Virtueller Wasserhandel und Umweltbelastungen

Philipp Schepelmann

Science Centre North Rhine-Westphalia
Institute of Work and Technology

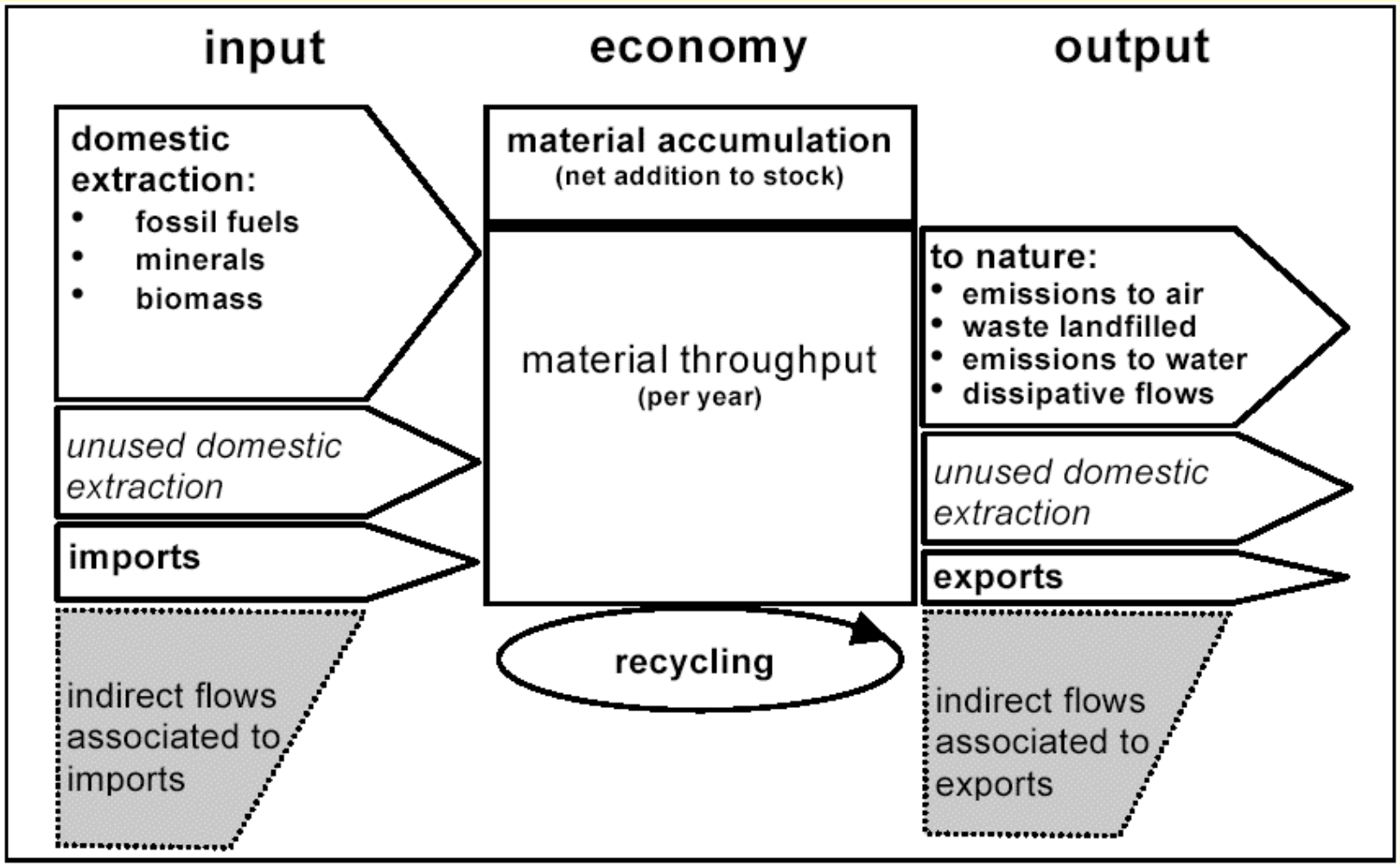
Institute for Culture Studies
Wuppertal Institute for Climate, Environment and Energy

