

# Comprehensive Ecological Indicators for Products:

## 3 case studies applying Ecological Rucksack (MIPS) and Ecological Footprint

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# Outline

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- ② Background and objectives of the case studies
- ② Theoretical Background
- ② Reasons for the selected indicator sets
- ② Case study results
- ② Conclusions
- ② Outlook

# Background (I)

- ② **Consumer awareness** on ecological and social responsibility of producers and retailers **rised and is still rising**, and they increasingly ask for **information** on the sustainability quality of products and services.
  
- ② The European Union calls for a strengthening of resource productivity
  - e.g. in the "**Action Plan on Sustainable Consumption and Production and Sustainable Industrial Policy**" (European Commission, 2008);
  - or the **EU Thematic Strategy on the Sustainable Use of Natural Resources** (European Commission, 2005)

# Background (II)

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🌀 **ECR (Austria)<sup>1</sup>, an Austrian initiative of retailers and producers**, founded a working group on sustainability in 2007.

- Focus: Environmental Sustainability
- 1 common standard of measuring sustainability
- set that covers the main environmental problems

<sup>1</sup>: Efficient Consumer Response [www.ecr-austria.at](http://www.ecr-austria.at)

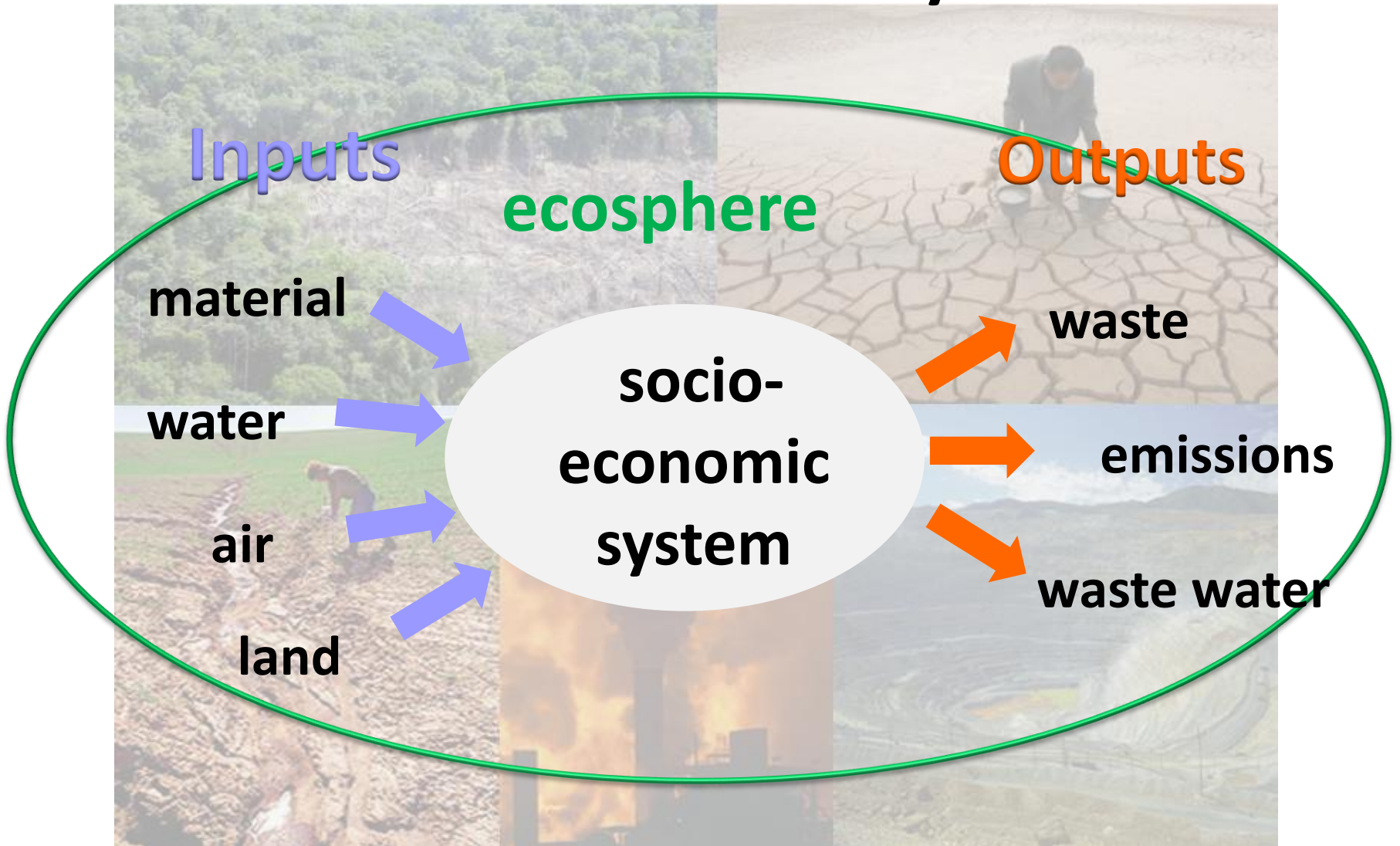
- ② The company representatives within ECR Austria believe that

