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sustainability consulting + software

The Environmental Footprint – can't we do better in LCA?

Towards more accountable sustainability assessments

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The Environmental Footprint – can't we do better in LCA?

Towards more accountable sustainability assessments

1. PEF and LCA, ambitions
2. PEF status, evaluation
3. Decisions with deep impact, what is required
4. 2 examples: deposit bottle collection, PV
5. Conclusions & discussion

1 PEF and LCA, ambitions

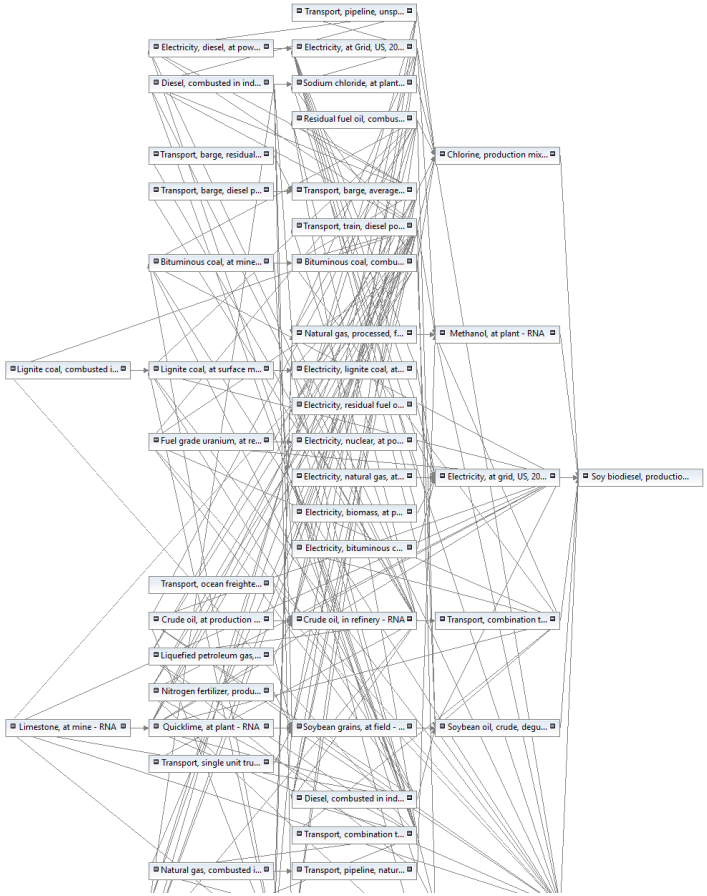
Life Cycle Assessment, LCA

Method to assess the environmental performance of a product or service over its entire life, from raw material extraction, to use, to disposal

Standardised in ISO 14040 etc.

Life cycle as a system of interlinked processes which are exchanging products, needing resources and releasing emissions

Life Cycle Assessment, LCA, product system



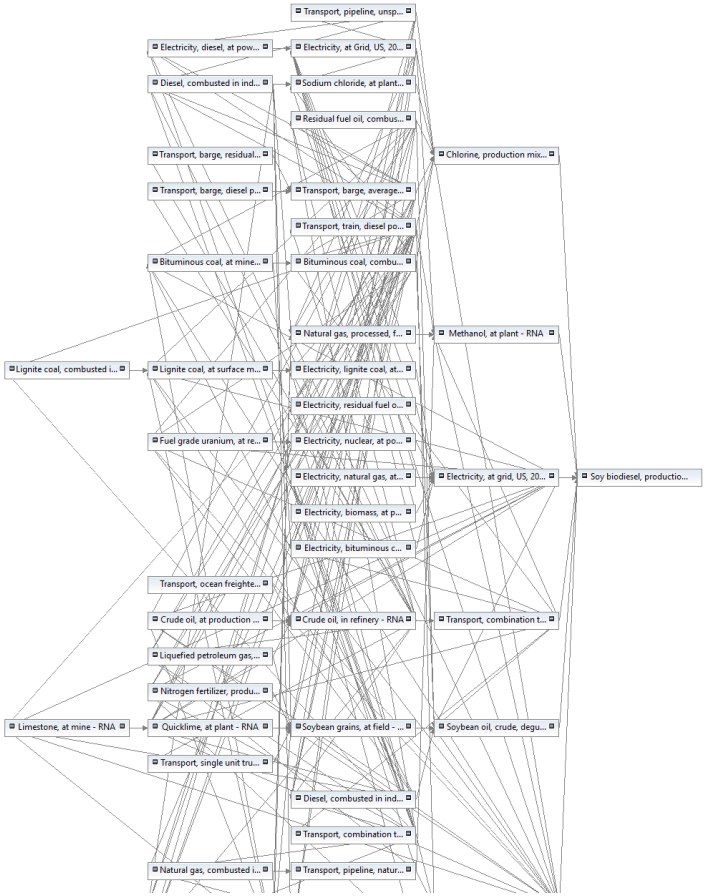
Parts of a realistic life cycle for soy biodiesel production. Screenshot from openLCA using processes (represented through boxes) from LCA Commons (https://www.lcacommons.gov/)

