

Sustainable Management and the Baseline Approach

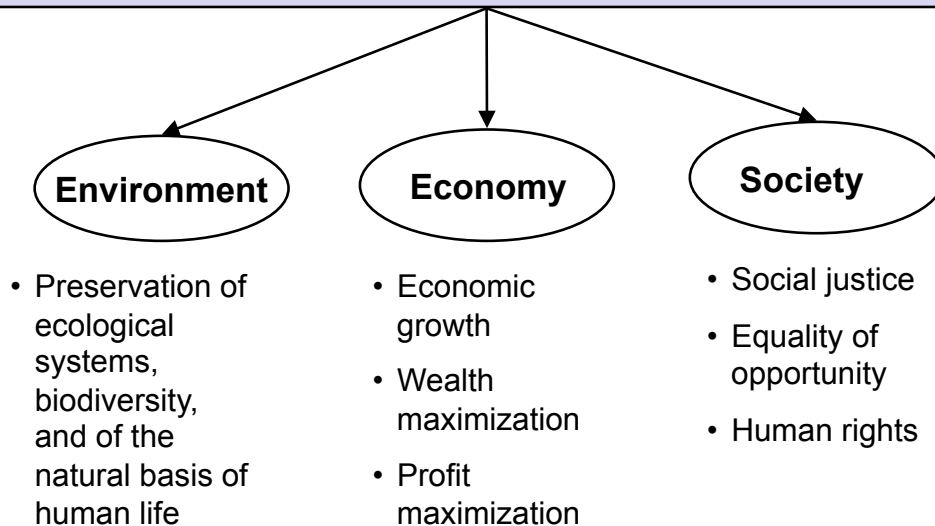
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Outlook

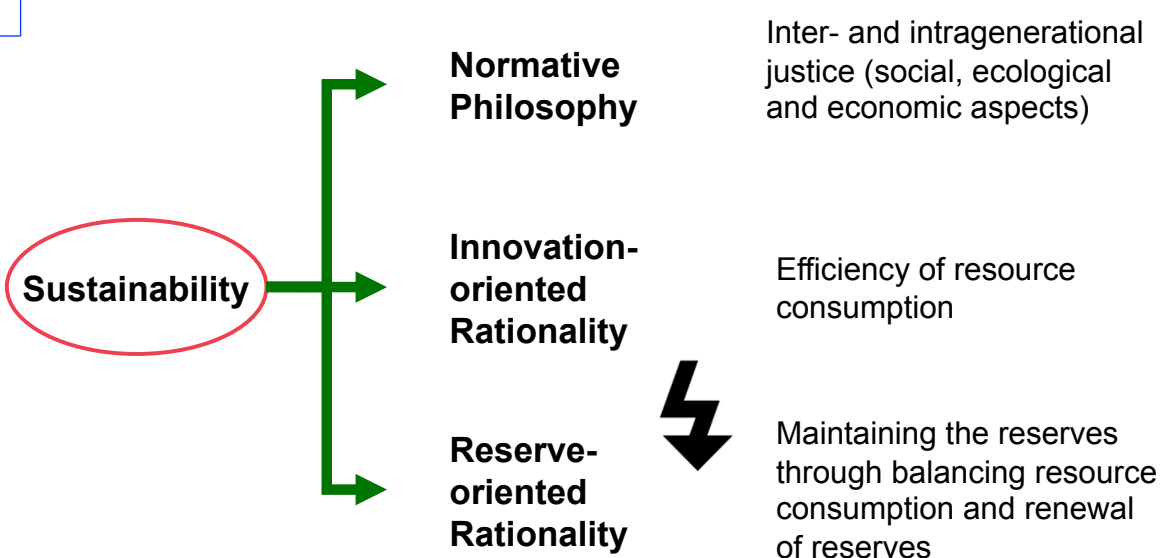
- 1. Definition of Sustainability**
- 2. Measuring Sustainability**
- 3. Sustainability as a Practical Concept?**
- 4. Is Sustainability relative?**
- 5. Sustainability and Firm Dynamics**
- 6. Summary and Discussion**

1. Definition of Sustainability

Sustainable Development is a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland-Commission)



1. Definition of Sustainability

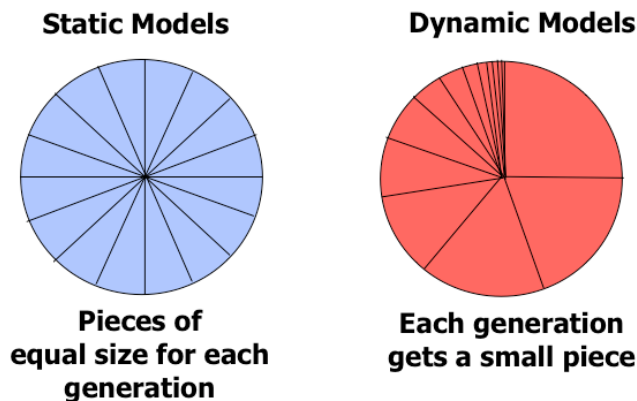


Source: Hülsmann, M.: Strategisches Management und Nachhaltigkeit, Vortrag bei Herbsttagung der Wissenschaftlichen Kommission „Umweltwirtschaft“ des VHB, Bremen 2003

1. Definition of Sustainability

Remarks:

- Normative questions remain unresolved!
- Contradictions between the innovation- and reserve-oriented rationality



Does it matter?

