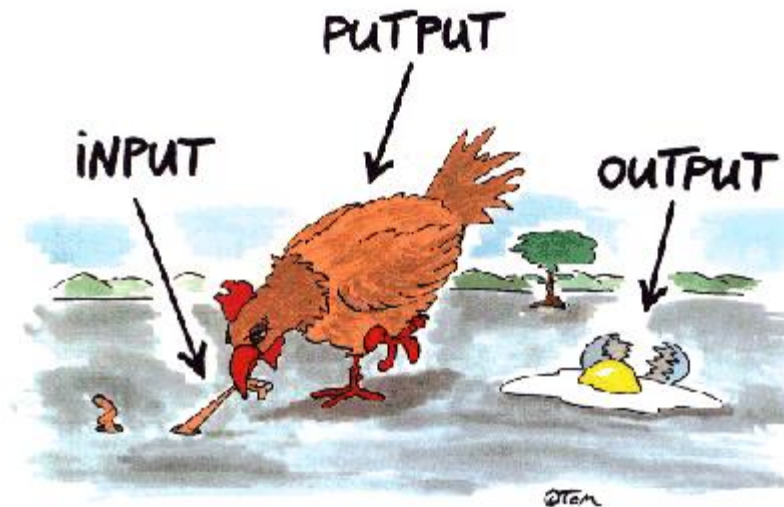




CREEA

The input-output approach



Richard Wood
Brussels, 25th March 2014



Operationalising the SEEA alongside the SNA

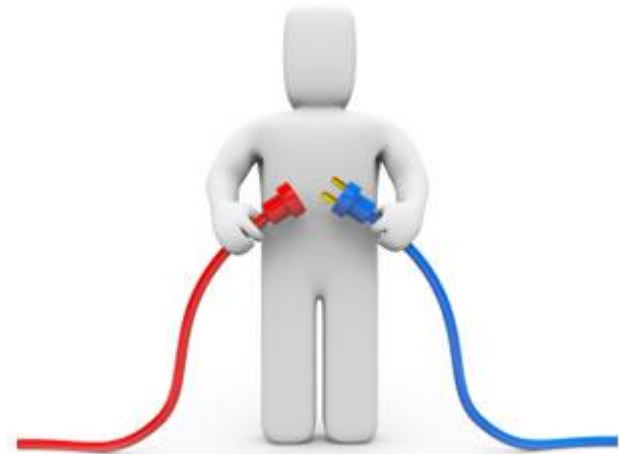
- **E**nvironmentally **E**xtended Input-**O**utput **A**nalysis
- Integrated modelling:
 - >Impacts
 - >Resources + emissions
 - >Usage/Production
 - >Consumption
- Macro level – down to the meso.