Life Cycle Assessment, LCA, own claims

“Holistic”

“Science based”

„Avoids burden-shifting“



Environmental Footprint, introduction and ambition

Single Market Act, 2010, as one starting point:

"In order to ensure that consumers receive reliable information on the environmental performance of products, the Commission will propose – in connection with the Action Plan on Sustainable Consumption and Production – an initiative on the ecological footprint of products."

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011DC0206, section 2.4

Environmental Footprint, start: the 1st and 2nd pilot phase, 2013-2016, 2016-2018+

ideas: test

- development of product category specific modeling rules, in pilots, with broad stakeholder participation
- development of benchmarks
- communication of results to users

Pilots work independently, with different LCA consultants, but overarching helpdesk and guidance

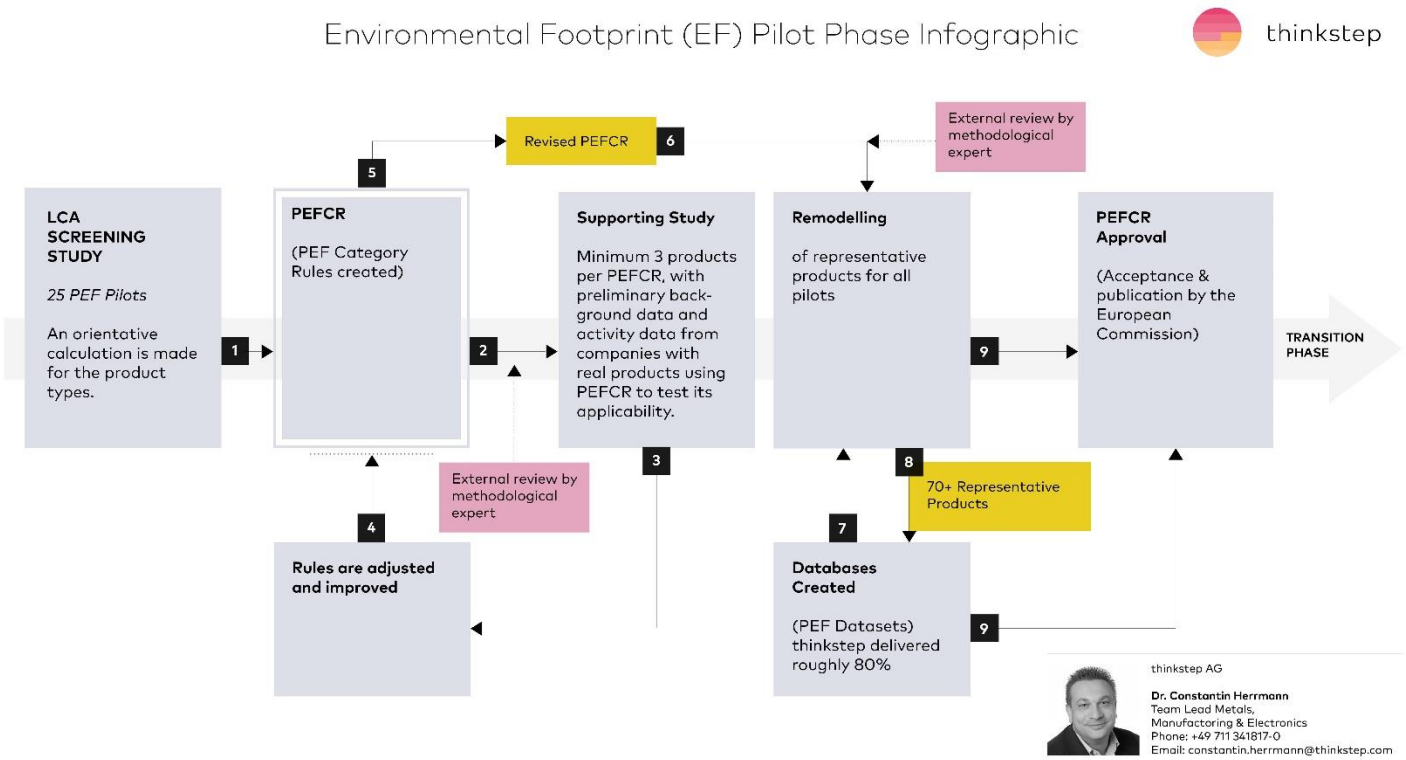
Overall ~80 pilots, some discontinued

Environmental Footprint, start: the 1st and 2nd pilot phase, 2013-2016, 2016-2018+

Pilots (1st phase left, 2nd phase right), picture from LCA consultant PRé, pre-sustainability.com

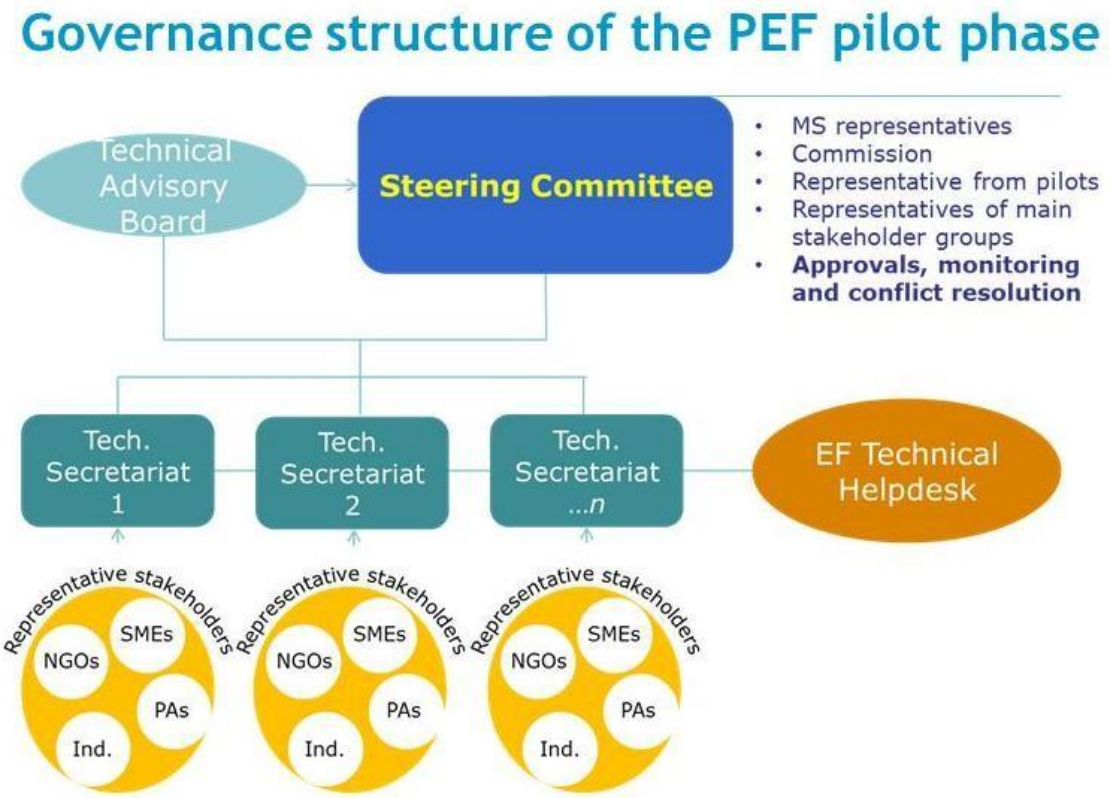
Environmental Footprint, start: the 1st and 2nd pilot phase, 2013-2016, 2016-2018+

complicated procedure (from LCA consultant thinkstep, thinkstep.com)



