

FoEE / SERI indicator set

Measuring EU’s resource use in a workable and effective way

Dr. Stefan Giljum, Stephan Lutter
Sustainable Europe Research Institute (SERI)

www.seri.at



Contents



- 1. Criteria for selecting the set of indicators**
- 2. Presentation of the set and the single indicators**
- 3. The value-added of the indicator set**

Contents



- 1. Criteria for selecting the set of indicators**
- 2. Presentation of the set and the single indicators**
- 3. The value-added of the indicator set**

Criteria



FoE workshops: 10 key criteria, among others:

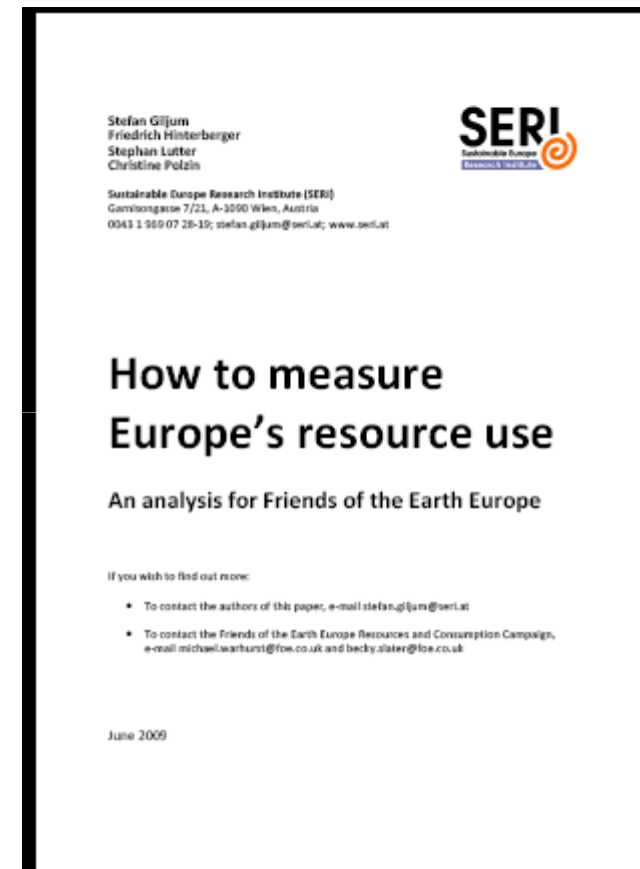
- Providing a solid basis for **policy making** & evaluation
- Covering **all relevant** resource use **categories**
- Rooted in the **statistical system**
- Universal application with **reasonable**: different scales (micro to macro) & time periods (past to future)
- Integrating issues of **equity** and **social justice**, including the international distribution

SERI / FoE Position Paper



Published June 2009

- **Review** of existing resource use indicators
- **Matching** FoE criteria with existing indicators
- **Deriving** the indicator set




Contents



- 1. Criteria for selecting the set of indicators**
- 2. Presentation of the set and the single indicators**
- 3. The value-added of the indicator set**

Resource use categories



Abiotic materials (incl. fossil fuels)

A horizontal banner image showing a close-up of grey, jagged rocks or pieces of coal, representing abiotic materials and fossil fuels.

Biotic materials

A horizontal banner image showing a stack of cut logs, representing biotic materials.

Water

A horizontal banner image showing a close-up of blue water with white foam or bubbles, representing water.

Land area

A horizontal banner image showing a wide landscape of rolling hills covered in golden-brown fields, representing land area.

Greenhouse gas emissions

A horizontal banner image showing a blue sky with white, fluffy clouds, representing greenhouse gas emissions.

