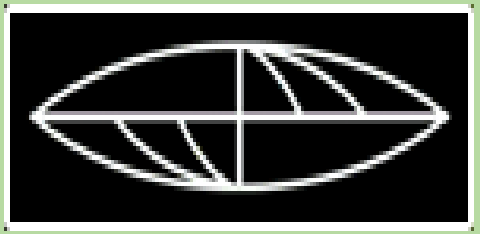
ty shades of green



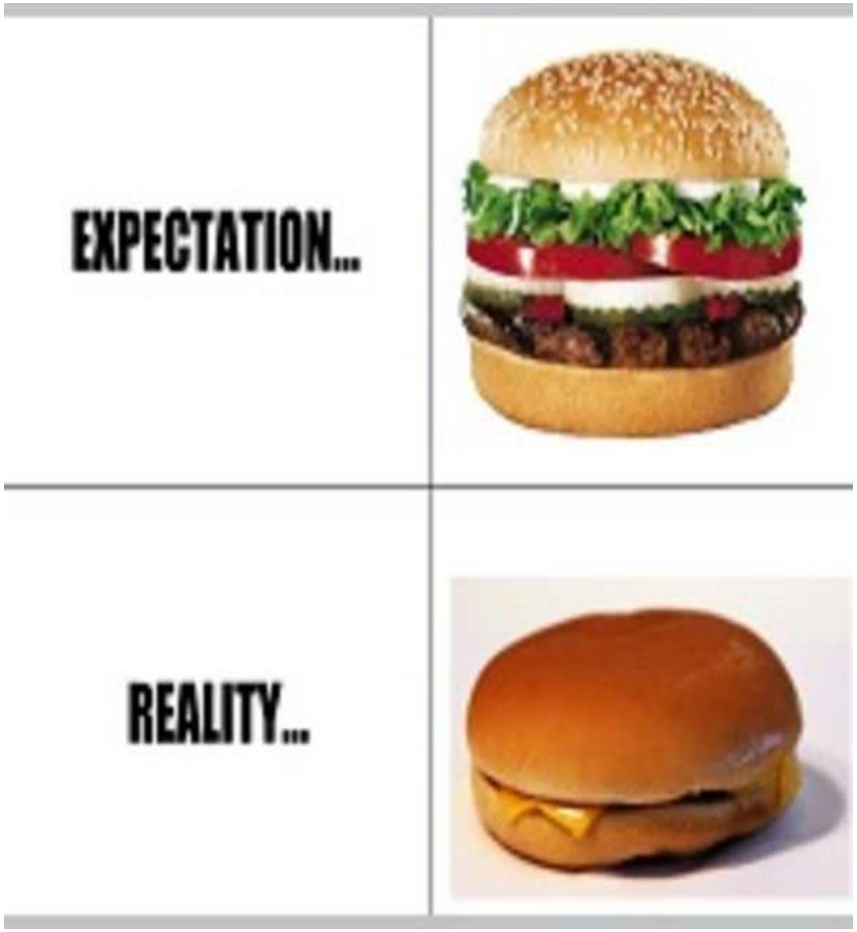
What pales the final colour of green solutions?

Andrea Szalavetz

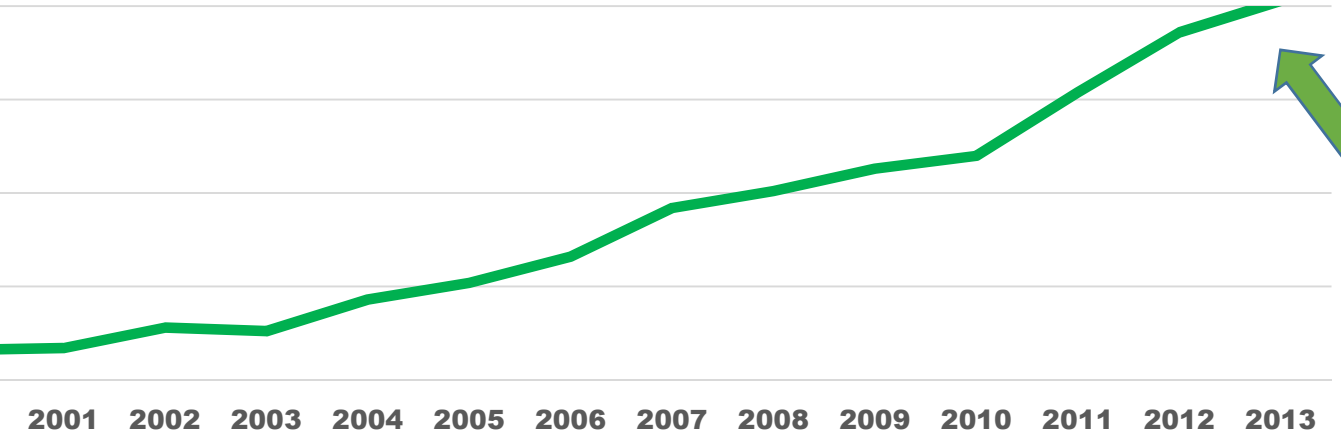
Belgrade, Institute of Economic Studies conference
2017