2. Measuring Sustainability

- **Biodiversity:** extinction rate is 1000 times as the natural extinction rate: 6th mass extinction (IUCN, 2010)
- **Ecosystems:** significant deterioration of nearly all ecosystems (UNEP, 2011),
- **Soil:** massive degradation of farmland, permanent grassland, forests and savannas (Zika and Erb, 2009),
- **Water:** 3 millions annual deaths through water-related illnesses (World Water Assessment Programme, 2009),
- **Forests:** decrease of the global forests by one third in the last 8000 years and devastation of 78 percent of primeval forests (WWF, 2011),
- **Climate:** temperature increase of 1,1 – 6,4°C until 2100 (IPCC, 2007),
- **Ozone layer:** size of the ozone hole is – despite significant reductions of relevant emission – not decreasing. Its shrinking to its size in 1980 is expected to require several decades (WMO / UNEP, 2010).

2. Measuring Sustainability

Intermediate result:

According to scientists we (as the global community) are unsustainable in each category regardless of the rationality concept applied!

Questions:

1. What are the consequences for firms?
2. Does it even make sense to apply the sustainability concept on the firm level?
3. What is sustainability on the firm level?

3. Sustainability as a Practical Concept?

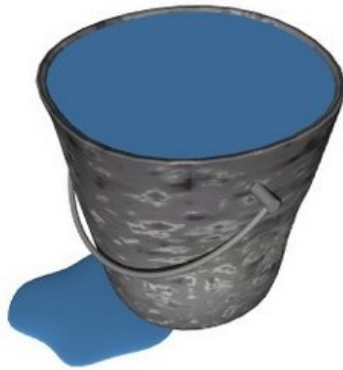
Dow Jones Sustainability Index Criteria:

	Strategy / Management	Products / Industry specific aspects
Economic	<ul style="list-style-type: none">• Strategic planning• Corporate governance• Intellectual capital management	<ul style="list-style-type: none">• Product focus on sustainability trends• Alliances / partnerships
Environmental	<ul style="list-style-type: none">• Environmental Management Systems• Environmental performance• Sustainability reporting	<ul style="list-style-type: none">• Eco-design of products• Genetic engineering• Animal testing
Social	<ul style="list-style-type: none">• Employee relations• Stakeholder involvement• Human rights policies	<ul style="list-style-type: none">• Social guidelines for suppliers

Source: www.sustainability-index.com

3. Sustainability as a Practical Concept?

Bucket Overflowing Theory:



1. Each additional drop makes the problem worse.
2. If the world is already unsustainable, production and consumption activities should be dramatically reduced!

Weird conclusions are possible, e.g.:

Shut down the entire automobile industry including VW and Toyota!

3. Sustainability as a Practical Concept?

Intermediate results:

1. In absolute terms the application of the sustainability concept does not make sense!
2. Many researchers and practitioners use the term “sustainability” without meaning.
3. Can corporate sustainability be measured in relative terms?

4. Is Sustainability Relative?



Baseline concept (as part of the CDM methodologies):

- A baseline reflects the environmental, social and economic impacts in the case of a project's / product's / firm's absence.
- Relative sustainability: A project / product / firm is compared against this baseline.

Question:

How would the world look like without this project / product / firm?

4. Is Sustainability Relative?

Environment	Social Development	Economic and technological development
1. Air quality	6. Quality of employment	10. Quantitative employment and income generation
2. Water quality and quantity	7. Livelihoods of the poor	
3. Soil condition	8. Access to affordable and clean energy services	11. Balance of payments and investment
4. Other pollutants		
5. Biodiversity	9. Human and institutional capacity	12. Technology transfer and technological self-reliance

(Source: Sterk/Rudolph/Arens et al., 2009: 53)