Indicator set: overview

Category		Product level		National level	
Materials	abiotic	Material Rucksack of products	abiotic	Material flow-based indicators of countries <small>(including materials embodied in imports and exports)</small>	abiotic
	biotic		biotic		biotic
Water		Water Rucksack / Water Footprint of products		Water Rucksack / Water Footprint of countries <small>(including water embodied in imports and exports)</small>	
Land area		Actual land use of products		Actual land use of countries <small>(including land embodied in imports and exports)</small>	
GHG emissions		Carbon Footprint of products		Carbon Footprint of countries <small>(including GHG emissions embodied in imports and exports)</small>	

Material indicators

State of development and data availability

Macro level: Material flow accounting and analysis:
established at EUROSTAT & OECD

Direct material flows for EU (EUROSTAT); problem:
limited data on indirect material flows of trade

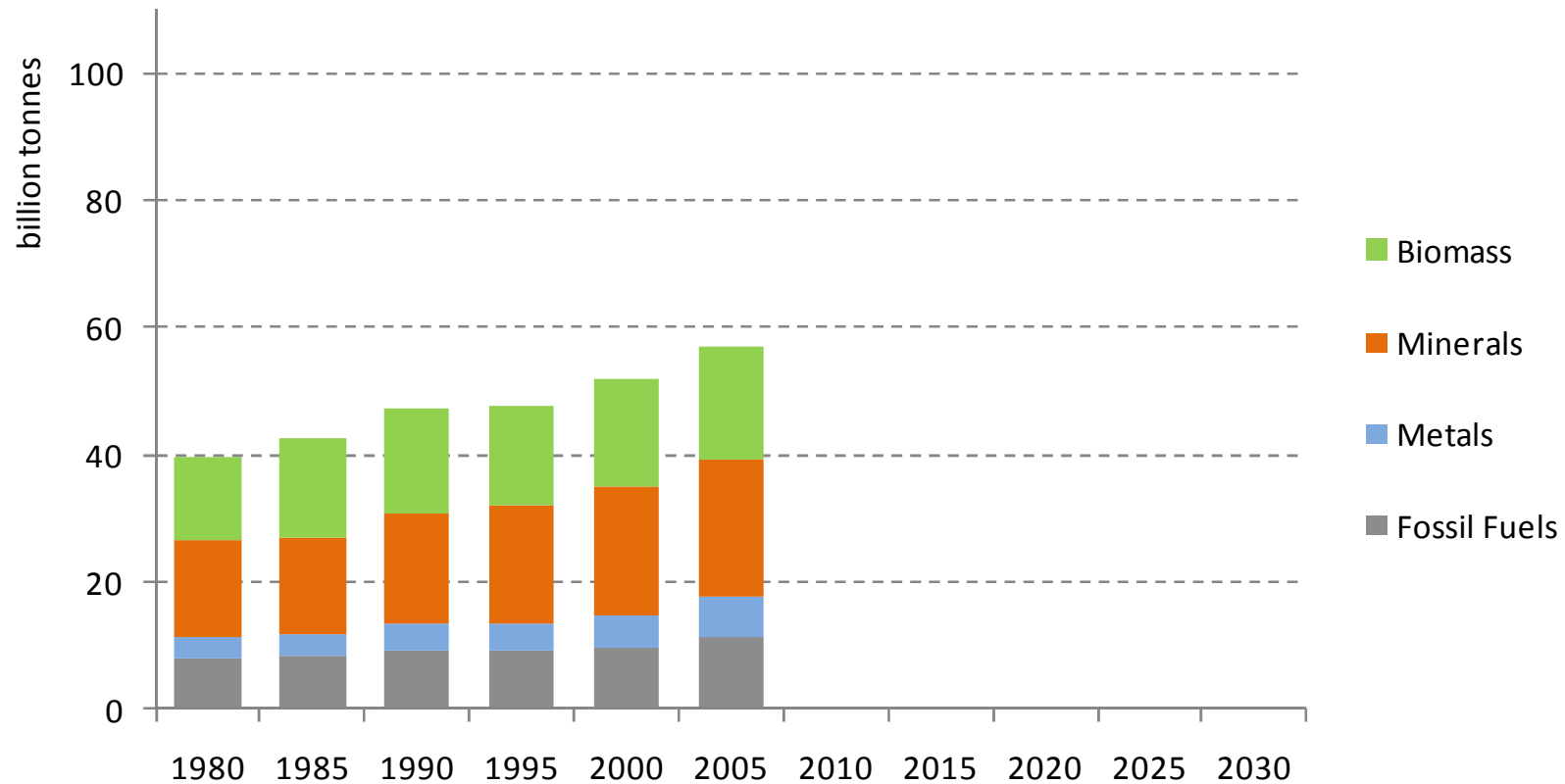
Micro level: Material flow analysis of products; material
indicators for companies