Background and motivation

ny apparently environmentally friendly solutions fail to bring about the expec
efits, or at least, the benefits remain much smaller than predicted



Share of renewables in gross electricity consumption (%)

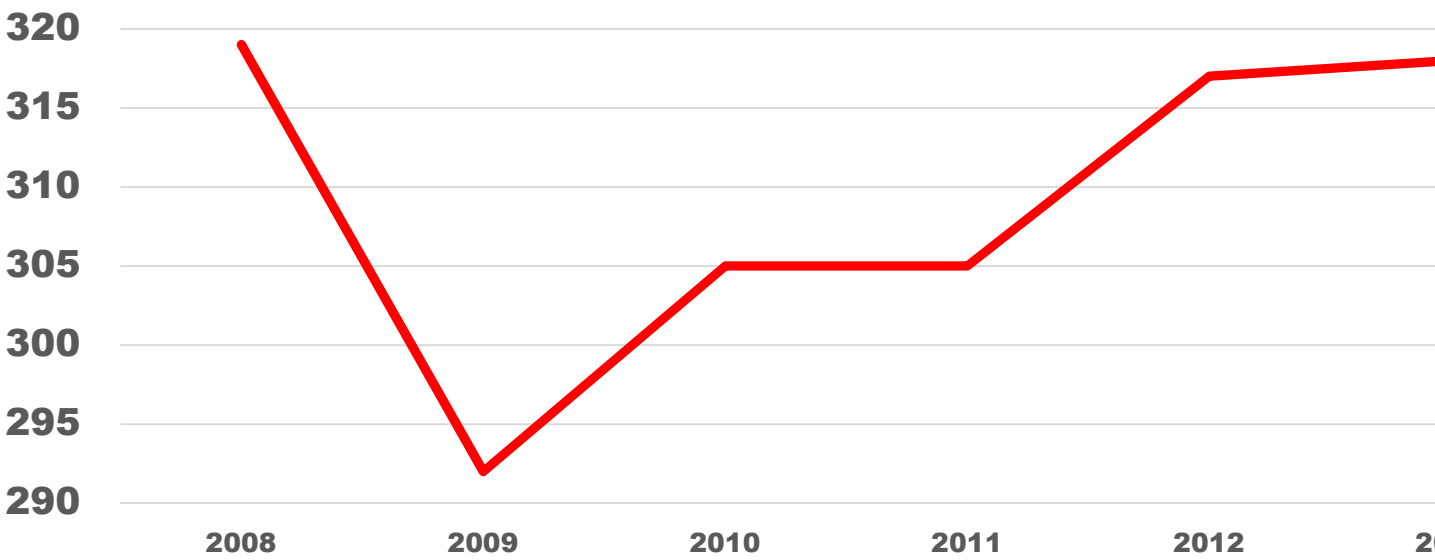


Germany's transiti
renewable ener
resources base
power generatio

2015: ~30 %

CO2 emissions from German power generat
(m tons)

ce: The German
giewende and
imate Paradox
a Energiewende



2014: 346 m tons

Really green?