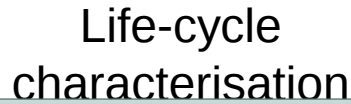


Integrated modelling

Connecting approaches

Connecting databases





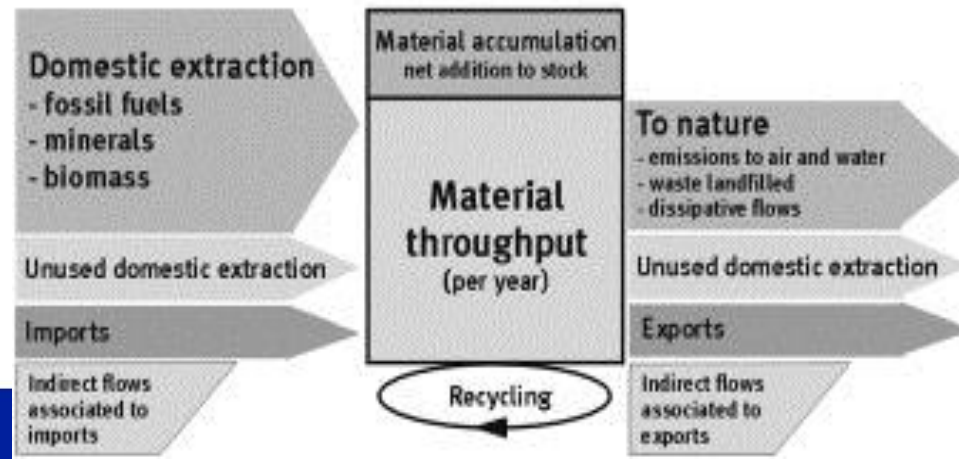
IEA Energy balances

Economy wide Material Flow Analysis



Economy

Output



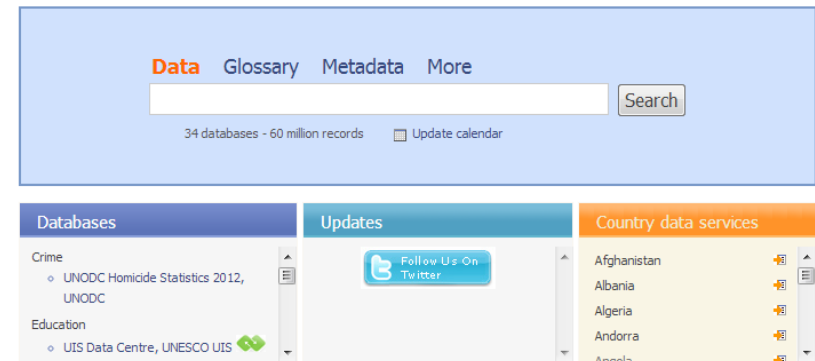
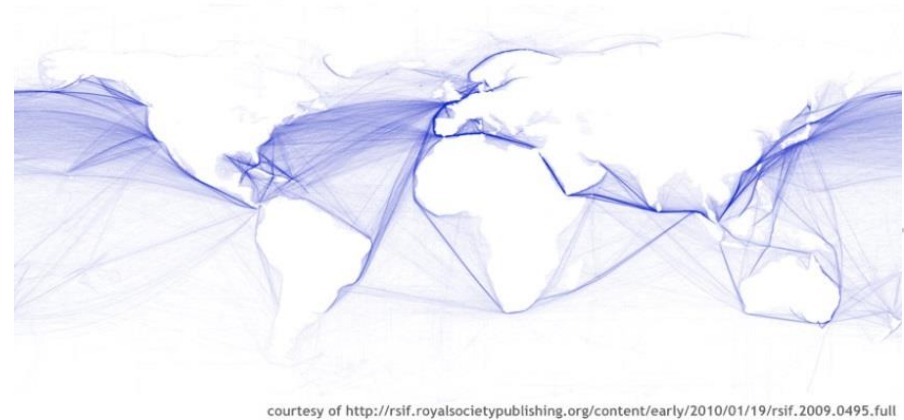
Integrated data



Labour - ILO



TRADE



ty



Goals

- A database that is readily able to address research questions broaching the environmental and economic fields focussing on impacts of consumption activities and trade.
 - *More so, a "sustainable production and consumption" database*
- An integrated environmental and economic accounting schema



System properties

- Economic
 - Supply and Use system
 - Pricing layers – explicit identification of margin and taxes
- Environment
 - Material extraction
 - Consistent energy & greenhouse emissions
 - Emission coefficients by product by use by region
 - Water regionalisation



Classification – Asymmetrical Supply/Use

- Product
 - 200 product types
 - EXIOPOL Products (detail agric, mining, metals)
 - Consistent with IEA Products, incl electricity by type
 - Additional Waste relevant products
 - "Materials for treatment"
- Industry
 - 163 industry sectors
 - EXIOPOL industries (detail agric, mining, metals)
 - Aggregation of Refinery, Electricity by type
 - Re-processing industries