Currently ongoing: inclusion of material flows in life cycle
databases

Material indicators: macro



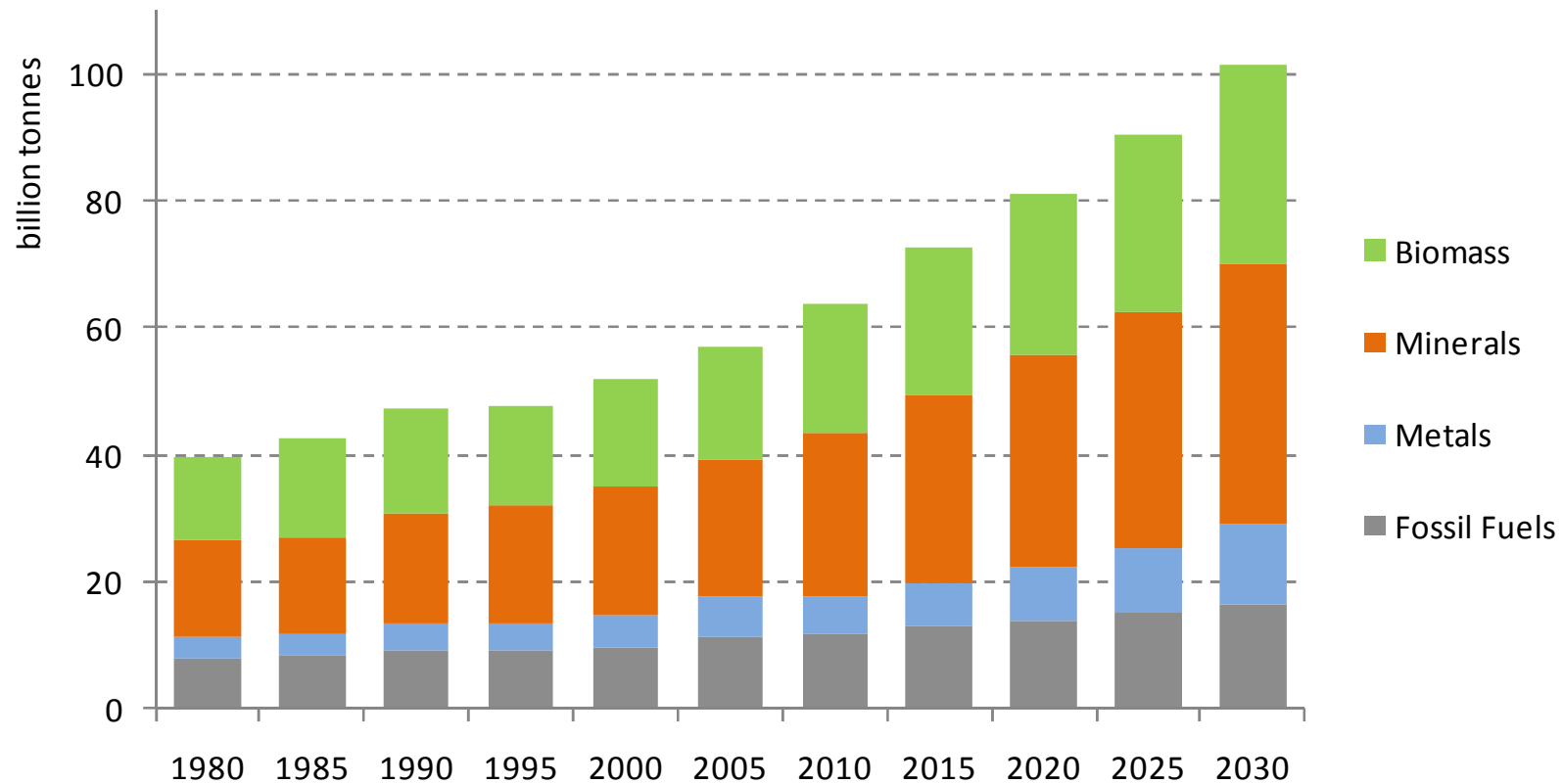
Global used material extraction, 1980 - 2005