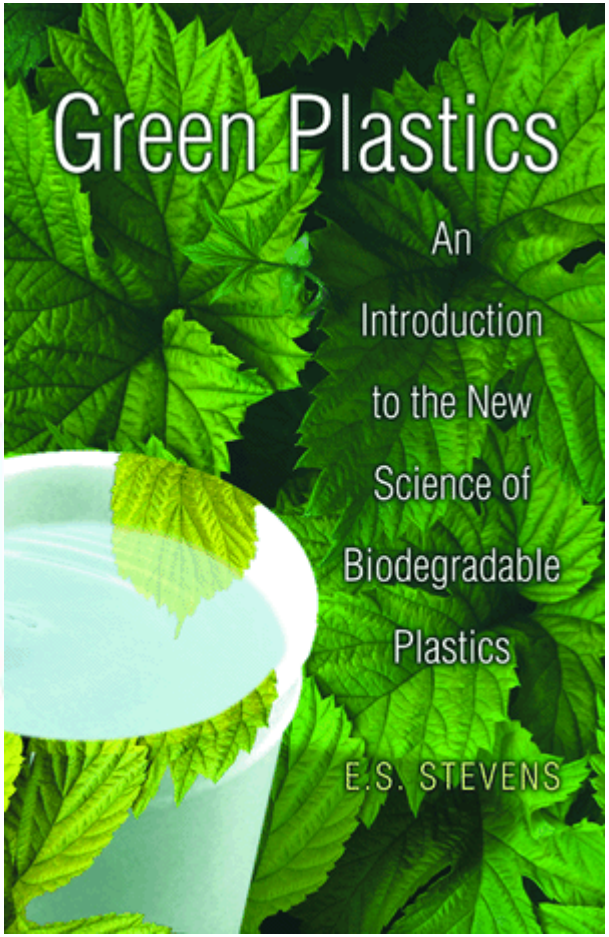
on emission for electricity generation ✓

-intensity of manufacturing 👎

earth elements (!), land use 👎,

osal 👎 Recycling (GHG) 👎

Really green?



egradable ✓

-intensity of manufacturing 👎

rial-intensity 👎

Outline

Research question: What is the reason?

Research method

Descriptive analysis: illustrative examples

Conceptual framework

Conclusions and implications

Research me

Purposeful sampling

12
gh-impact
rticles on
ensions in)
corporate
stainability

Snowball exercise to extend the sample

Content analysis with constant comparison

Concep
identifica
and
proposit
developm

= Abstract analysis of papers cited in the 12 original studies, that were described as concerned with the intended consequences and the adverse indirect effects of sustainability-oriented interventions. Identificatio evant papers and content analysis.

= Abstract analysis of the 20 highest-impact papers citing the ones selected in the previous round. Content alysis of the ones that were considered relevant.