Table disaggregation

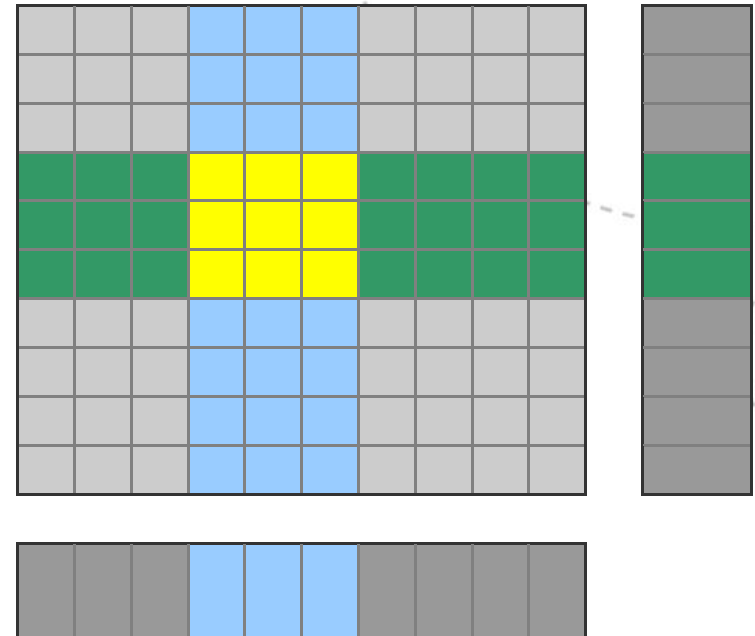
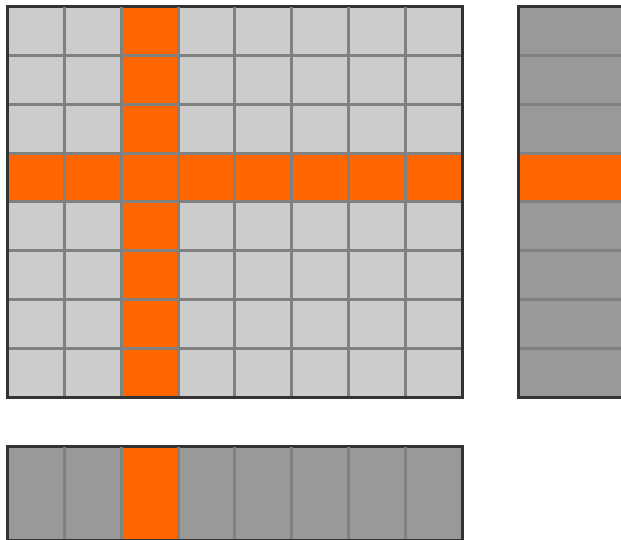
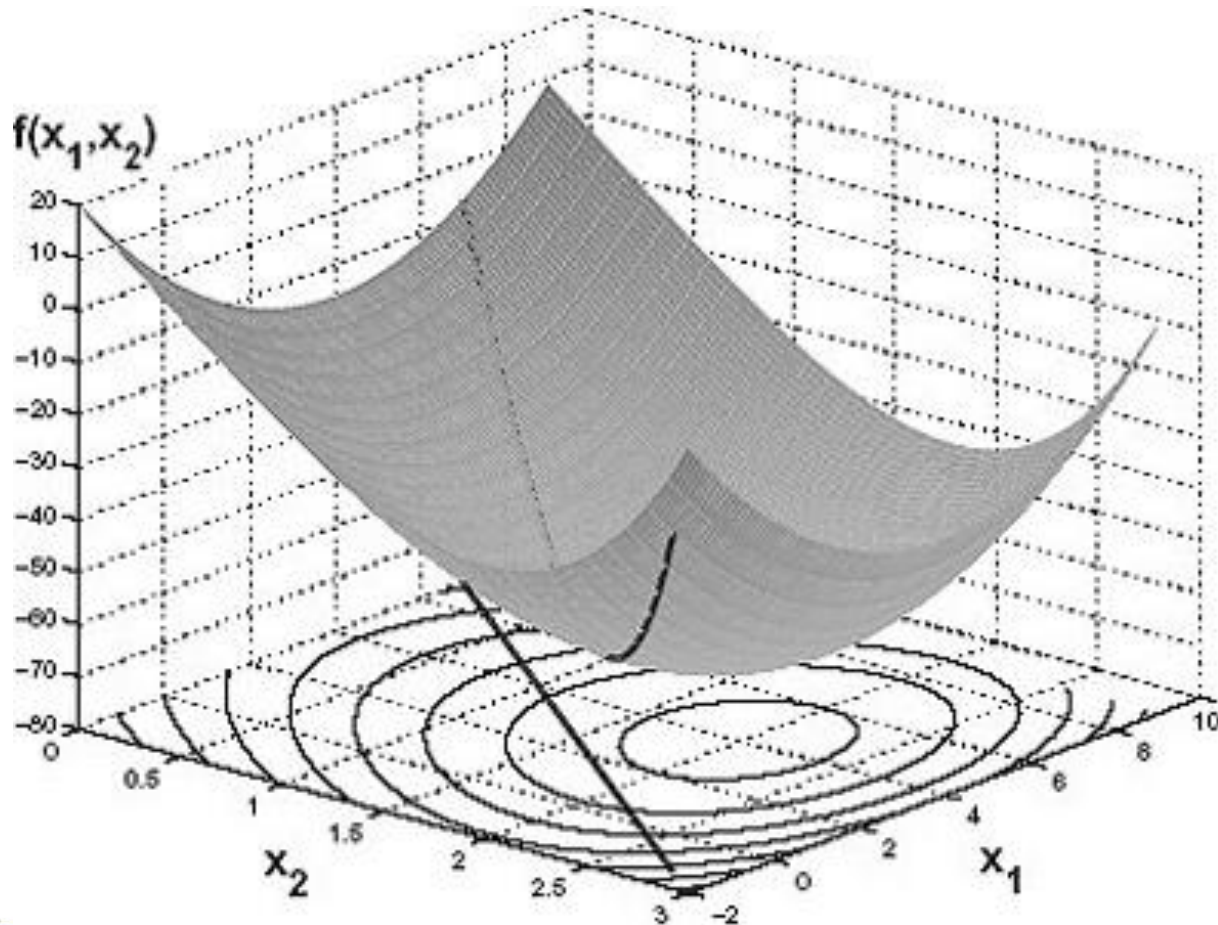




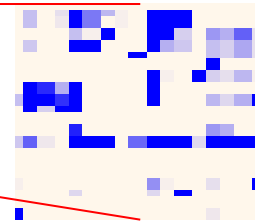
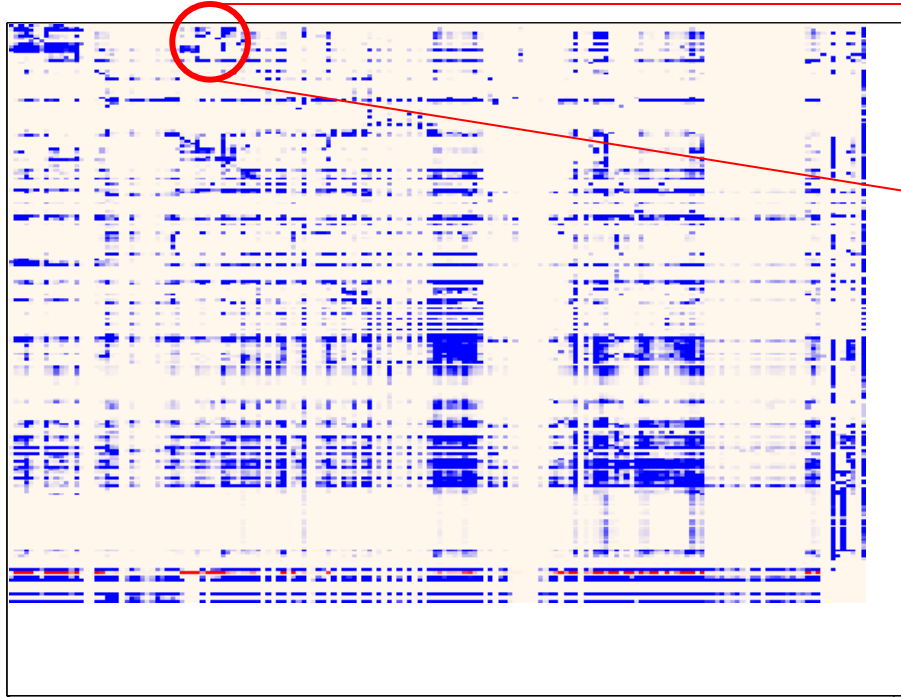
Table balancing – Constrained Optimisation