Source: www.materialflows.net

Material indicators: macro

Global used material extraction, 1980 - 2030



Source: www.materialflows.net and Lutz/Giljum, 2009

Water indicators

State of development and data availability

Macro level: Water Footprint Network: Water Footprint of Nations (incl. embodied water)

Ongoing EUROSTAT projects to refine EU water accounts

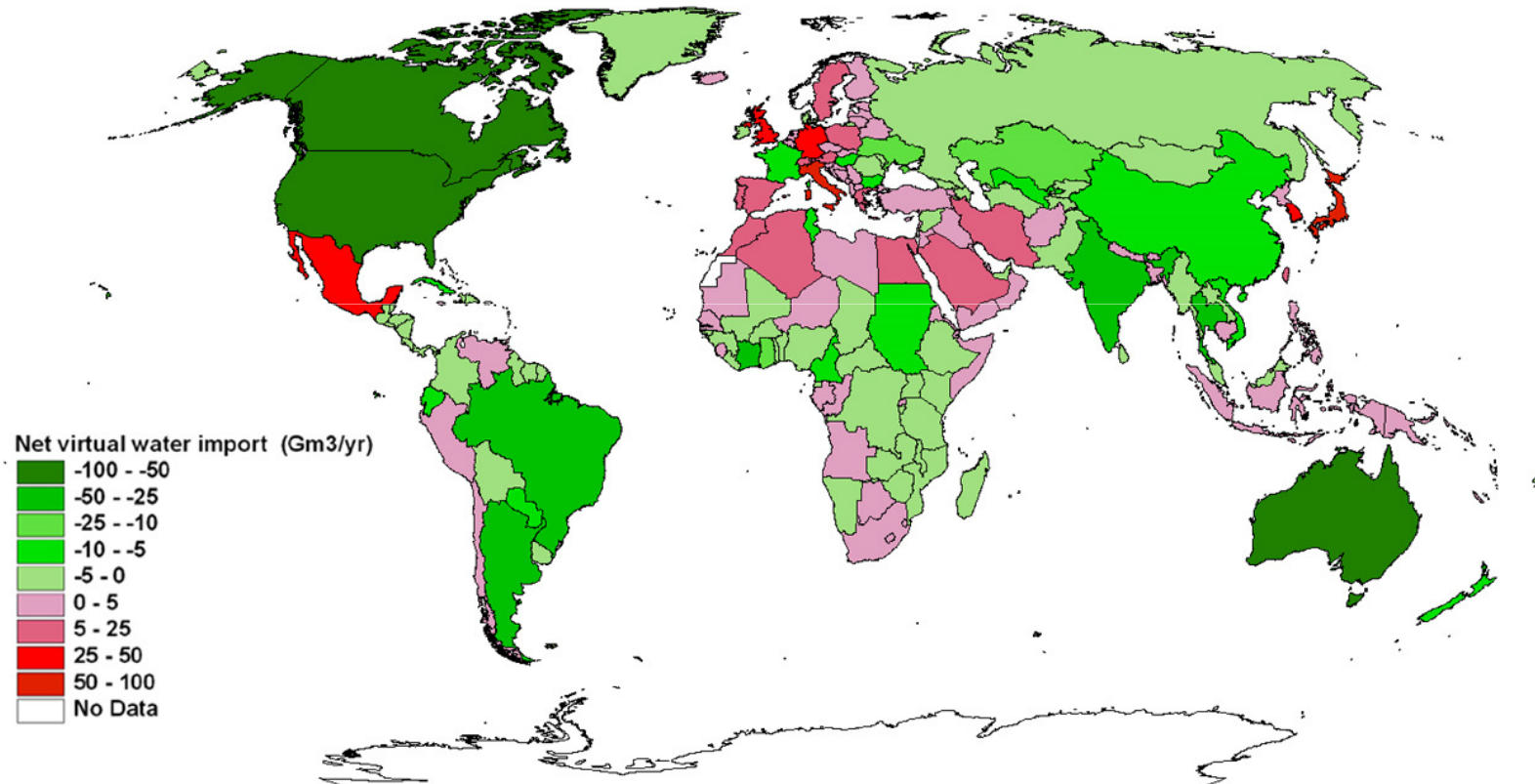
Water data from national statistical offices still scarce

