly support us in integrating life cycle assessments into our enterprise resource planning system."*

Urban Buschmann, Head Sustaianbility & Packaging Development, FRoSTA AG

*„corsus helped us a lot with the conceptualisation and management of the entire project. Especially the structured approach, the professional moderation of the workshops paired with expertise in municipal processes and sustainability management help us to successfully implement the model project and to fulfil the mandate of the policy."*

Arno Frost, Head of the Budget Department in the City of Kiel's Treasury and Tax Office

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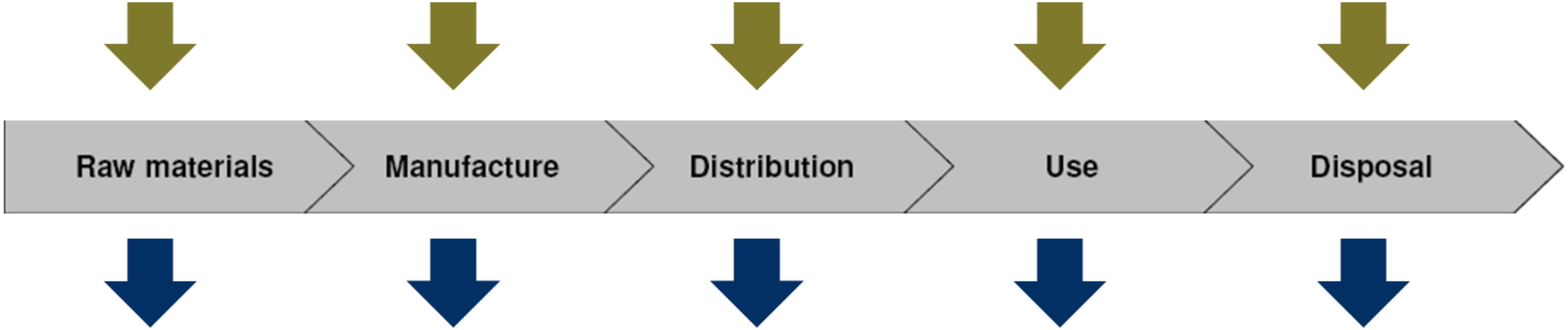
# Life Cycle Assessment (LCA)

- Life Cycle Assessment (LCA) is a method to estimate the environmental and/or social impacts related to a product (eLCA, sLCA).
- The analysis is carried out along the life cycle



# History of LCA

Development of various methods of life cycle analysis started in the 1970ies

Harmonisation of methods by the ‚Society of Environmental Toxicology and Chemistry' (SETAC)

SETAC-Guidelines for Life Cycle Assessment: A ‚Code of Practice' in 1993

Standardization process started in 1993, participation of 40 countries, resulted in the ISO 14040series (1997-2006)

# International standards


DEUTSCHE NORM Oktober 2006

DIN EN ISO 14040

DIN

ICS 13.020.10

Ersatzvermerk siehe unten

**Umweltmanagement – Ökobilanz – Grundsätze und Rahmenbedingungen (ISO 14040:2006); Deutsche und Englische Fassung EN ISO 14040:2006**

Environmental management – Life cycle assessment – Principles and framework (ISO 14040:2006); German and English version EN ISO 14040:2006

Management environnemental – Analyse du cycle de vie – Principes et cadre (ISO 14040:2006); Version allemande et anglaise EN ISO 14040:2006

**Ersatzvermerk**

Mit DIN EN ISO 14044:2006-10 Ersatz für DIN EN ISO 14040:1997-08, DIN EN ISO 14041:1998-11, DIN EN ISO 14042:2000-07 und DIN EN ISO 14043:2000-07