4, 5 = Repetition of the previous exercise

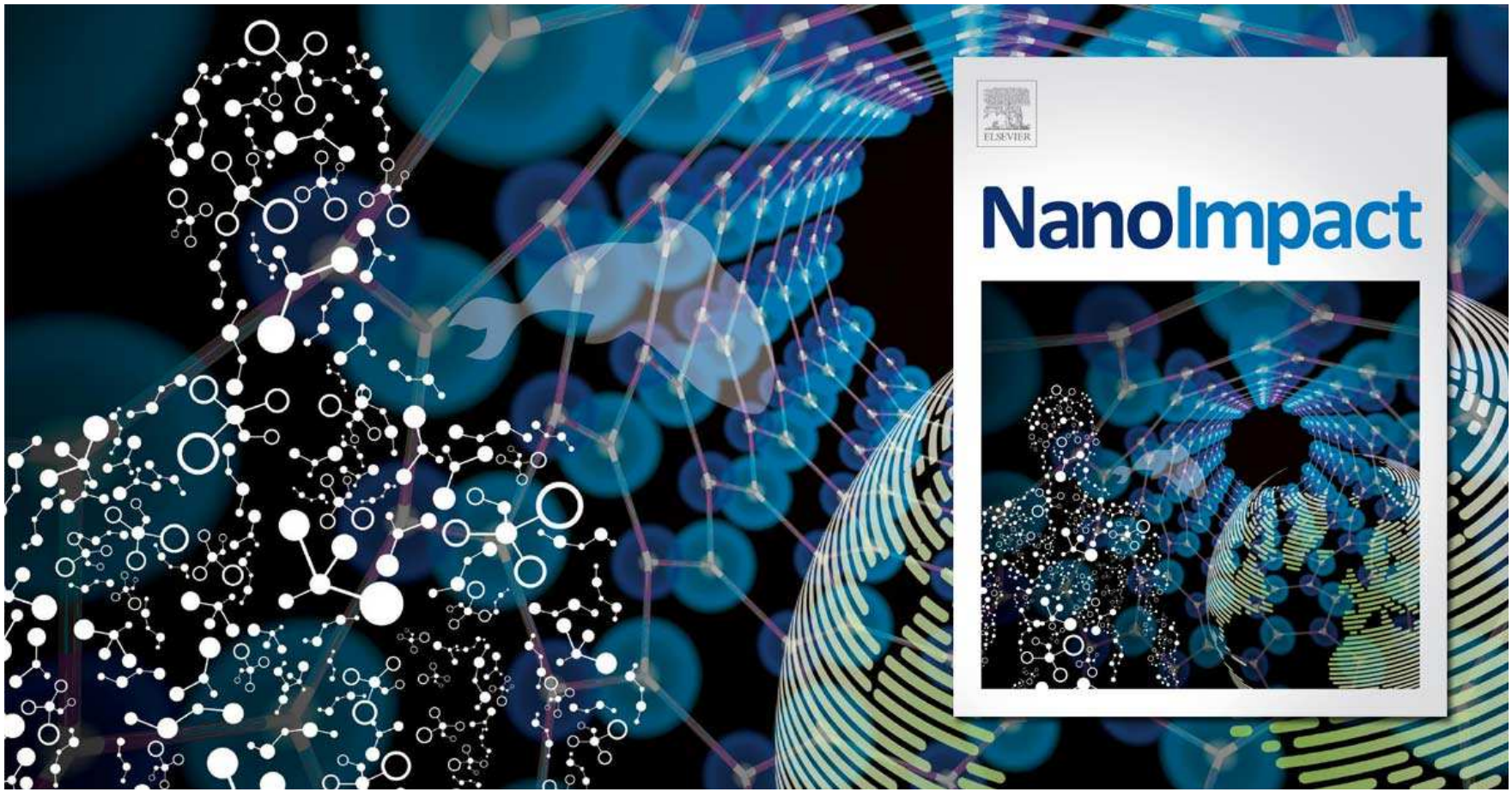
Illustrative examples: Remanufacturing

Illustrative examples: Recycling

rgy-intensive
vy consumption of water
uting smokes and effluent
roper recycling

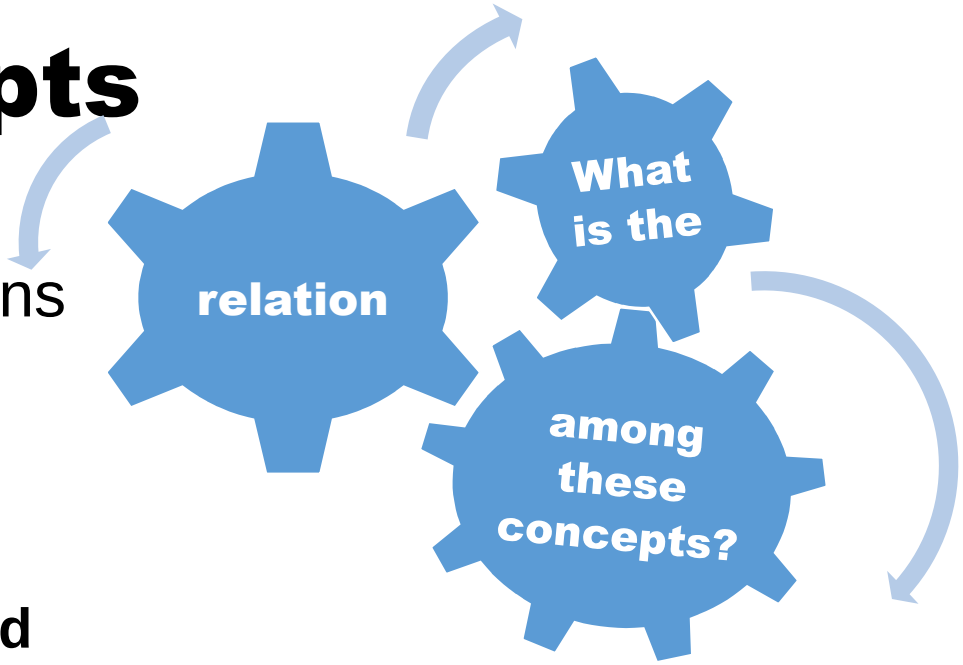
Other illustrative examples:

Nanotechnology, 3D printing



Emerging concepts

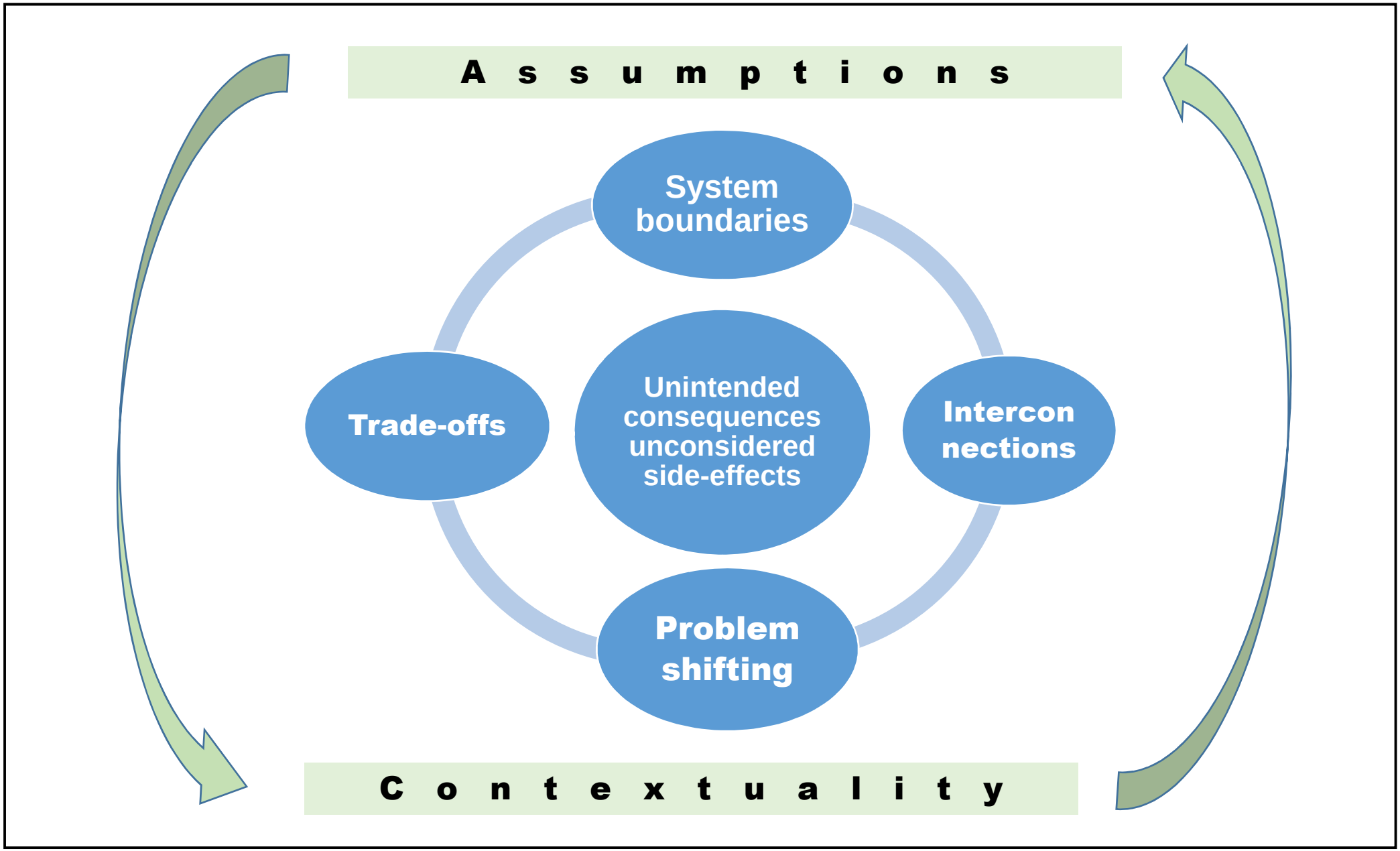
1. System boundaries
2. Trade-offs & interconnections
3. Problem shifting
4. Assumptions
5. Contextuality



Complementary and interrelated

Rooted in the systemic nature of corporate environmental sustainability

Systems can be modelled using **assumptions** concerning their attributes and their **boundaries**. System functioning is influenced by its external and internal environment, i.e. by **contextual** factors. One of the key characteristics of the internal environment is the **interconnection** of the constituents of the system: this accounts for the emergence of **trade-offs** or of synergy effects in the case of external interventions in the functioning of the system


Assumptions
System boundaries
Trade-offs
Unintended consequences unconsidered side-effects
Interconnections
Problem shifting
Contextuality

Implications

- Take unintended side-effects into account!
- Understand the interconnection between various environmental impact categories!
- Adopt a systems perspective!
- Consider the assumptions related to the planned intervention!
- Before imitating, identify the specific contextual factors that may constrain the outcome of an identical intervention!


Thank You !!