Micro level: Water Footprint of Products; water also part of Life Cycle Inventories

Water indicators: macro



Imports and exports of virtual water, around year 2000



Source: Water Footprint Network, 2009

Water indicators: micro



Source: Water Footprint Network, 2009

Water indicators: micro



Source: Water Footprint Network, 2009

Land indicators

State of development and data availability

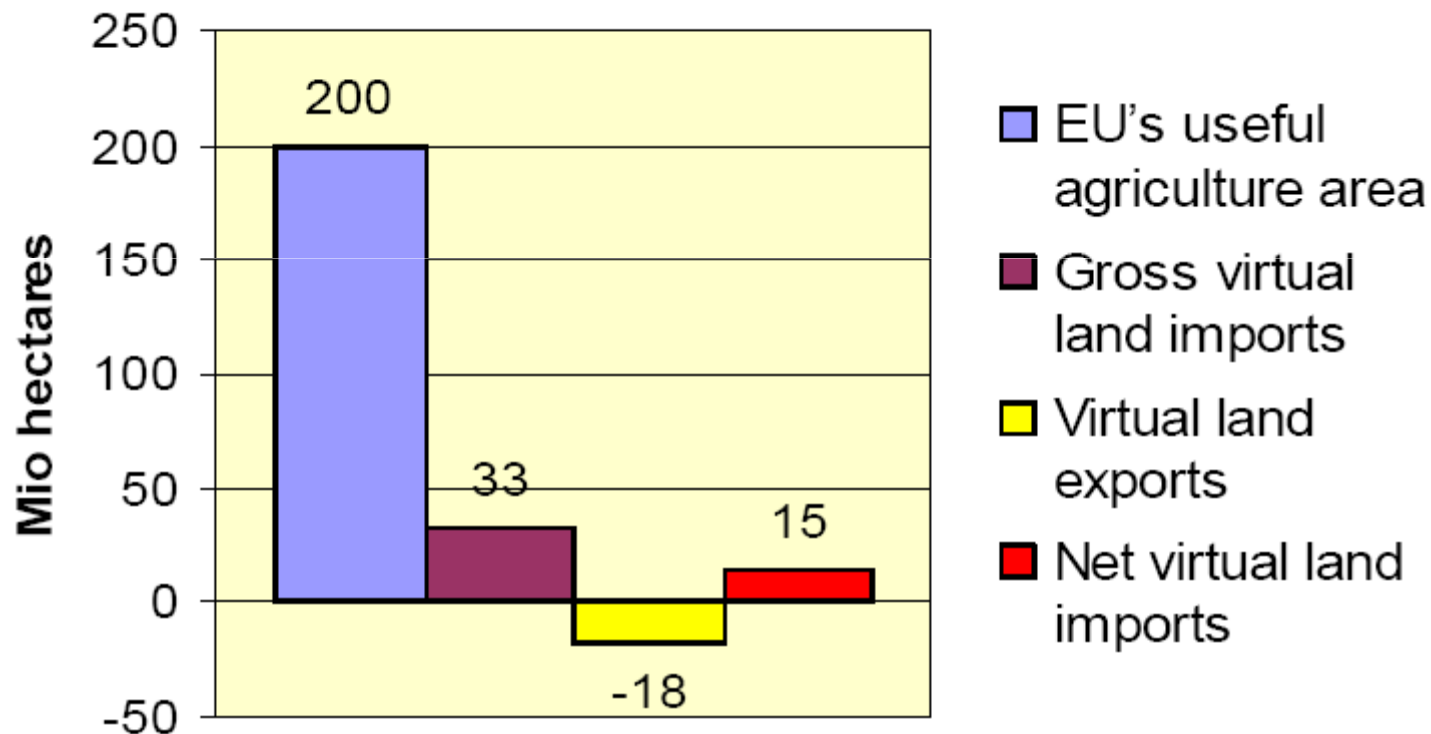
Macro level: EEA land cover and land use accounts
(based on satellite images); some national statistics