Environmental Footprint, start: the 1st and 2nd pilot phase, 2013-2016, 2016-2018+

elaborate organisation (from NGO EEB, eeb.org)

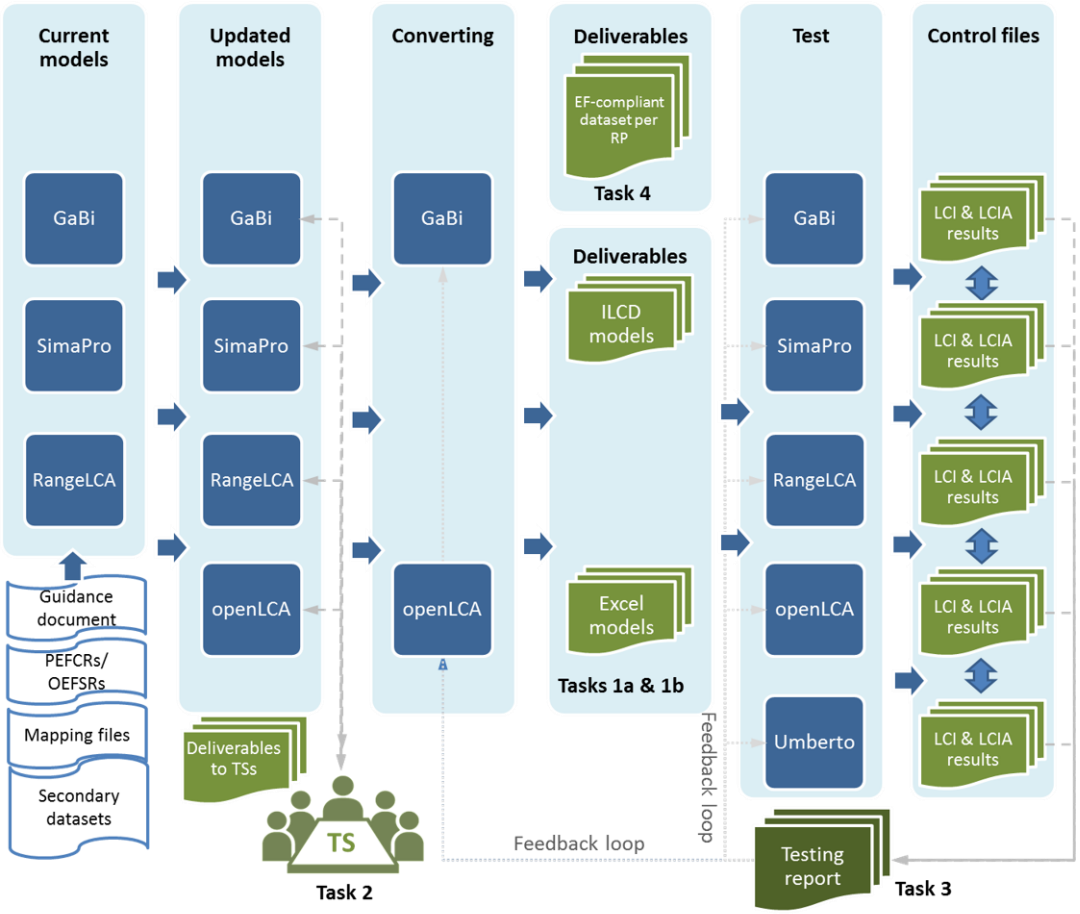


Environmental Footprint, the remodeling, 2016-

ideas: harmonise and align

- different pilots work independently, different background databases, different modeling conventions by different consultants, also in different LCA software systems
- different synchs with category rules, harmonise modeling rules
- make models interchangeable across different LCA software
- initially planned for a few months, still unfinished

Environmental Footprint, the remodeling, 2016-



2 PEF status, evaluation

Environmental Footprint, evaluation attempt

we are getting there..

