



# **Sustainability as Innovation: Challenges and Perspectives in Measurement and Implementation**

Prof. Dr. Vera Bitsch  
Chair Economics of Horticulture and  
Landscaping  
Technical University of Munich

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# What is Innovation?



- Oslo Manual used by OECD to measure innovation on the firm level (manufacturing, primary industries, and services sector) includes **product, process, organizational, and marketing innovations**
- does not include ***public sector*** innovations
- does not include ***industry- or economy-wide changes***

# What is Innovation? – Cont.



- **Implementation** of a new or significantly improved product, or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations

(OECD/Eurostat 2005: Oslo Manual, 3<sup>rd</sup> ed., p. 46)

# Activities before Innovation

- **Research** (basic/applied; not necessarily in that order or distinction)
- **Discoveries**
- **Inventions**
- Modelling of these activities and putting to practical use (Triple Helix, Quadruple Helix, Quintuple Helix, N-tuple Helix)

# What is Sustainability?

- Historical roots in German forestry sciences (von Carlowitz (1713): concept; Hartig (1795): term)
- **Brundtland Report** (1987) defines sustainable development as  
“... development that meets the needs of the present without compromising the ability of future generations to meet their own needs“

# What is Sustainability?

- Early on the focus was on natural resources, environment
- Developed into the 3-pillars concept
- 2002 World Summit on Sustainable Development seen as origin of the 3-pillars concept
- Triple-Bottom-Line of **P**eople, **P**lanet, **P**rofit



# Examples of Approaches to Sustainability in Agricultural Value Chains

- Retail
  - Individual companies
  - Multi-stakeholder initiatives
- Input industry
- Agricultural production

