

Comments on Chapter 1: Sustainability Science and Sustainable Development

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Key issues

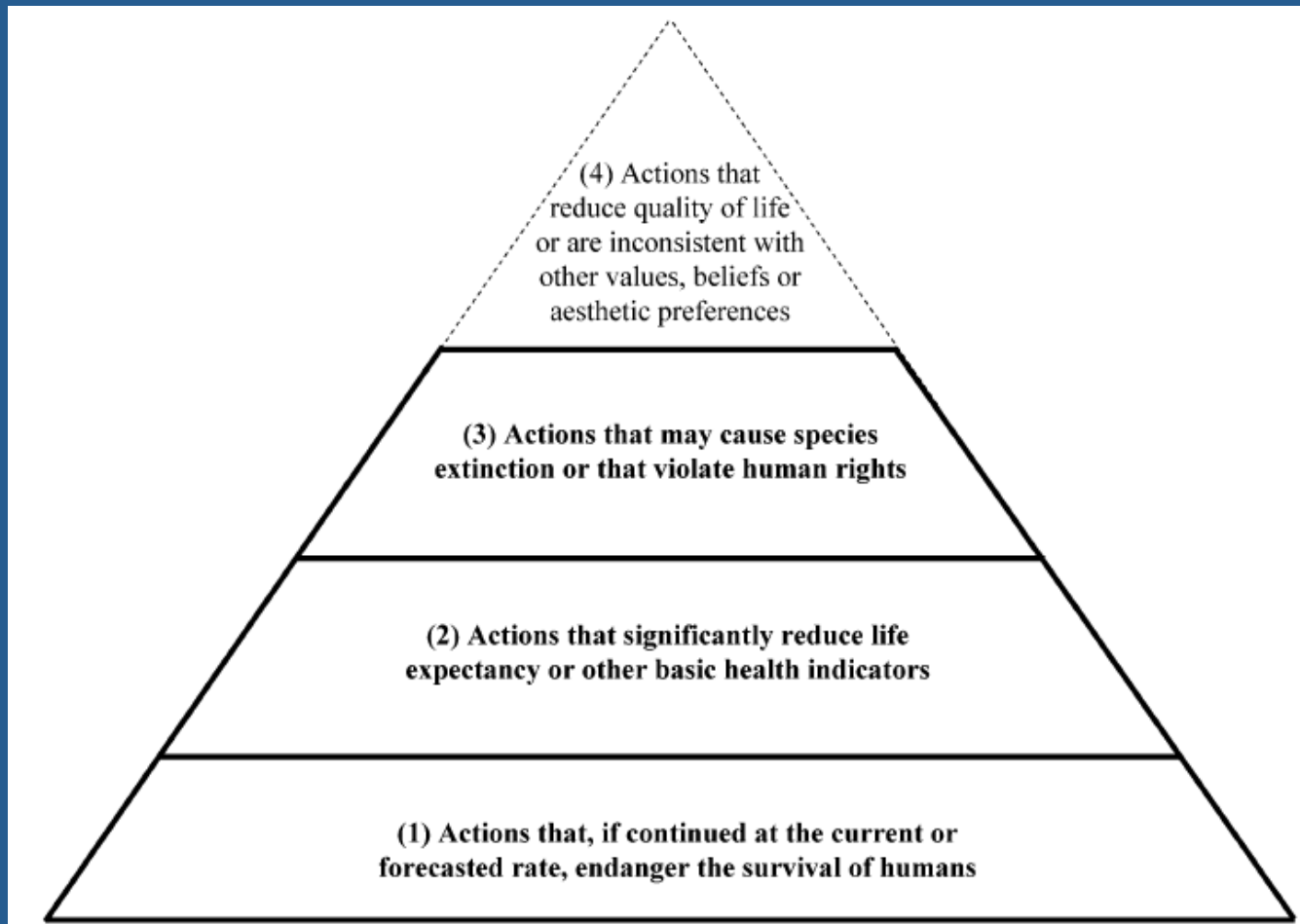
1. Rationale for human well-being as the foundation of sustainability science
2. The role of practice in sustainability science and sustainable development
3. Inter-relationships among sustainability, sustainability science, and sustainable development

Human well-being as the foundation of sustainability science

- What are the alternatives?
 - Preservation of earth's biota as primary value
 - At what level of organization? Species? Populations? Ecosystems? Do biogeochemical cycles have rights?
- Philosophical basis
 - What are human obligations to other organisms?
 - How are these prioritized relative to obligations to other human beings, cultures, etc.?
- Practical rationale
 - What are political implications of these alternatives?

