

A Participatory Approach Seeking Consensus in a Context of Uncertainty

A Sustainable Development Perspective of Life Cycle Analysis

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Current eco-conception tools

Based on the **prevention principle**.

- **requires a certainty of knowledge.**

Most tools that assess impacts use a **cause-effect** approach.

- **deterministic, such as LCA (Life Cycle Analysis).**

Advantageous in **economic analysis**.

- **provide indicators for final decisions.**

More **reactive** than proactive.

- **known risks and potential risks are distinguished yet treated similarly.**

What can be done in situations of **uncertainty of knowledge?**

Why traditional decision making is problematic?

Long-term, global invisible effects of technological innovations on society and the environment.

- require global consideration and cooperation.

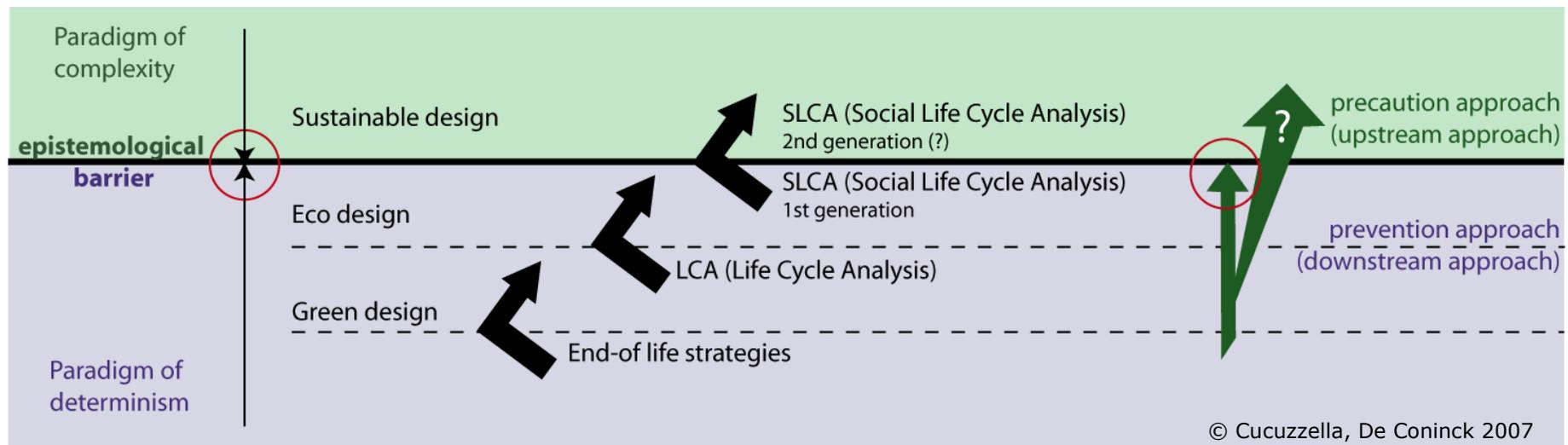
Degradation is a result of **multiple factors**.

- complex condition of responsibility.

Nature and society can **no longer** be looked at **solely in an objective way** (cause-effect perspective).

- emerging phenomenon exist - uncertainties in discoveries.

Barrier when shifting towards sustainable design



The **shift** from **eco design** towards **sustainable design** will not be achieved uniquely by adding more indicators for an optimization of the problem.

- 🌐 presence of an epistemological barrier.

Epistemological innovation: Necessity of coupling both approaches

Prevention: problem optimization approach.