NTNU
nnovation and Creativity



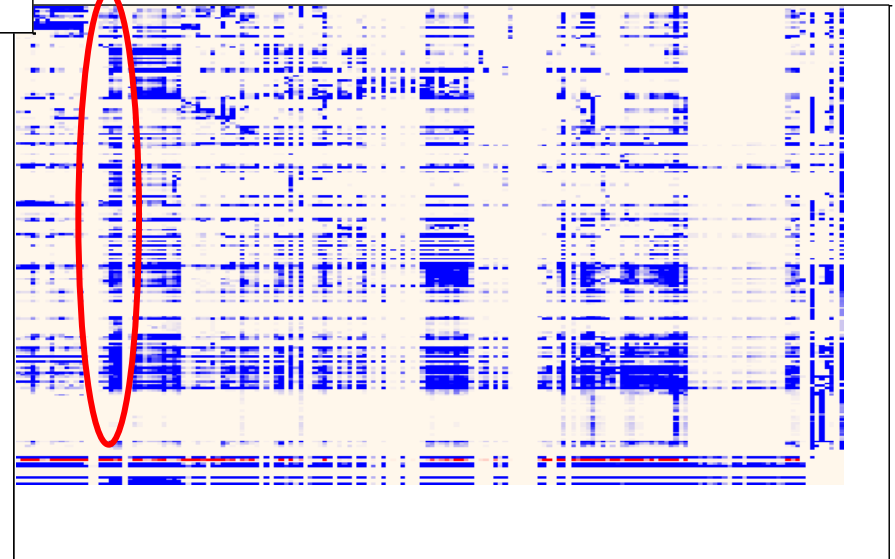
Products



Industries

RoW Middle East

Products



Industries

Innovation and Creativity

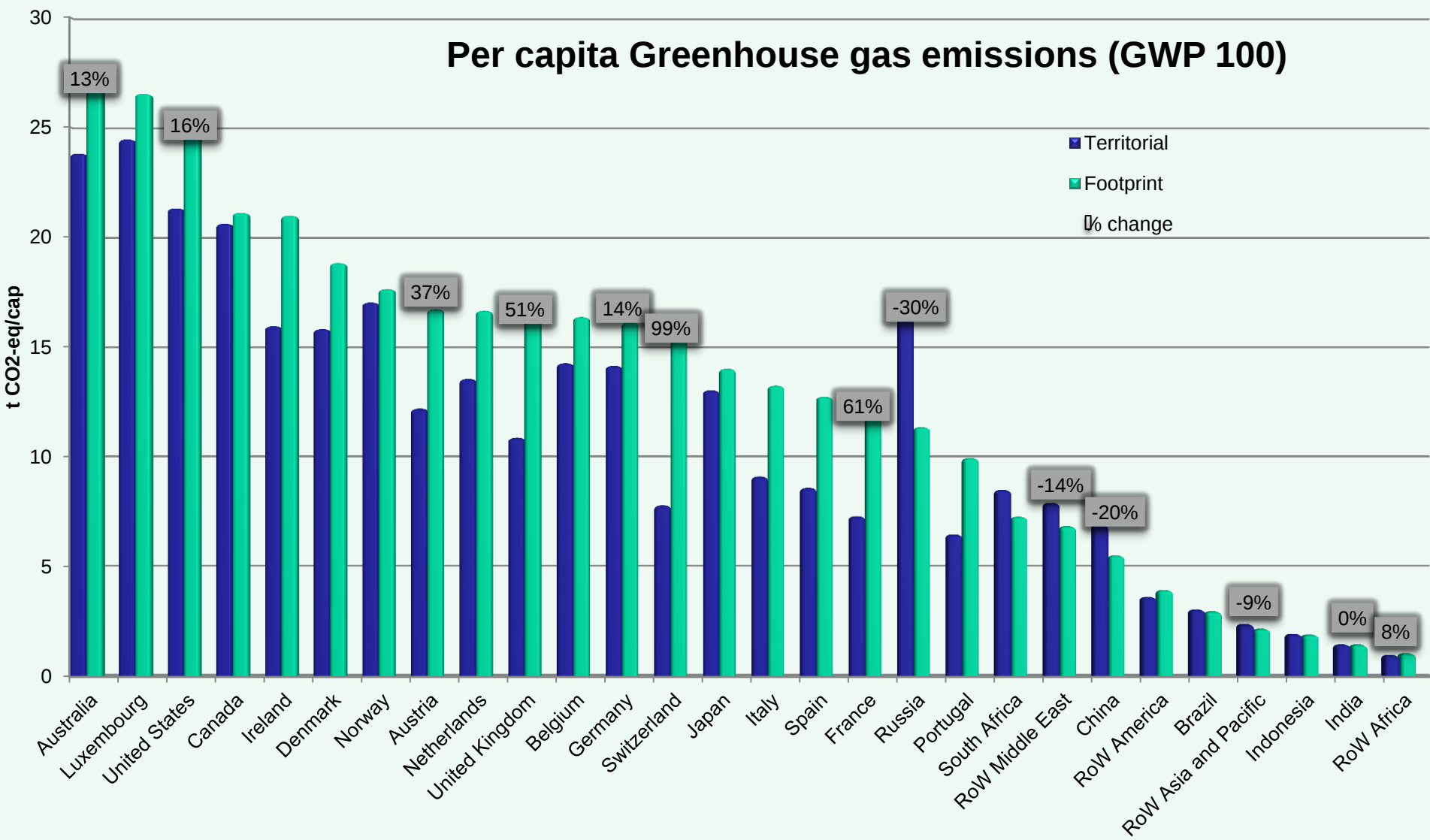


Trade