- EC actors, involved consultants: „a huge success“
- Fighting with mere technical difficulties, release of consistent reference data e.g. by EC, but progress
- Datasets with major bugs discovered and curated

Environmental Footprint, evaluation attempt

..but

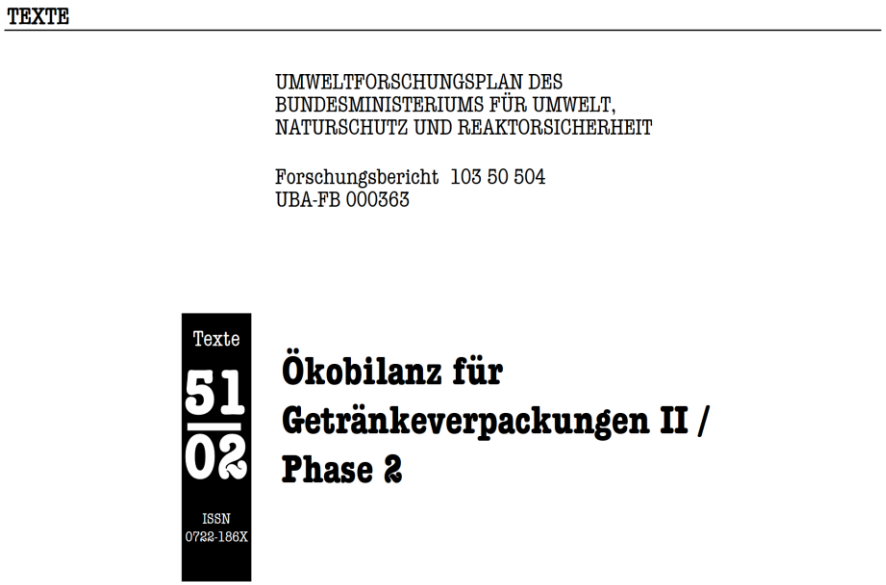
- background data specifically created for PEF inconsistent, created ~ in parallel by different actors
- broad industry participation but „representative products“ not representative in a statistical sense
- no empirical proof, rather agreements in LCA + stakeholder expert rounds, aggregated data
- the approach does not scale (70 products in 6 years..)
- (some impacts hard to grasp for LCA: land use, littering, nuclear power, market behaviour... -> not really comprehensive env. assessment)

3 Decisions with deep impact, what is required

“Deep impact” decisions

E.g.:

- Which packaging types are less environmental friendly and thus need to bear a mandatory deposit?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“Deep impact” decisions

E.g.:

- Which packaging types are less environmental friendly and thus need to bear a mandatory deposit?
- CO_2 label and CO_2 taxes
- …

“Deep impact” decisions – what is required

First: Let’s be realistic

- Even climate change is not accepted by everybody
- Proof that smoking is not good for health took decades

But: Main stakeholder agreement has the risk of a “flat earth” agreement

“Deep impact” decisions – some first thoughts

- Scientific basis essential (test series, empirical data, statistical analysis of not just few) – more effort than usual but also more “at stake” than usual
- Often, quantitative results are less interesting than structure, ordinal results – overcome strong emphasis on quantitative results alone
- Important: Scope and validity of model and results, document and include in communication