*“aware costumers – on condition that well-grounded information on the sustainability performance of the product is given – prefer ‘sustainable’ products and so contribute to reaching the global objectives.”*

## **Overall objective of ECR WG Sustainability:**

- ② Development of a feasible, consistent and comprehensive **methodological standard** for measuring natural resource use / environmental sustainability of product’s.
- ② the **vision of voluntary product labelling**

# The socio-economic system embedded in the environmental system



# Global environmental issues



**...caused by extensive resource use related to production and use of products!**

**Mitigate environmental problems by reducing resource use in absolute terms.**



# Criteria for the ECR indicator set (I)

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*Balance between scientific foundation and coverage of complexity and economic cost and benefits for enterprises.*

## **Requirements of the business representatives:**

- ② Easy to understand and to communicate
- ② Scientifically solid and directionally safe
- ② Applicable to a large number of products
- ② Used to identify potentials for improvements

# Criteria for the ECR indicator set (II)

## Criteria from the scientific perspective:

*(Giljum et al., 2006; Schmidt-Bleek, 2009, et al.)*

- ② **cover main environmental categories**  
(OECD, 2007b: biotic (renewable) and abiotic (non-renewable) materials, water, land area and air).
- ② **quantify these** categories in absolute numbers and in a **disaggregated manner**
- ② using **transparent** accounting schemes, system boundaries and data sources.
- ② enable **life-cycle-wide** assessment
- ② **compatibility** with national accounts


# The Selection of the ECR Indicator Set

main categories of quantitative resource use  
plus the output-category CO<sub>2</sub>-emissions

Indicators applied



Land use



Air / CO<sub>2</sub>-emissions



Water



Abiotic materials



Biotic materials

Ecological Footprint

Ecological Rucksack (MIPS)

# Reasons for selecting this indicator set

- ⊗ Considers the **most important environmental categories**
- ⊗ Acknowledged the **scarcity of all** natural resources
- ⊗ Can be applied on product level and on **national level**
- ⊗ Gets down to the **root** of the environmental issues (Mitigation)
- ⊗ Applicable for **all products and services**
- ⊗ Comprehensive, but with **manageable effort** ascertainable
- ⊗ The Ecological Footprint concept is **easy to communicate**
- ⊗ The Ecological Rucksack (MIPS) facilitated **eco-innovation**
- ⊗ Relevant for the **whole life cycle** of a product



# Case Studies 2008

② 3 case studies to test the suitability and applicability of the selected indicator set (April – November 2008).

② designed for comparing two products with a similar benefit for the consumer.

Use of a **service unit** / functional unit.

- Light bulb and low-energy light bulb, service unit: 8,000 operating hours
- Baby leaf spinach and deep-frozen spinach, service unit: 1 kg spinach
- Natural mineral water in different packaging, service unit: 1 litre of mineral water



# Case study results spinach, service unit for comparison: 1 kg of spinach



| results per service unit<br>[su = 1kg spinach]                        | deep-frozen spinach | baby-leaf spinach |
|---|---------------------|-------------------|
| Carbon Footprint [g/su]   | 266                 | 456               |
| Carbon Footprint [gm <sup>2</sup> /su]                                | 0.72                | 1.23              |
| land use based part of the Ecological Footprint [gm <sup>2</sup> /su] | 0.13                | 0.18              |
| <b>Ecological Footprint [gm<sup>2</sup>/su]</b>                       | <b>0.85</b>         | <b>1.42</b>       |
| Abiotic Material [g/su]   | 722                 | 750               |
| Biotic Material [g/su]  | 1,165               | 1,020             |
| Water [g/su]  | 49,914              | 99,255            |
| Air [g/su]  | 477                 | 366               |
| <b>MIPS [g/su]</b>  | <b>52,279</b>       | <b>101,391</b>    |

# Conclusions (I)

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- ② The **conclusions from a single indicator** assessment such as the Carbon Footprint or Water Footprint **might not be right** for all environmental categories.
- ② **Ecological Footprint and Ecological Rucksack (MIPS)** is **suitable** for comprehensively quantifying and mitigating environmental pressures.
- ② **demand for a validated international database** on resource indicators in order to enable the assessment of hundreds of products
- ② measures for reducing the Ecological Footprint and the Ecological Rucksack (MIPS) **contribute to reaching global resource use objectives**, if rebound effects could be avoided.