- Bilateral trade flows
 - Goods (Commtrade & BACI)
 - Services (UN services trade)
- Inclusion of estimates for margins

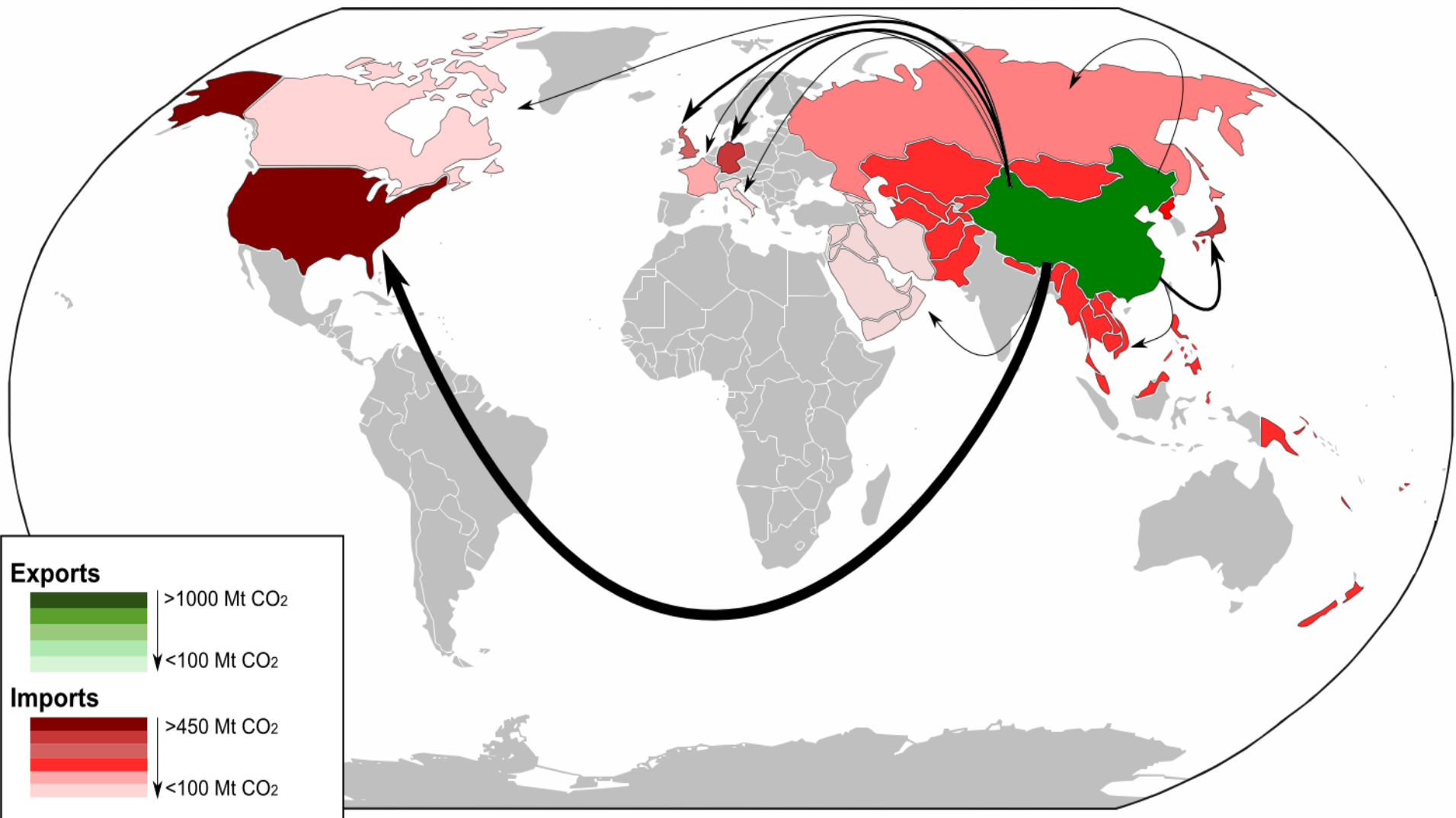


Per capita Greenhouse gas emissions (GWP 100)