Data availability good for domestic land use; only first
studies for embodied land use

Micro level: land use part of Life Cycle Inventories →
partly available

Land indicators: macro

EU's actual & virtual agriculture land



Source: Van der Sleen, 2009

GHG indicators



State of development and data availability

Macro level: UNFCCC inventories of domestic emissions (Kyoto protocol) → good data for domestic emissions

Several models to calculate GHGs embodied in trade → Data available, but harmonisation required

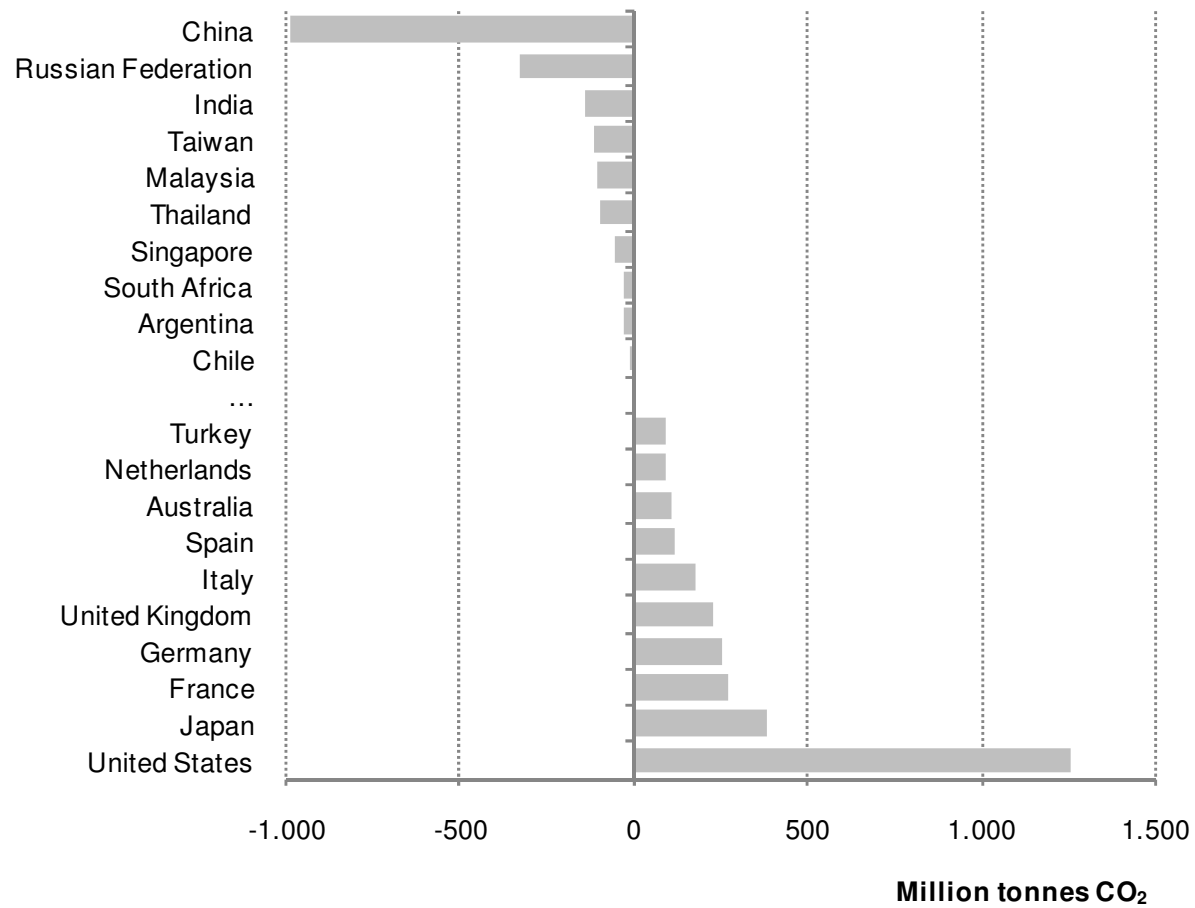
Micro level: Carbon Footprint methodologies (e.g. PAS 2050 / UK); upcoming ISO standard