Gesamtumfang 44 Seiten

Normenausschuss Grundlagen des Umweltschutzes (NAGUS) im DIN


DEUTSCHE NORM Oktober 2006

DIN EN ISO 14044

DIN

Ersatzvermerk siehe unten

**...itungen (ISO 14044:2006); ... Fassung EN ISO 14044:2006**

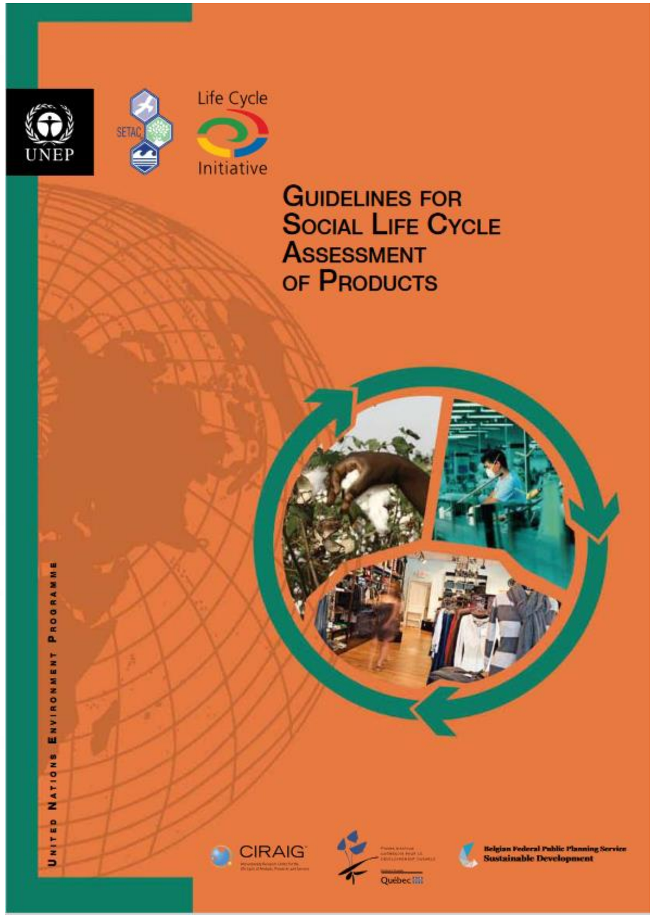
...SO 14044:2006); ...N ISO 14044:2006

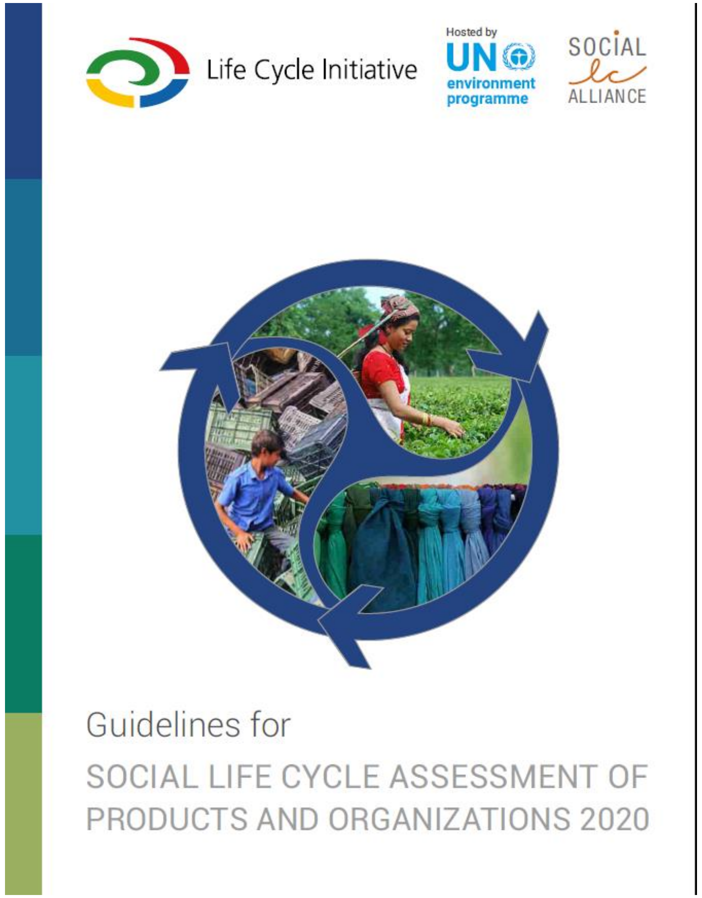
...ISO 14044:2006); ...EN ISO 14044:2006

... für DIN EN ISO 14040:1997-08, DIN EN ISO 14041:1998-11, ...N ISO 14043:2000-07

Gesamtumfang 84 Seiten

...Grundlagen des Umweltschutzes (NAGUS) im DIN



# LCA forms the basis for evaluation approaches

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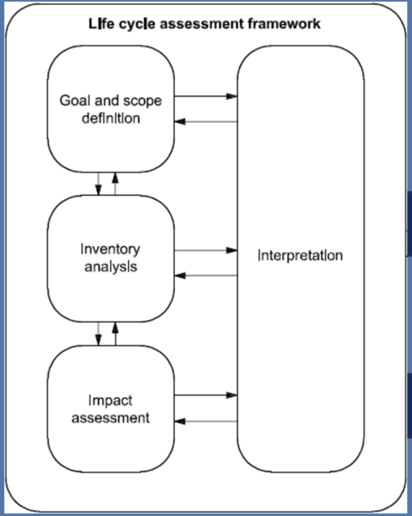
## Life Cycle Assessment