4. Is Sustainability Relative?

Livelihood of the Poor

Description	Possible parameters
<p>Livelihood of the poor refers to changes compared to the baseline in:</p> <ul style="list-style-type: none"> • Poverty alleviation, e.g. changes in living standard, number of people living under the poverty line • Access to health care services (hospitals, doctors, medication, nurses etc.), affordability of services, reliability and quality of services, and diseases prevention and treatment, including HIV AIDS, measles, TB, malaria, cholera and others. • Access to sanitation including access to toilets/washrooms. Waste management facilities that offer the possibility of deposing waste in a sanitary way. • Access to an appropriate quantity, quality and variety of food that is a prerequisite for health. • Changes in proneness to natural disasters that may be climate change related (e.g. droughts, floodings, storms, locust swarms, etc.) or unrelated (e.g. earthquakes, volcano outbreaks) • Long-term changes that differ from natural disasters in the sense that they occur steadily/increasingly but not suddenly (e.g. community's dependency on river water from a river with diminishing volumes of water) <p>Changes must be directly related to the service and not an unintended impact.</p>	<ul style="list-style-type: none"> • Children immunized against measles • Maternal mortality ratio HIV prevalence among pregnant women • Condom use rate of the contraceptive prevalence rate • Condom use rate for high-risk people • Population with comprehensive correct knowledge of HIV/AIDS/other diseases • Prevalence and death rates associated with malaria / tuberculosis • Population rate in malaria-risk areas using effective malaria prevention and treatment measures • Proportion of tuberculosis cases detected and cured under directly observed treatment short course DOTS (Internationally recommended TB control strategy) • Infant mortality rate / Under-five mortality rate / Infant mortality rate • Life expectancy • Number of hospitals available / doctors / physicians / nurses • Proportion of births attended by skilled health personnel • Quality improvement of health care services • Number of population with access to improved sanitation, urban and rural • Number of population who can access effective waste management systems • Prevalence of underweight children under-five years of age • Proportion of population below minimum level of dietary energy consumption • Availability of reliable disaster warning and relief system at community, local, regional, and national levels • Knowledge and information dissemination regarding natural disaster

4. Is Sustainability Relative?

CDM decision rule:

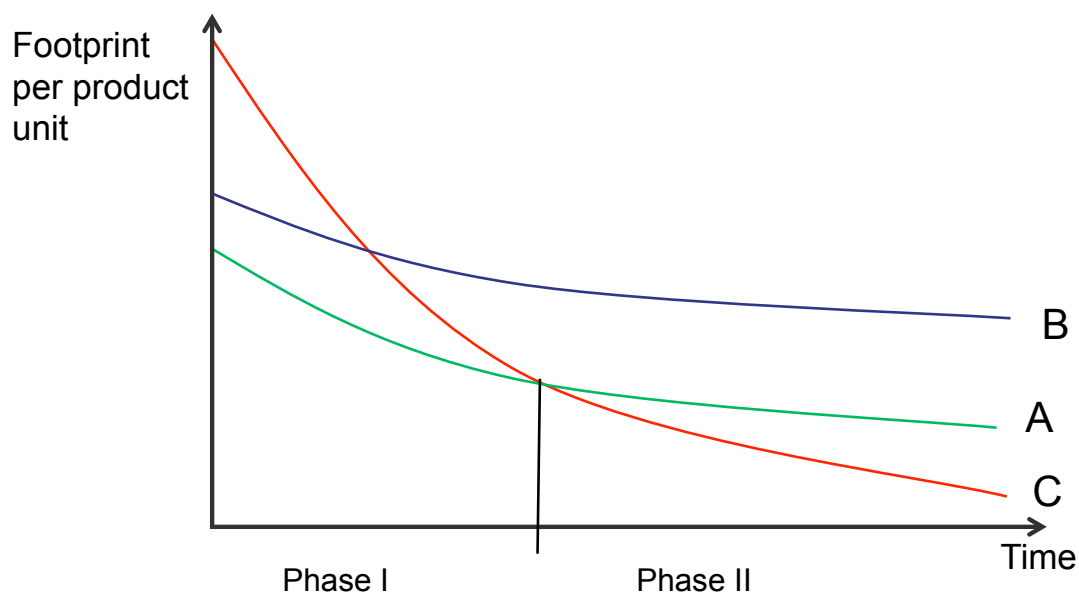
A project is defined as sustainable when its overall impact is positive in at least two dimensions (environment, social development, economic and technological development) and is neutral in the third dimension.

5. Sustainability and Firm Dynamics

Example:

- Three car manufacturers A, B and C
- Each car manufacturer produces one model with all attributes being identical except their sustainability footprint.
- The sustainability footprint F of each model is given:
$$F(C) > F(B) > F(A)$$
- Each firm has the capacity to learn which results in a reduced footprint. Learning rates (LR) are defined as:
$$LR(C) > LR(A) > LR(B)$$

5. Sustainability and Firm Dynamics



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Model results for a given market size:

- Present (phase I): each car A reduces the overall footprint of the industry (compared to B and C)
 - Future (phase II): in the long run C will be superior to B and C
- ➔ B can be shut down immediately: it is inferior in the present and in the future

5. Sustainability and Firm Dynamics

Model lessons:

1. If market size is given, the baseline concept can lead to the investment in the best available technologies.
2. Path dependencies often works in favor of currently successful firms.
3. Learning is a crucial element and should be promoted.
4. How can learning and the use of currently best technologies be balanced?

6. Summary and Discussion



1. Corporate sustainability in an absolute sense is a concept without substance.
2. Baseline concept allows to measure the relative footprint of a firm.
3. Politics should ensure the survival of innovative companies and break path dependencies if necessary.