Carbon Footprint data for a rapidly growing number of products

GHG indicators: macro



Top-10 net-importers and net-exporters of embodied CO₂ emissions, 2005



Source: SERI, 2010

GHG indicators: micro

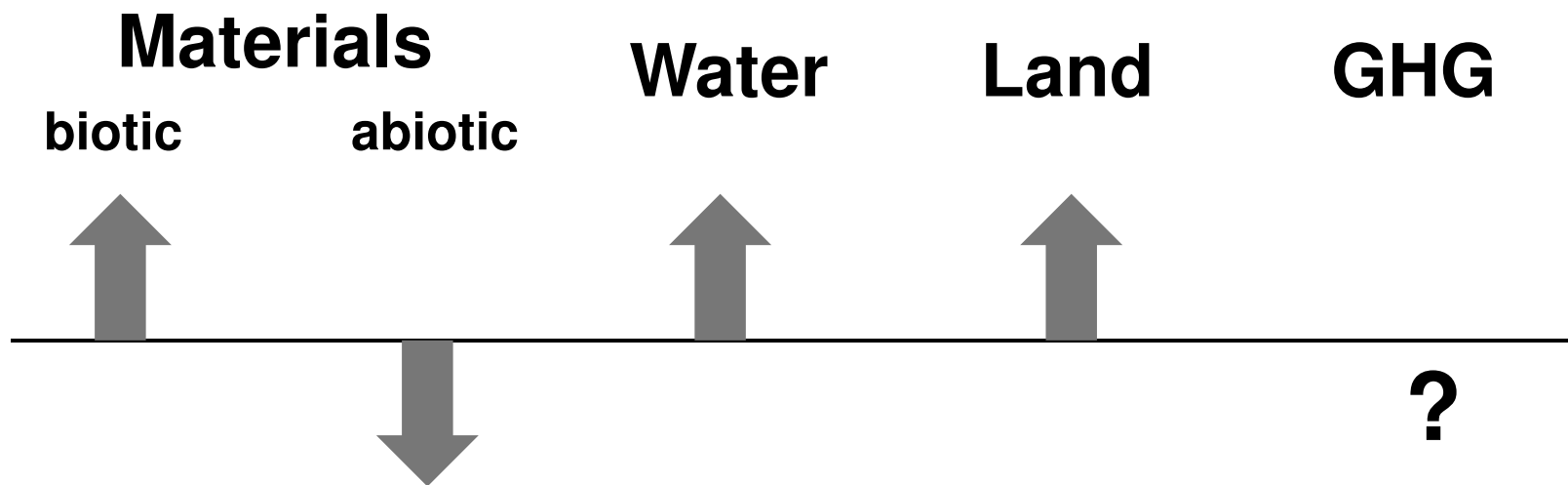


Contents

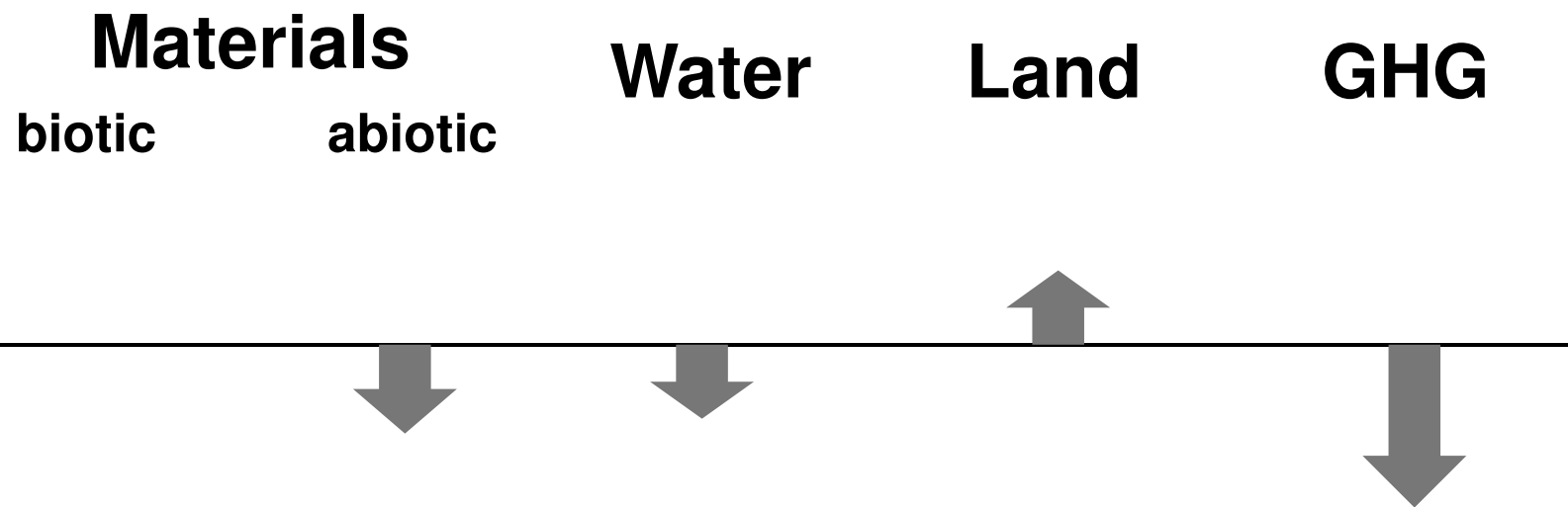


- 1. Criteria for selecting the set of indicators**
- 2. Presentation of the set and the single indicators**
- 3. The value-added of the indicator set**

Example: oil → biofuels



Example: coal → wind



Conclusions



Advantages of the FoEE / SERI indicator set:

- Comprehensive measurement of EU resource use
- Builds on existing methodologies and data → possible implementation in the near future
- Close link to the EU statistical system
- Analysis of trade-offs between different categories → identify real solutions instead of burden shifting

Further development / challenges:

- Better data on embodied resources (EU projects)
- Definition of limits & targets → evaluation of results



Thank you for your attention!

www.seri.at

www.materialflows.net

stefan.giljum@seri.at