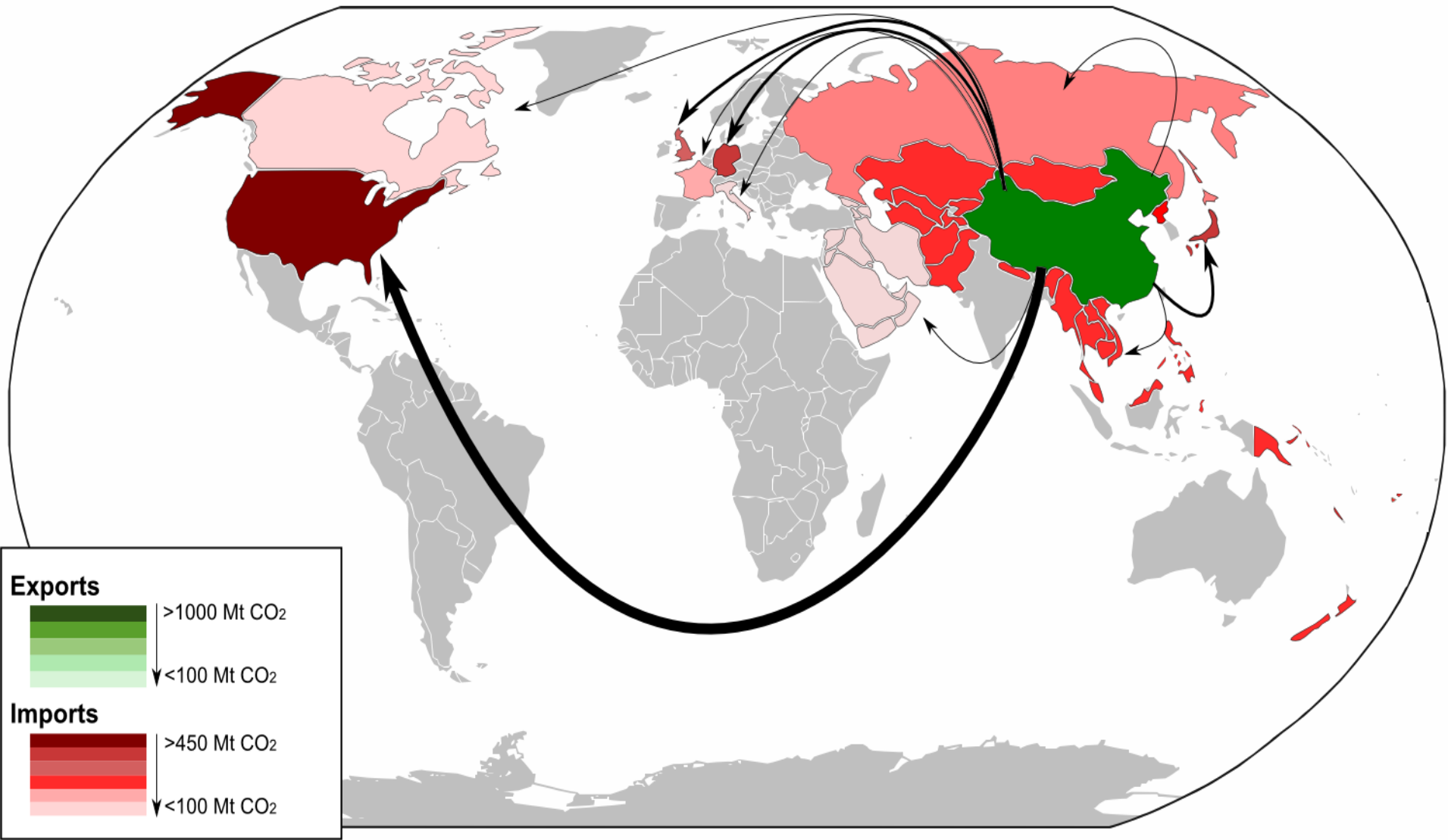


Net embodied GHG – top 10



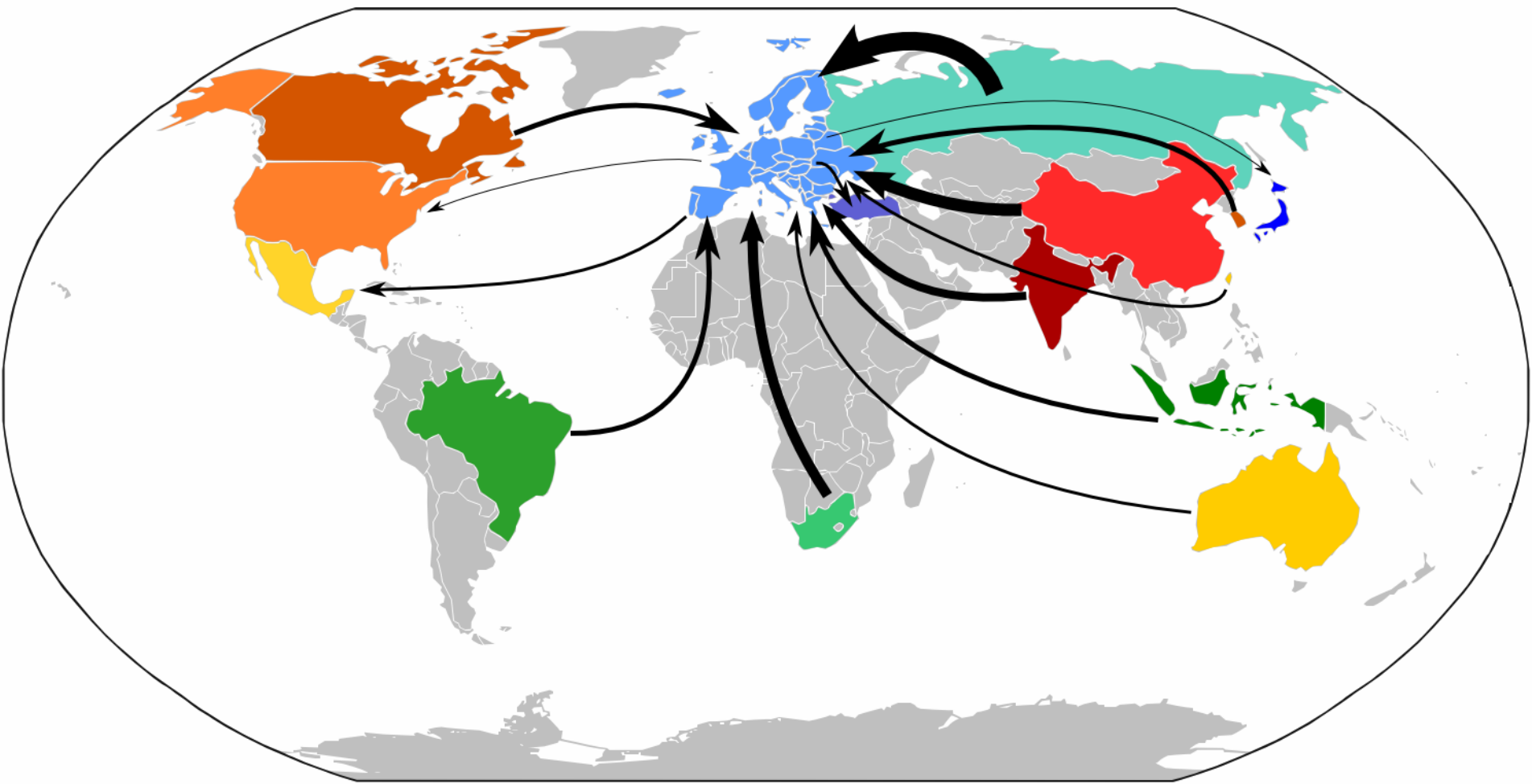


Net embodied land – top 10



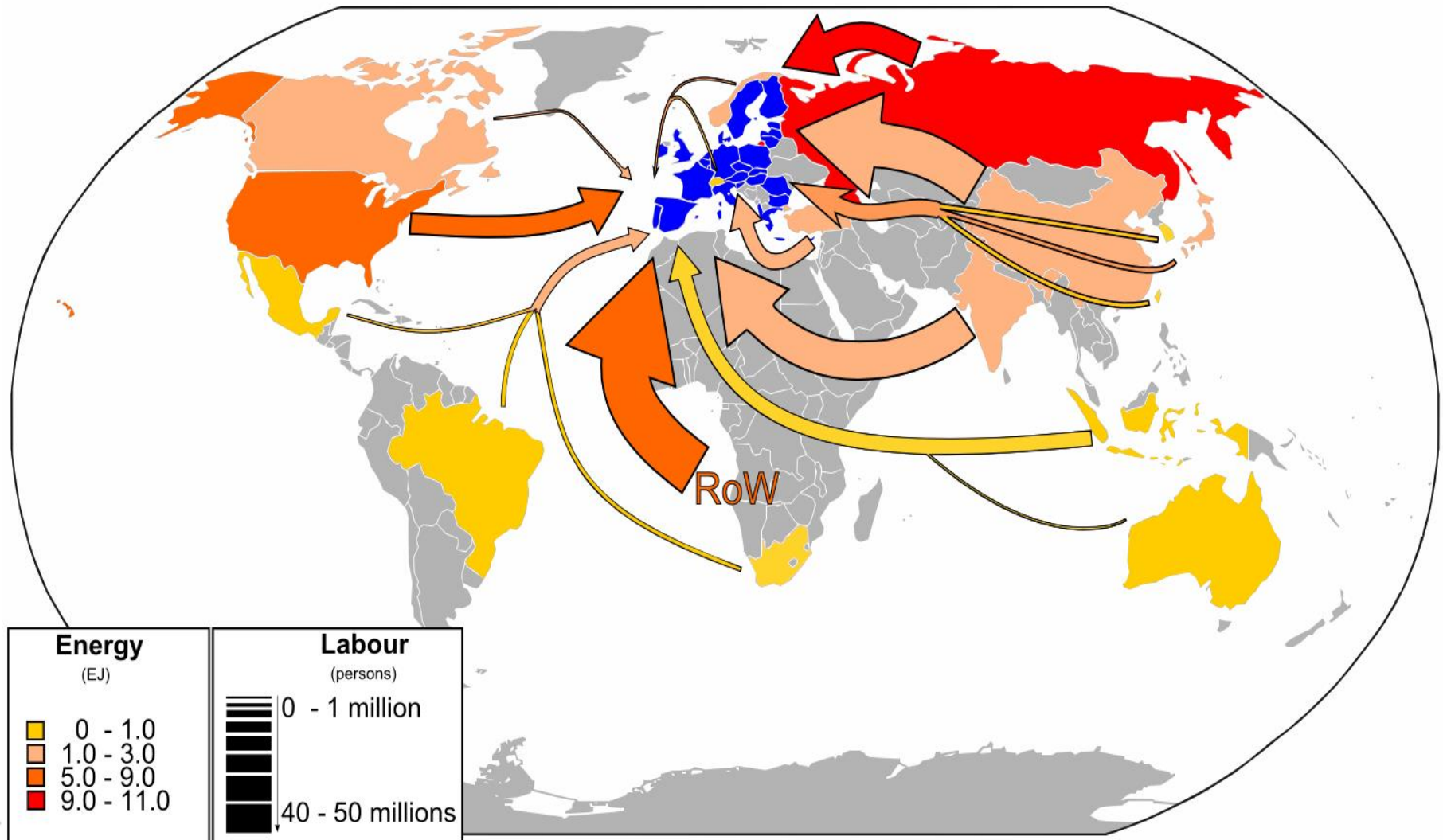


GHG – EU as a consumer





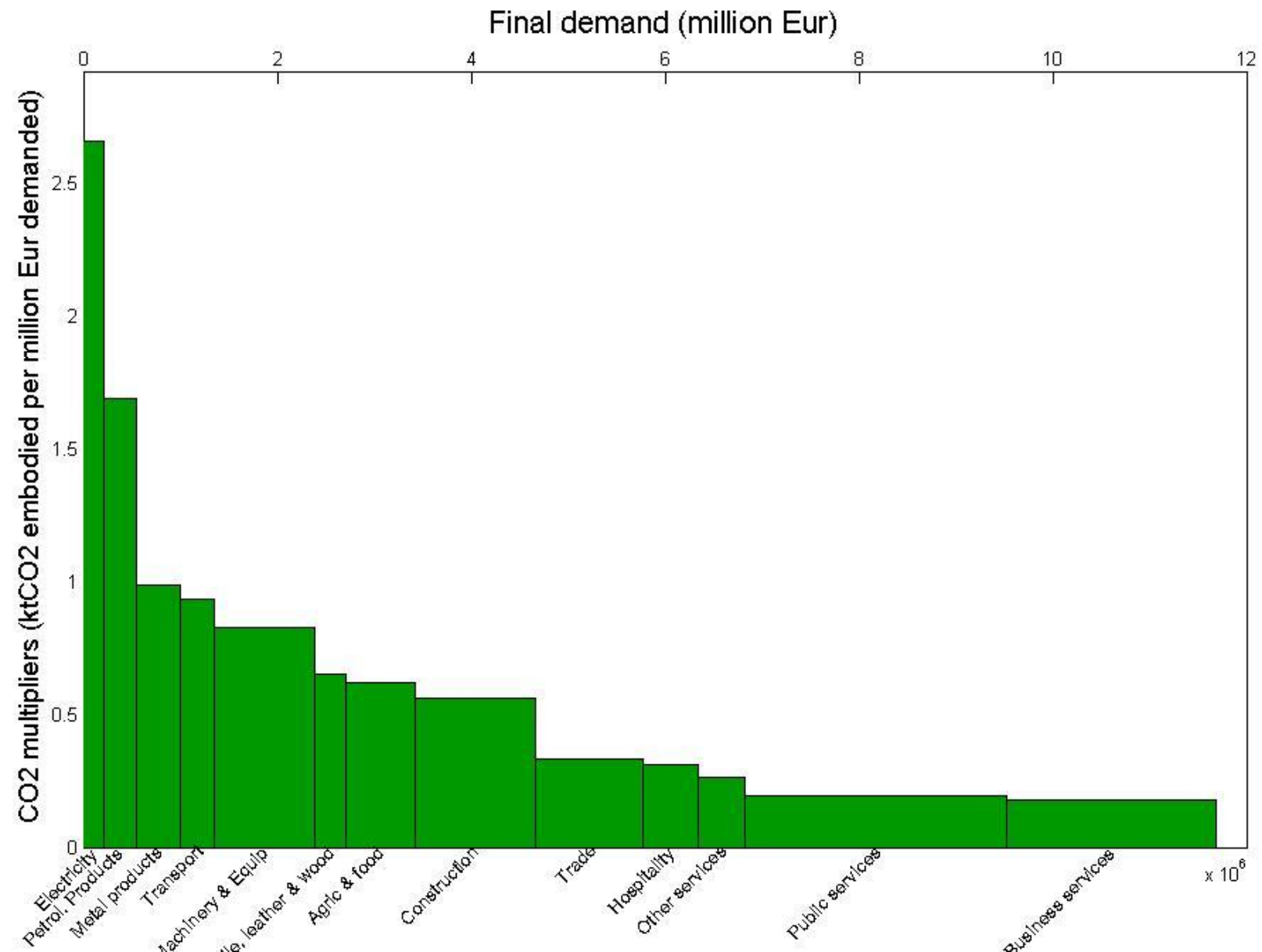
Energy & labour - EU



Innovation and Creativity



EU Product consumption





Where to?

- Robustness in footprint accounting
- Detail
 - Country
 - Product/Industry
 - Extensions (Economic, Social, Environmental – LCA Impact Assess)
 - Spatial (Regional)
- Hybrid LCA links
- Physical & Hybrid modelling, incl waste
- Stocks – Physical/Economic
- Temporality
- Modelling links



Policy implications

- Optimising resource productivity
- Consumption based accounting and policy targets
- Consistency of economic and environmental measures



Future needs

- Further harmonisation of
 - Terminology
 - Definitions
 - Classifications
 - «Production unit»