LCI results

LCIA results

## Evaluation approaches

### True Cost Accounting

→ Monetary evaluation

Water use → $
Primary energy use → $
… → $

$GWP_{100}$ → $
Biodiversity impacts → $
Eutrophication potential → $
… → $

### SDG Evaluation of Products (SEP)

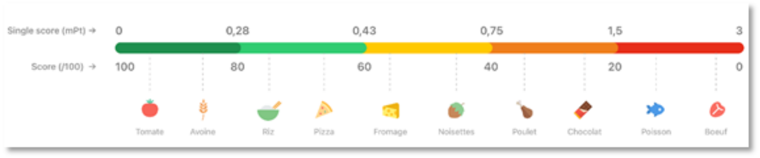
→ Evaluation with respect to the SDGs

Ocupational injuries →
Equal wages for men & women →
Relative poverty rate →
… →

Eberle et al. 2022

### Communication tools

#### Labelling


#### Further communication tools

IMPACTS OF FOOD

# True Cost Accounting – an evaluation approach for environmental & social issues

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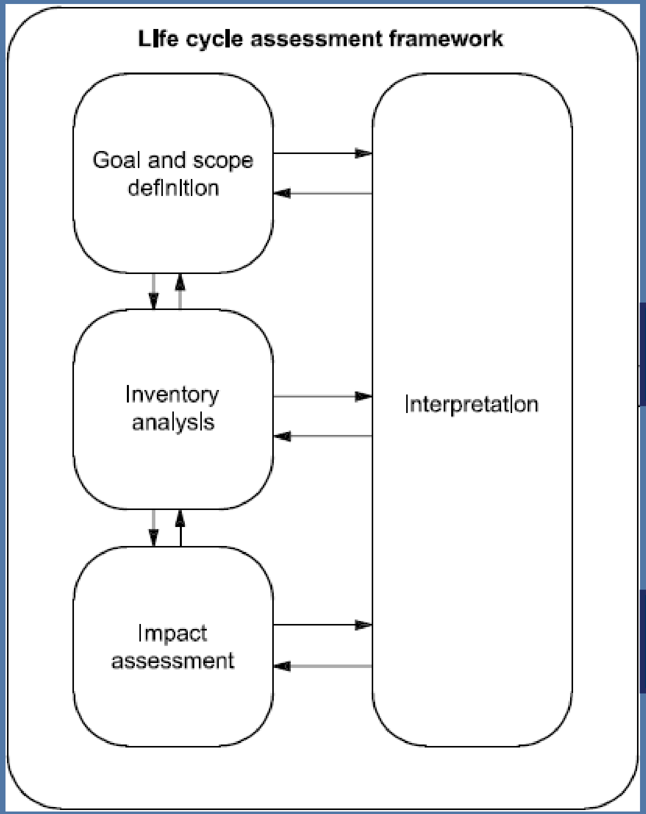
## Life Cycle Assessment




LCI results

LCIA results

## True Cost Accounting

→ Monetary evaluation

Water use → $
Primary energy use → $
… → $

$

$GWP_{100}$ → $
Biodiversity impacts → $
Eutrophication potential → $
… → $

# Development needs

- **Methodological issues still need to be tackled in LCA**, e.g. with regard to
  - Biodiversity impact assessment
  - Water scarcity
  - Toxicological impacts (e.g. ecotoxicity)

- **But, the quantification of climate impacts (GWP) is already quite robust!**

- Lack of data bases

➢ **Despite all the methodological issues: it is already possible to act on the basis of the results!**

LCA FOODS
13th International Conference on Life Cycle Assessment of Food

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# Findings & Conclusions

Eating animal foods has a significantly higher climate impact than plant products

If the recommendations for a diet for a healthy planet are followed, the climate impact can be reduced significantly

However, the climate impact cannot be the only criterion for deciding on more sustainable nutrition.

Other environmental impacts (e.g. biodiversity, water scarcity, eutrophication) as well as health and socio-economic impacts are also relevant!

**Life Cycle Assessment and True Cost Accounting are a helpful tools! TCA in particular for policies, because it is easily understandable!**

**Guiding principle for sustainable food systems: Sustainable choices must be easy choices!**

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# THANK YOU FOR YOUR ATTENTION

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