Sustainability Hierarchy

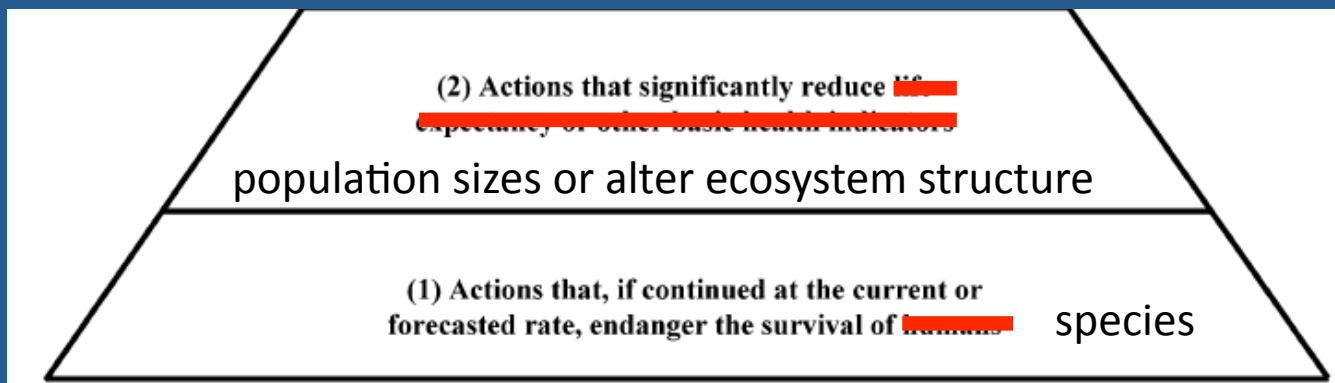
- grounded in human well-being



Marshall and Toffel 2005

Sustainability Hierarchy - grounded in biosphere

Can this vision gain sufficient political support to facilitate its implementation?



Modified from Marshall and Toffel 2005

The role of practice

- What is the role of practice in sustainable development and sustainability science?
 - Current actual role
 - Optimal/idealized role
- How is the role of practice represented?
 - Stokes' framework – Pasteur's quadrant
 - Consistency with text

Pasteur's Quadrant

Research
Inspired by...

considerations of use?

No

Yes

No

*"Soaking and
poaking"*

*Pure applied research
(Edison's quadrant)*

desire for
fundamental
understanding?

Yes

*Pure basic research
(Bohr's quadrant)*

*Use-inspired basic
research
(Pasteur's quadrant)*

*Theory-relevant
applied research –
Adaptive management*

*Modified from Stokes
(1997)*

Sustainability, sustainability science, and sustainable development

- Inter-relationships among sustainability, sustainability science, and sustainable development
 - Sustainability as the end; Sustainability science and sustainable development as the means?
- Is it desirable or necessary to codify and standardize these terms?

