

Use of LCA results to support decision-making in process industries



*Hanna Pihkola, Tiina Pajula (VTT),
Carlos Tapia (Tecnalia), Michael Ritthoff (WI),
Peter Saling (BASF), Ywann Penru (SUEZ),
Sari Kuusisto, Annamari Enström (Neste)*

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*SAMT - Sustainability assessment methods and tools
to support decision-making in the process industries*

Aim of the presentation

- To discuss **challenges** faced by industrial sustainability experts when **communicating and visualising LCA results in different decision-making contexts**
- To highlight identified **good practices**
- To propose topics for **future research and development**

Material & methods

- Selected findings from the **SAMT project** (2015-2016)
- Within SAMT, **experiences and good practices** from the **cement, oil, metal, water, waste and chemical industry** were collected
- Applied **methods** included literature reviews, interviews, workshops and practical case studies
- Project findings were complemented with examples & comments provided by SUEZ, BASF & Neste

See: www.spire2030.eu/samt



LCA as decision-support

- Sustainability is more and more integrated in daily activities
- Many companies have developed their own LCA-based methods, tools and applications in order to provide support for data collection, decision-making and communication
- Often, sustainability is a criterion in decision-making, but it is not the only criterion
 - Ideally, sustainability impacts should be communicated together with other information, using “compatible” or “integrated” formats

See: SAMT D1.2 Saurat et al. 2015; Pihkola et al. 2017

Role of communication

- **Integration creates needs and challenges** related to sustainability communication
- Illustrating and explaining the results of a LCA study is only one part of the process
 - Several actors have to be motivated and engaged e.g. within the data collection phase
- Significant part of communication relates to communicating with **internal stakeholders**
 - Sustainability experts are needed to interpret and explain the results but, next steps are usually explained by “non-experts”
 - Needs related to internal communication are not addressed in literature

Challenges related to communication

- A central challenge is to **explain to non-experts** what is done in a sustainability assessment, why it is important, what the results mean and are they reliable?
- We should **make complex things look simple** and easy to understand, but should avoid simplifying the results too much
- We should be able to show that the results can create value for decision-making -**Why sustainability assessment is important?**

See: SAMT D1.2 Saurat et al. 2015

Good practices

- Environmental product declarations (EPD's) for B to B communication
- Needs and interests of the stakeholders vary
 - Targeted communication material
- Providing basic information about environmental impacts
 - Complexity of communication doesn't always relate to complexity of the methods but on the studied phenomena
- Most important for good communication is a good study



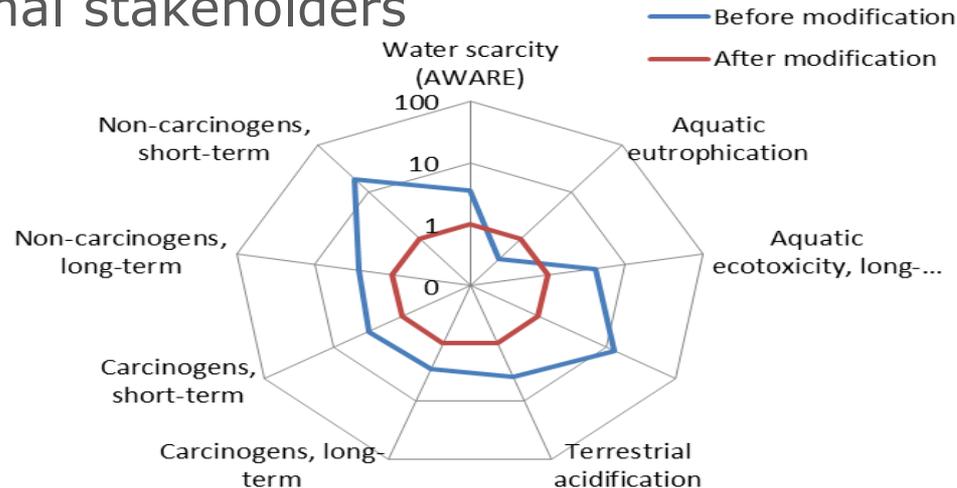
Examples from SUEZ, BASF & Neste



Example - SUEZ



- SUEZ has developed LCA-based Waterlily tool to inform stakeholders about impacts related to water
- Spider diagrams that enable fast interpretation and comparison between scenarios are commonly used for internal decision-support
- More integrated, single or two-score footprints are used to inform external stakeholders