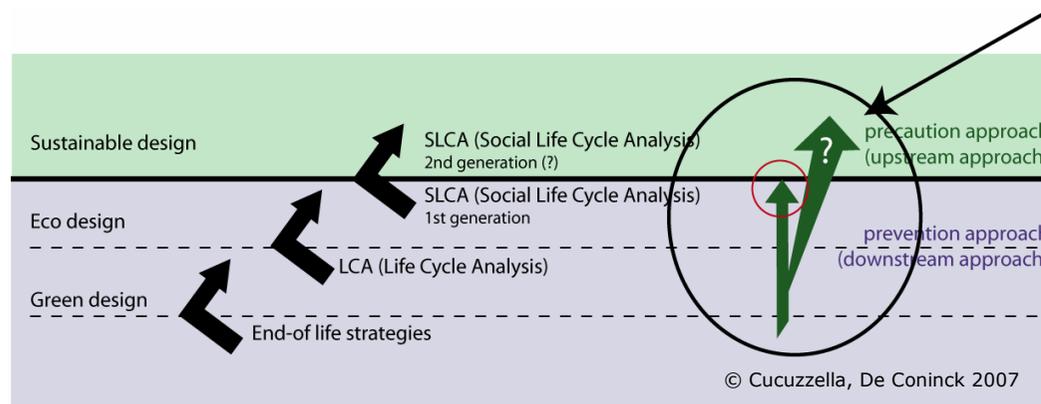
- Prevention approach enables a risk or life cycle analysis once a product or service system has been developed; at end of a conception process.

Precaution: solution-based approach.

- Precaution pulls the reflection and exploration of solutions at the beginning of a conception process.

Precaution does not oppose prevention.

- They nourish each other in a decision making process.



Benefits of a precautionary approach to design

Allows the **shift** from **eco-design** to **sustainable design**:

- Attempts to **deconstruct issues** and **values** in a **participatory** environment:
 - **Considers both** downstream **and** upstream **perspective**
 - **Invites reflection on the limits of living systems and natural resources;**
 - **Exploration of alternative solutions.**

Therefore encourages **innovation**:

- Responds to the definition of **design** as defined by Ron Levy:

*“Design is the manipulation (by humans) of all things; that is all phenomena (living or non-living), of all objects, all mechanisms, all systems, and all procedures. **The finality of this manipulation of things is the creation of new concepts and experiences such that its totality will change the world in a recursive way**”*
(liberal translation, De Coninck, 2005, pp. 68-69).
- Innovation on several domains: **social, epistemological, techno-scientific,** and **assessment.**

Strategies for Sustainable Product Design (SPD)

Redesigning: PRODUCT FOCUS

Making existing products more resource efficient

Reorganizing: RESULT FOCUS

Producing the same outcome in different ways

Rediscovering: NEED FOCUS

Questioning the need fulfilled by the object, service or system, and how it is achieved

Strategies for Sustainable Product Design (SPD)



Redesigning (product focused)

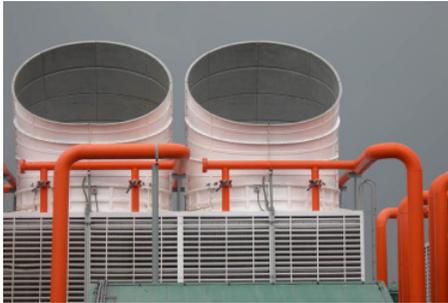


Reorganizing (result focused)



Rediscovering (need focused)

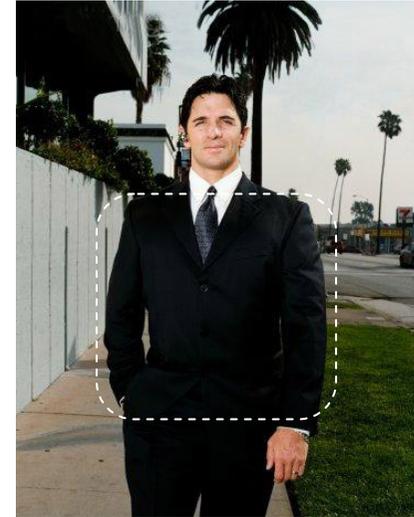
Strategies for Sustainable Product Design (SPD)



Redesigning (product focused)



Rediscovering (need focused)



Reorganizing (result focused)

Approaches to Design for Sustainability (DFS)