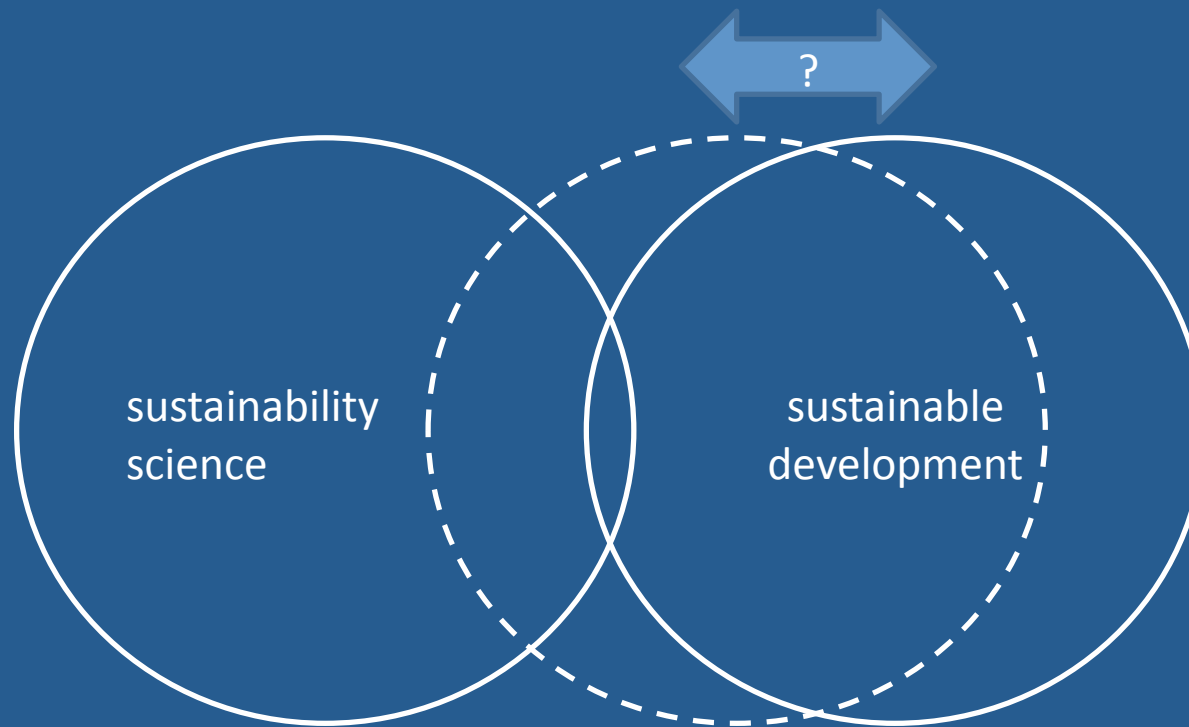
Initial relationship between sustainability science and sustainable development



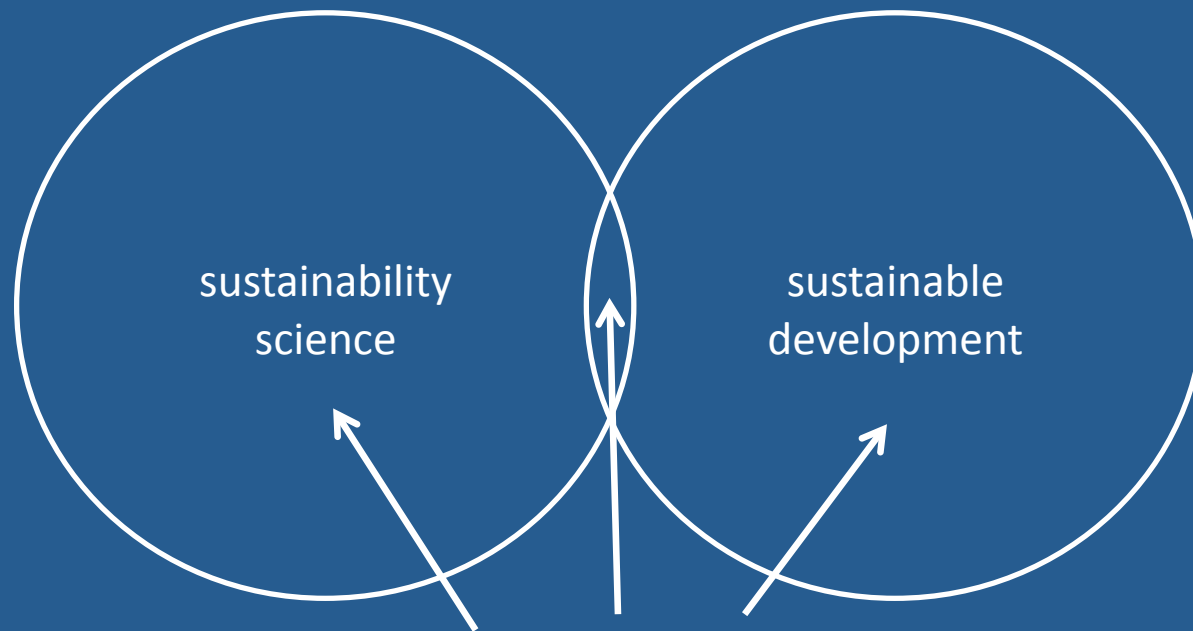
sustainability
science
=
conservation
biology