Example - BASF

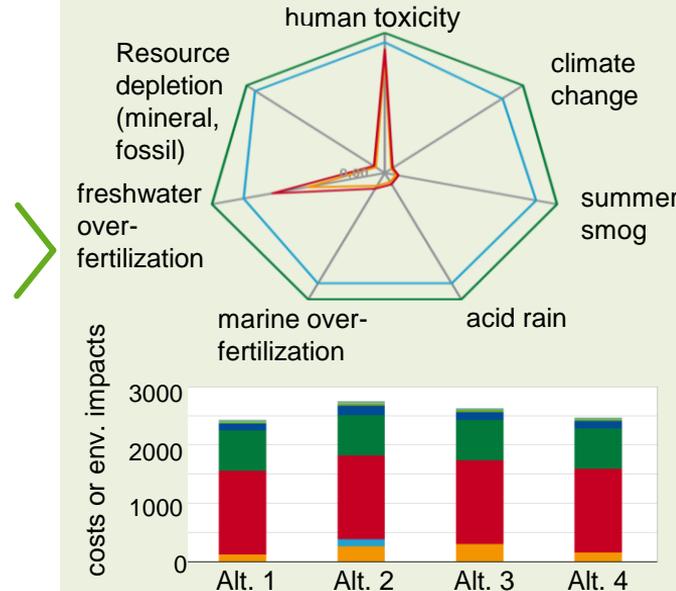
- BASF has developed several LCA-based methods to support decision-making and communication (internal & external)
- Eco-Efficiency Analysis (EEA) is an example of a method that integrates environmental and economic aspects
- Stakeholder involvement was integrated in method development
- Visualisation allows studying results both individually in different impact categories and in an integrated form

EEA reduces data complexity for decision-making support

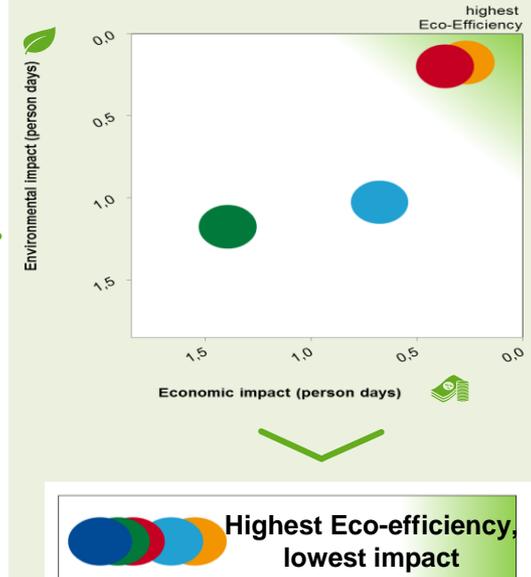
Detailed process data



Categorization into environmental impacts and costs



Results at a glance



Example - Neste

- To manage with the level of detail required by the GHG emission calculations in the biofuel sector, Neste has developed its own verification scheme, HVO Renewable Diesel Scheme for Verification of Compliance with the RED sustainability criteria for biofuels
- Experts are working constantly to discover informative ways for describing mechanisms related to fossil and biogenic carbon cycles

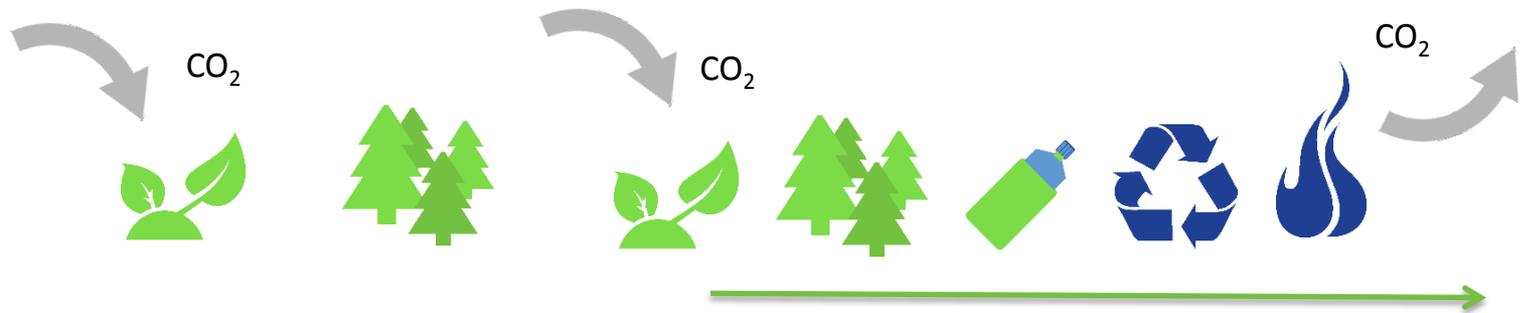


Figure is part of a draft example that is under development

Future research and development needs

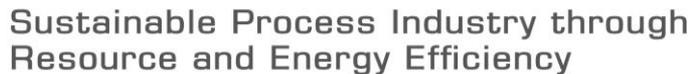
- Handling and visualising uncertainty
- Communicating positive impacts
- Communicating results from integrated assessments
 - Dealing with trade-off situations
- Considering aspects related to communication and visualisation as part of method and tool development
- More studies are needed on the use of LCA studies or LCA based information by different stakeholder groups

Conclusions

- **Communication is a process** that relates to sustainability assessment, management and decision-making as a whole
- Visualisation of results is important, and there is a **need for new tools** that could help in both interpretation and communication
- Simple things usually work but they require a lot of work
 - Final results need to allow “fast interpretation” but should also highlight related complexity and uncertainty
- **Integration of environmental and/or sustainability criteria** is a long process that **requires commitment** from the organisation - and succesful and informative case studies

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Thank you for your attention!

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Contact:

hanna.pihkola@vtt.fi