4 Two simple examples

Two simple examples

- Collecting bottles with deposit, impacts on the environment

Collecting bottles with deposit

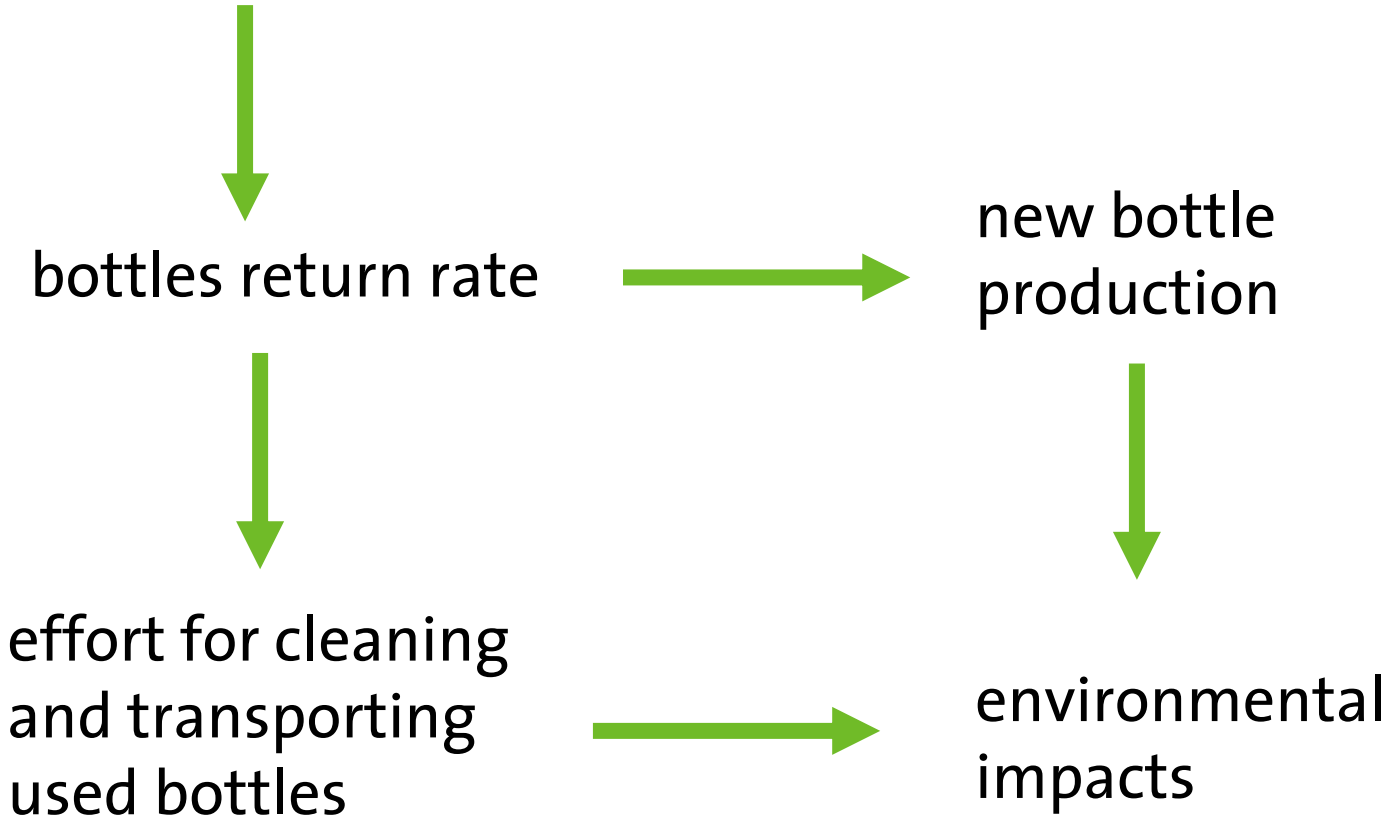
bottles return rate

new bottle production

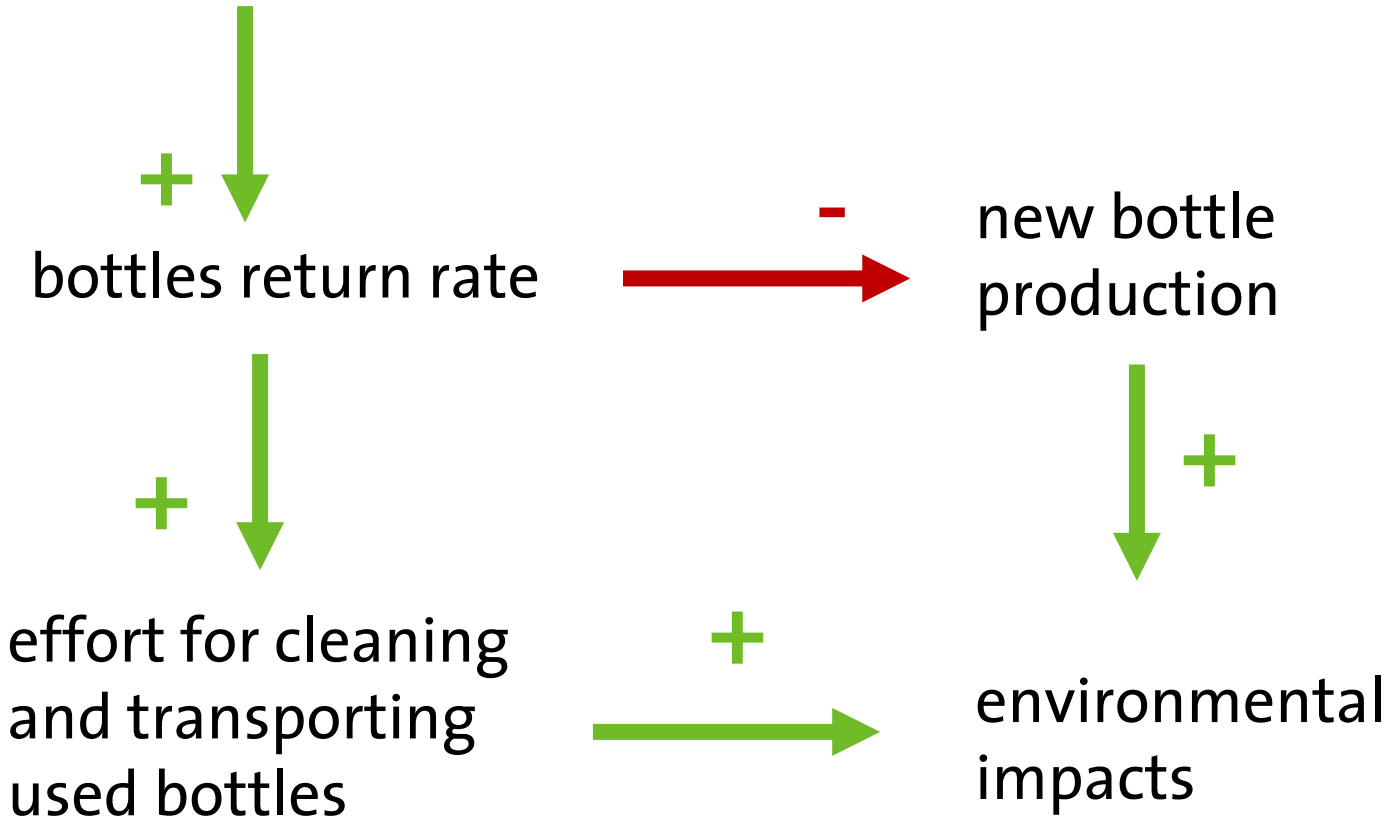
effort for cleaning and transporting used bottles

environmental impacts

Collecting bottles with deposit



Collecting bottles with deposit



Collecting bottles with deposit

if

environmental impacts (effort for cleaning and transporting used bottles) < environmental impacts (new bottle production)

then overall less environmental impacts

by collecting bottles with deposit.

Collecting bottles with deposit

Is installing a PV system in a house better for the environment?

more complicated

- previous electricity source of the house
- electricity demand and demand over time of the house
- production process impacts, transport and installation impacts of the PV
- efficiency of the PV system
- environmental impact of other electricity sources in future
- life time of the PV system
- ...

5 Conclusion and discussion

To summarise..

- Despite all the attempts and efforts, EF somewhat disappointing still
- We do not have a final and working solution for supporting „deep impact decisions“, but some elements could be
  - smarter systems modeling and thinking
  - use of scientifically valid, verifiable information
  - too early stakeholder participation and engagement risks a „flat earth solution“
  - do not forget technical infrastructure for data management and decision support

To summarise & discuss..

- Role models: IPCC climate change models, models to proof that smoking affects your health
- This does not necessarily imply more effort.

Smarter system thinking and modeling, and smarter technology support (-> data analyses and so forth)

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Thank you!

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