sustainable
development
=
economic
development

Existing relationship between sustainability science and sustainable development



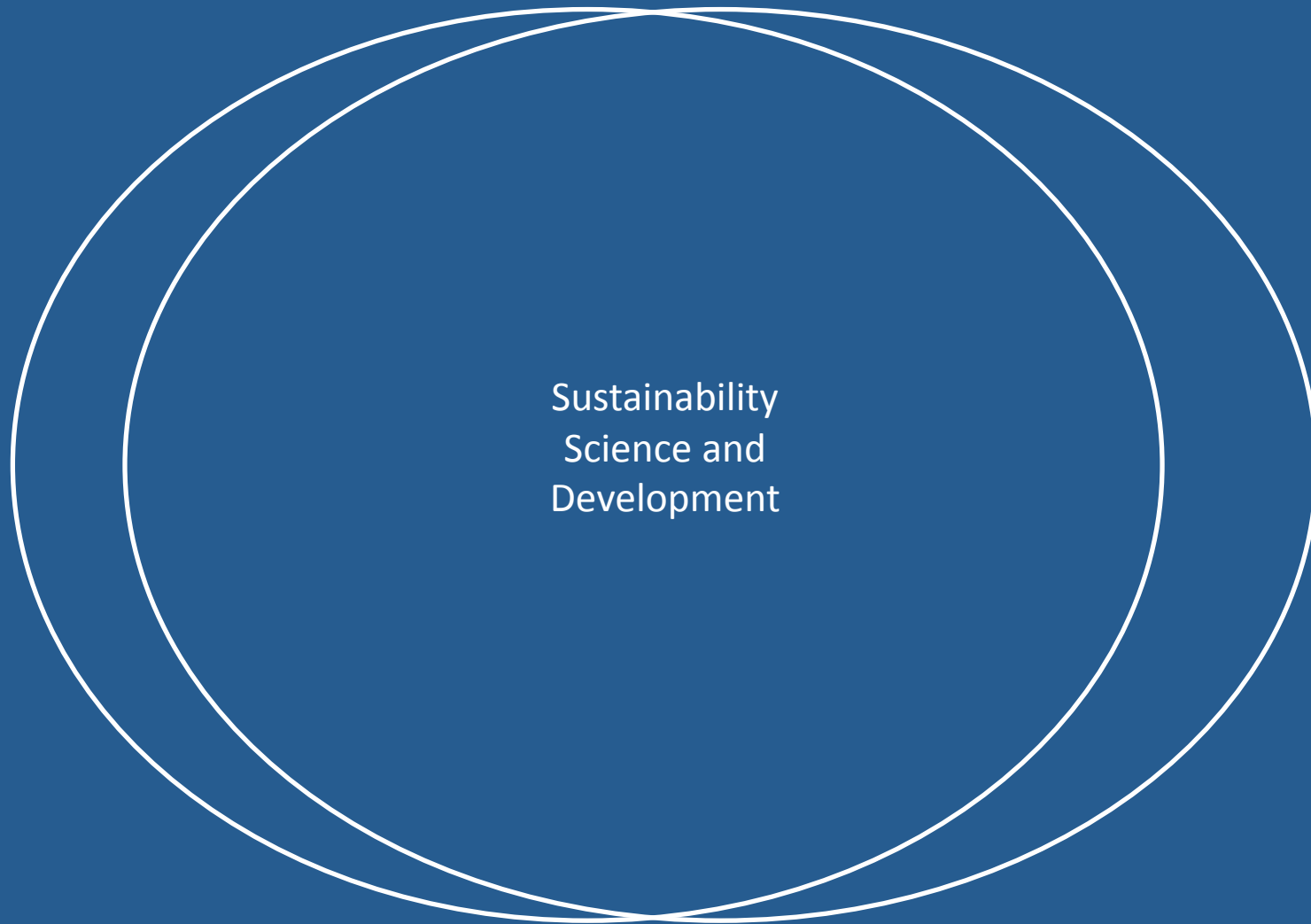
Existing relationship between sustainability science and sustainable development



What goes in these parts?

Approaches, concepts, norms, goals

Optimal relationship between sustainability science and sustainable development (?)



Optimal relationship between sustainability science and sustainable development (?)

High degree of
conceptual
integration



Less integration of
institutions and practice