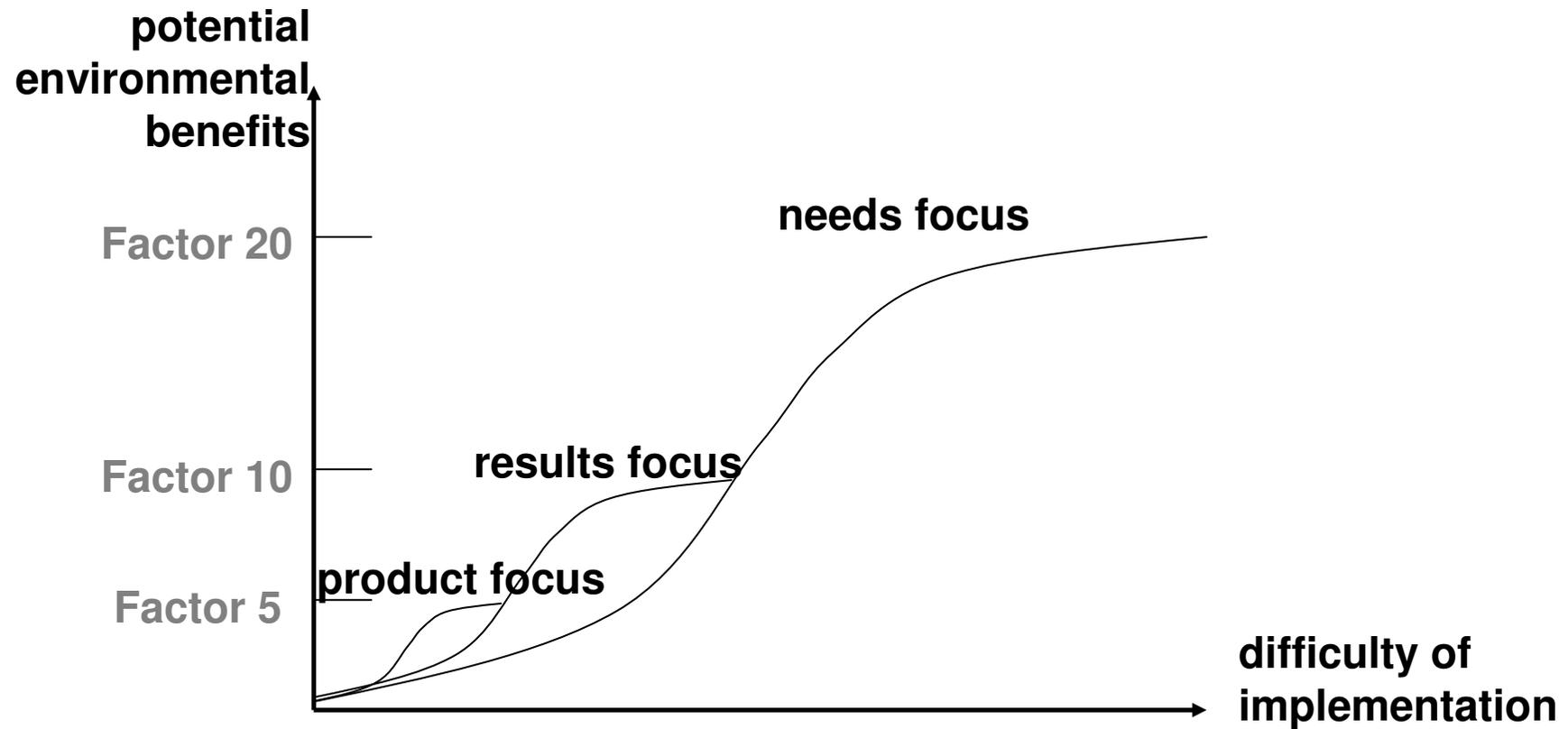


Figure 2 Approaches to design for sustainability (Fletcher, Drewberry, Goggin, 2001)