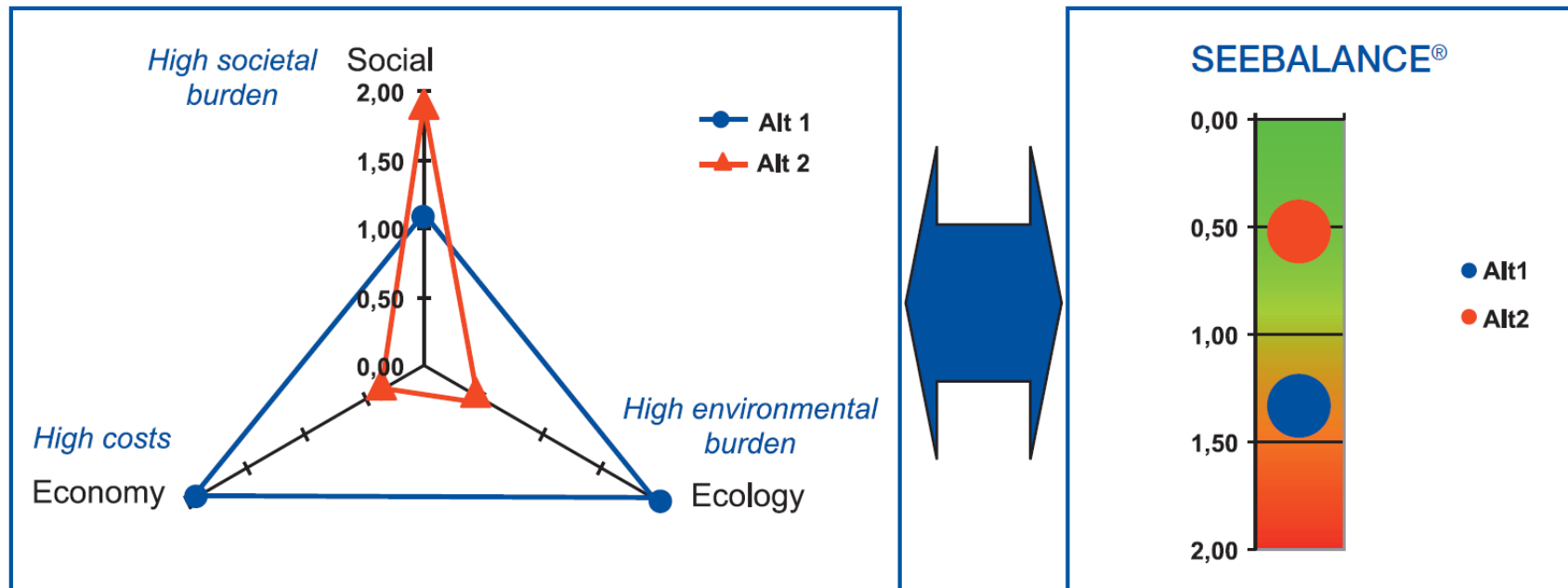
# Examples from Retail

- Individual companies
  - SYSCO, Unilever, Walmart developed systems of **codes of conducts** for suppliers (b2b)
  - REWE (German retail chain) developed store **brand**
- Multi-stakeholder initiatives (b2b)
  - ETI, BSCI, GRI
  - GLOBALG.A.P. over 140 independent accredited auditors in over 100 countries



# Input Industry Example BASF „SEEBALANCE“

From “Ecoefficiency” to including social aspects and simplification of complexity



# Agriculture: Stewardship Index for Specialty Crops



- **Multi-stakeholder initiative:** producers, labor unions, suppliers, retailers, environmental & other NGOs, few experts
- Goal: Development of **sustainability metrics** across the value chain (benchmarking approach)
- Region: U.S.A.

# Stewardship Index for Specialty Crops (SISC)



		Farm	Processing	Distribution	Retail / Food Service
<b>PEOPLE</b>					
	Human resources (worker health & safety, employment practices, etc.)	X	X	X	X
	Community (local sourcing / hiring, etc.)	X	X	X	X
<b>PLANET</b>					
	Air quality	X	X	X	X
	Biodiversity and ecosystems	X			
	Energy use	X	X	X	X
	GHG emissions	X	X	X	X
	Nutrients <sup>1</sup>	X			
	Packaging	X	X	X	X
	Pesticides <sup>1,2</sup>	X	X	X	X
	Soils	X			
	Waste	X	X	X	X
	Water quality <sup>3</sup>	X	X	X	X
	Water use	X	X	X	X
<b>PROFIT <sup>4</sup></b>					
	Green procurement	X	X	X	X
	Fair price/incentives	X	X	X	X

1. includes related water quality issues;  
 2. includes health and safety of workers and communities;  
 3. includes stormwater runoff and process water;  
 4. improved efficiency/cost reduction will be incorporated into other metrics where appropriate



# How to Develop Sustainability Metrics: Example – People

(1) General principles

e.g., protection of human rights

(2) Criteria

e.g., no child labor

(3) Indicators

e.g., only employees 18 years of age and above



# What is Required of Indicators?

- Understandability, credibility, audibility
- Measurability, measurement protocol
- System definition and borders
- Feasibility
  - Cost effective
  - Specific, yet comparable
  - Timely, shows change over time
  - Dynamically adaptable
  - Goal-oriented (complementarity, trade-offs)

# Critical Measurement Issues

- **Data collection** needs (sustainability impacts often questionable) vs. **bureaucracy**, cost (structural impacts, esp. on competitiveness of smaller operations)
- **Continuous improvement**, innovation
- Measuring **directs focus**
  - Value implications
  - Expert involvement, but no delegation



# Critical Process Issues

- **Stakeholder** participation & commitment varies, used strategically
- **Conflicting** perceptions of stakeholders
- Tensions btw participants due to **lack of final solution**
- **Procedural rules**, agreed on criteria required, but often **lacking**
- **Trust** building, stabilizing participation

# Conclusions

- Sustainability is a **wicked problem** -> disagreement about what the facts are, no final solutions, political process
- **Priority**: Set up systems that are adaptable, flexible, open to innovation, change
- Moving in the **right direction**
- Building **trust** vis-à-vis complexity