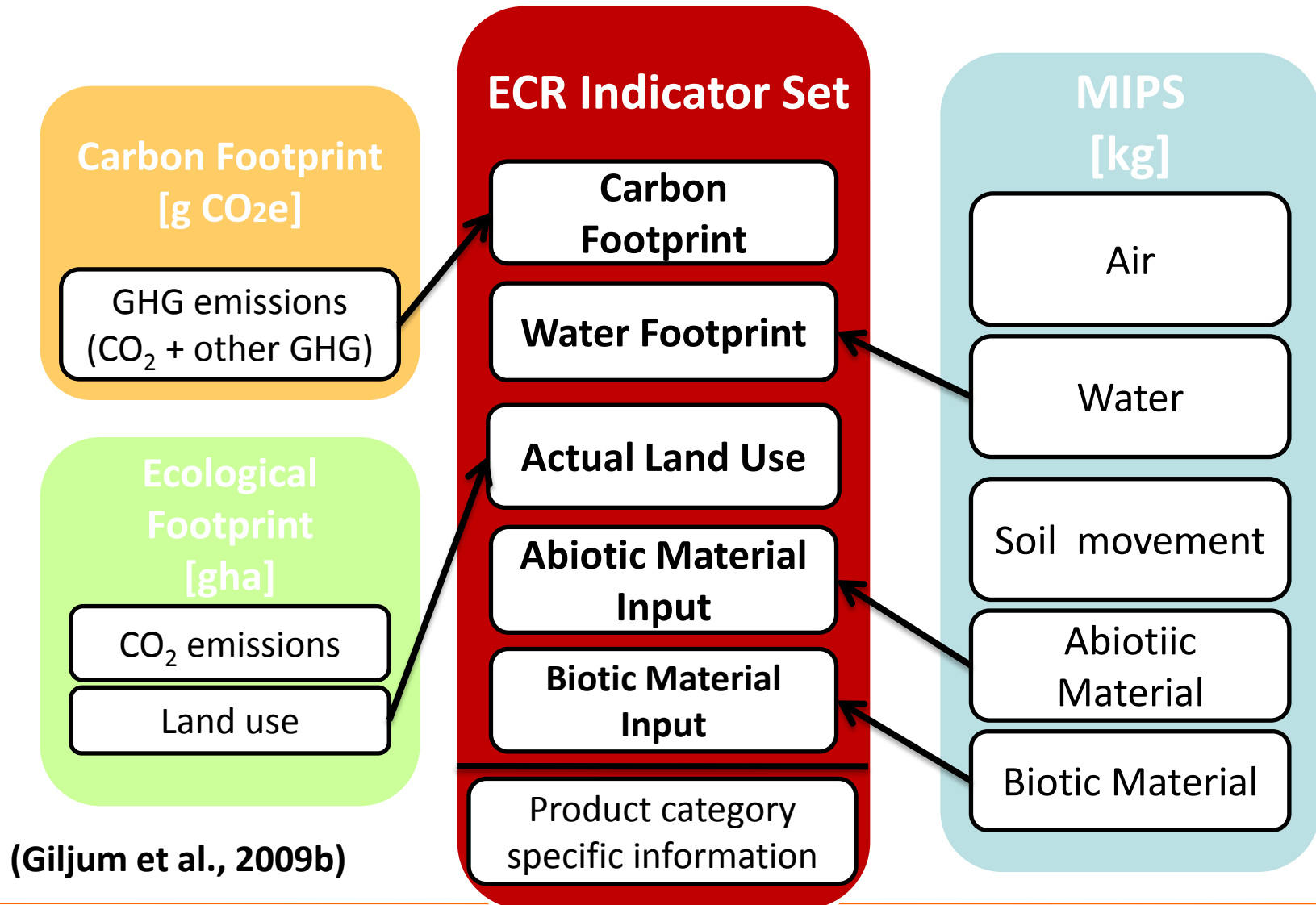
# Conclusions (II)

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For concrete policy-making and in enterprises, clients are critical about the Ecological Footprint. Some key points of a critical review (Best et al., 2006):

- does **not** include **all categories** of resource use (abiotic materials and water)
- **through the weighting** of all categories of resources according to demand on biocapacity and expression in global hectares **information** on direct environmental effects **is lost**
- **only CO<sub>2</sub>-emissions and not all GHG**, furthermore the underlying assumptions for CO<sub>2</sub>-Sequestration of forests are highly uncertain.
- **not actual land use**, conversion into global hectares by mixing real land use and hypothetical land use from CO<sub>2</sub>-sequestration

# Outlook (I): Further developed Set



# Outlook (II)

Regarding applications at the level of products and companies, the indicator set is further developed and applied to other product groups and industries.

## ECR process in 2009-2010:

- Pilot run with different product categories
- Test labelling of products at the POS
- Consumer research
- International networking



## Business Resource Intensity Index

- aims at developing an index to measure and assess the resource intensity of products
- cooperating closely with Austrian companies from different industrial sectors (construction industry, furniture and pulp industry)

# THANK YOU FOR.....

## ...your attention!

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