Fachgruppe Stoffströme und Ressourcenmanagement

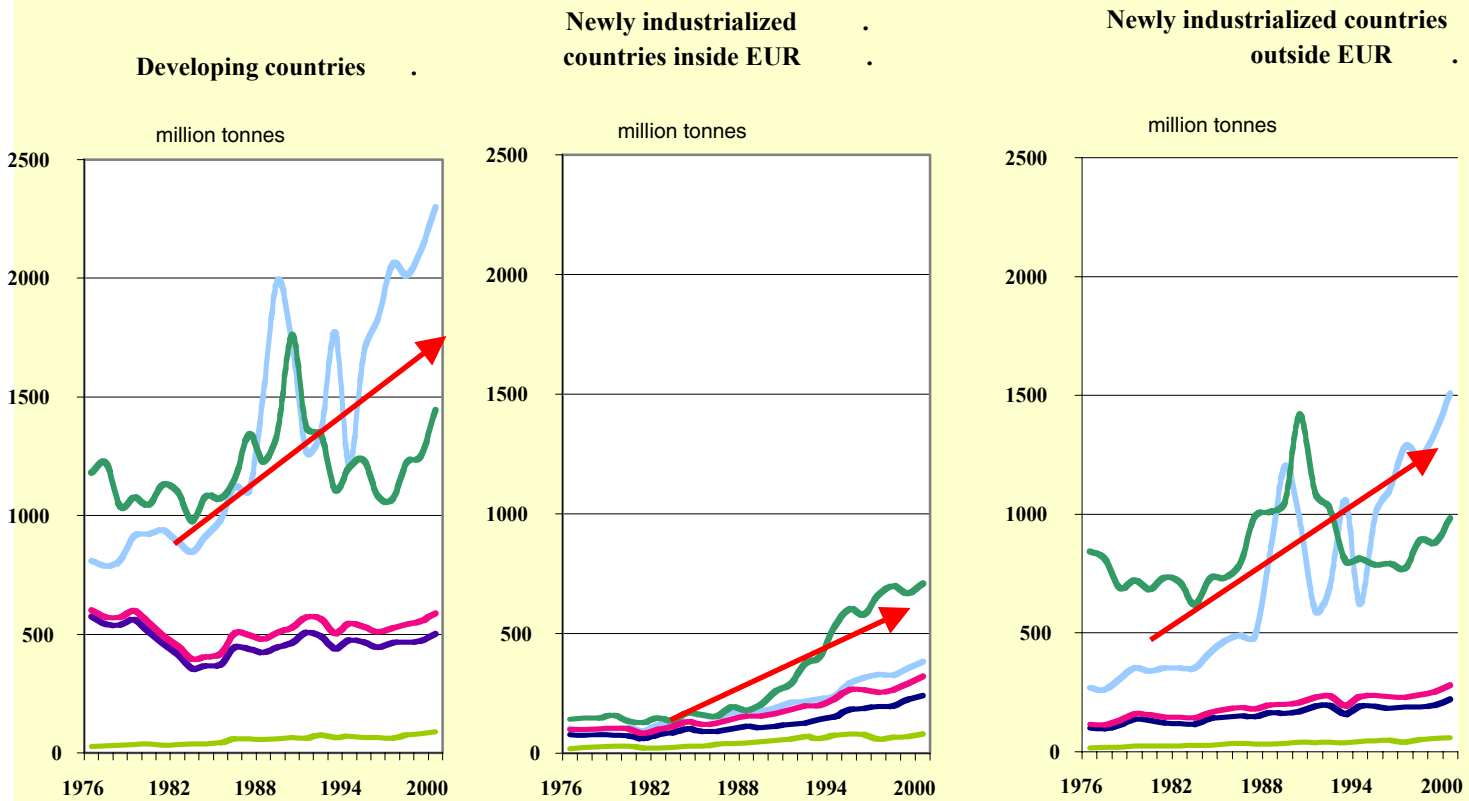
Environmental Burden Shifting

- Virtual Water Analysis
- Ecological Footprint
- Material Flow Accounting
- Global Land Use Accounting

Material Flow Analysis (MFA)



Ecological Burden Shifting by trade



The EU "exports" environmental pressure in other regions of the world!

Global Land Use Accounting (GLUA)

Status quo:

Negative GLUA- trade balance:

EU using 3 times more surface for imports than for exports

Net effect of negative trade balance:

The consumption of agricultural commodities in the EU requires an area that exceeds domestic agricultural land use by 17-24%.

Global Land Use Accounting (GLUA)

Status quo:

Global land-use per capita of EU 15 exceeds world averadge by 72%: 4300 m^2 (Bringezu & Steger 2005).

Until 2030 available land likely to decline to 1900 m^2

Global Land Use Accounting (GLUA)

Main factors of progress

Quantitavely: biomass trade needs balancing

Qualitatively: biomass cultivation needs management

Different Analysis

VWA	MFA/GLUA
Virtual	Rucksack, hidden flows
North/South relations	North/Sout relaitons
Agriculture/biomass	Metabolism
Water	All materials
Water stress	All physical pressures

Different Conclusions

VWT	MFA/GLUA
Shifting resource use	Absolute Decoupling Factor 4/Factor 10
Increased agricultural production in EU	Reduction of EU land-use to equitable levels
Reallocation of water intensive production	More (water-) efficient production

Conclusions

- VWA complements findings of MFA
- Integration of accounting systems possible and desirable
- Analysis and therefore political recommendations too narrow (only foccussing on water impacts)
- For better evaluation of VWT of assessment of social, economic and ecological consequences (Integrated Sustainability Impact Assessment)