Social innovation: Public participation for design

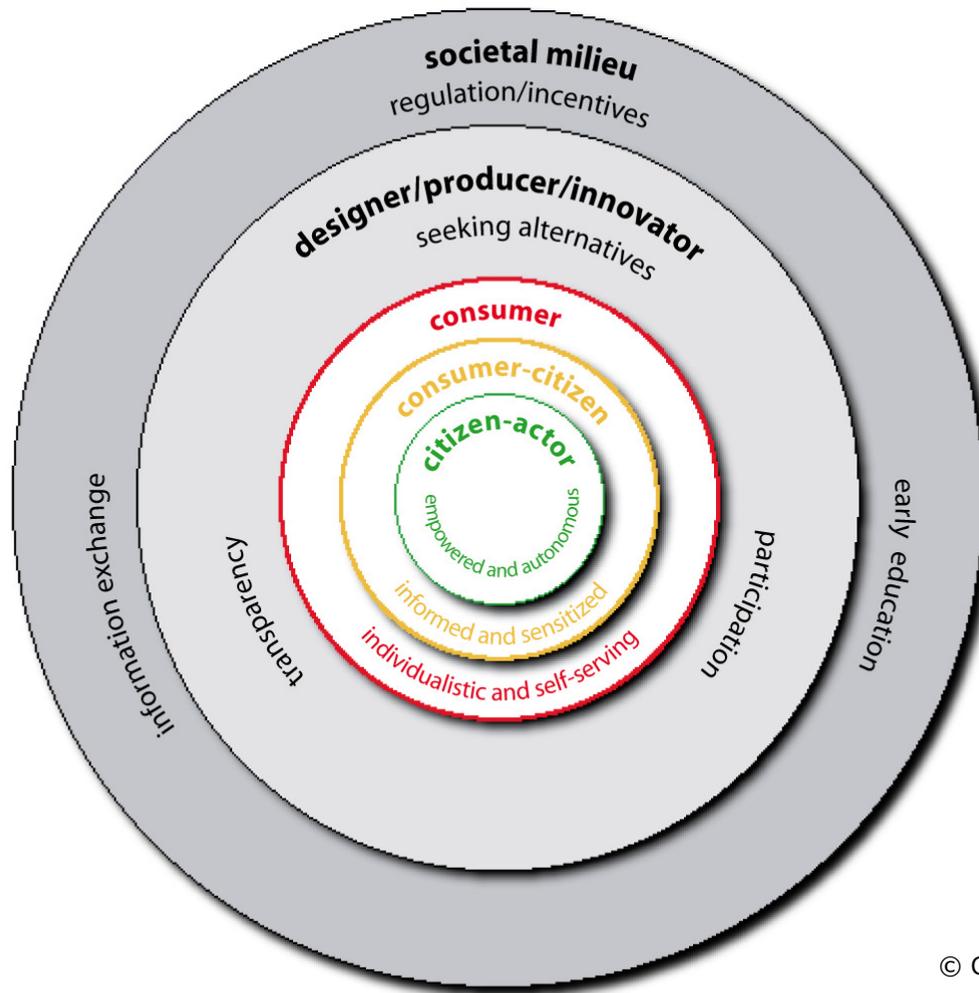
Benefits

- Diverse **range of social needs and concerns are reflected;**
- **Enhanced opportunities for a rich cross-fertilization of ideas;**
- **Improved response from markets to the needs of everyone;**
- **Allows justification of action taken.**

Why a **framework** that exposes **issues** and **values** of **stakeholders** is essential?:

- Responsibility **for future generations;**
- **Beyond a reciprocity rule (or the Golden Rule) since it is insufficient in a context of sustainability;**
- **A requirement for the transparency of information;**
- **The reversibility of actions;**
- **The definition of levels of acceptability.**

Governance and the Emergence of Responsible Citizen



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Conclusion

- A **framework** will be **established**, that is based on the fundamental **values** of sustainable development:
 - A requirement beyond the optimization of mechanisms for dialogue and intersectoral approaches for the conception of products and services are necessary;
 - Beyond a deontology, towards an axiology
 - not only based on the respect of current norms and practises; necessity to develop new attitudes.
- **Stakeholders** should be able to **rely** on a general **conceptual framework**:
 - encourage an emergence of co-creation processes of projects and co-formulation processes for solutions and projects based on dialogue;
 - encourage mutual comprehension of new perspectives and an increased level of responsibility among actors.



Questions?