Europe's Land Dependency and its Impacts

Europe's Land Footprint

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Europe's global land demand

Evaluation of **Europe's land footprint**
Study for Friends of the Earth Europe (May – Sept 2011)

- **How big are the land areas** (in hectares) embodied in European imports and exports?
- How do the **numbers for embodied land** relate to the arable land available within Europe?
- **Which products and product groups** make up the largest shares of land embodied in imports?
- **In which countries** and world regions does Europe appropriate which types of land?
- **How have trends developed** between 1997 and 2004?

Methodology

- **EE-MRIO** Environmentally-extended Multi-Regional Input-Output Analysis
- **Monetary model** (national IO tables linked through international trade) extended by land use data in ha
- MRIO – tracing environmental impacts along the production chain, from final consumption back to extraction
  - ➢ whole value chain **across geographical borders and industries**
- **Land footprint: domestic consumption + imports – exports**
  - ➢ absolute land areas, no weighting with productivity → **NOT ecological footprint**
- Should be interpreted within indicator set (material, water, land and GHG emissions)
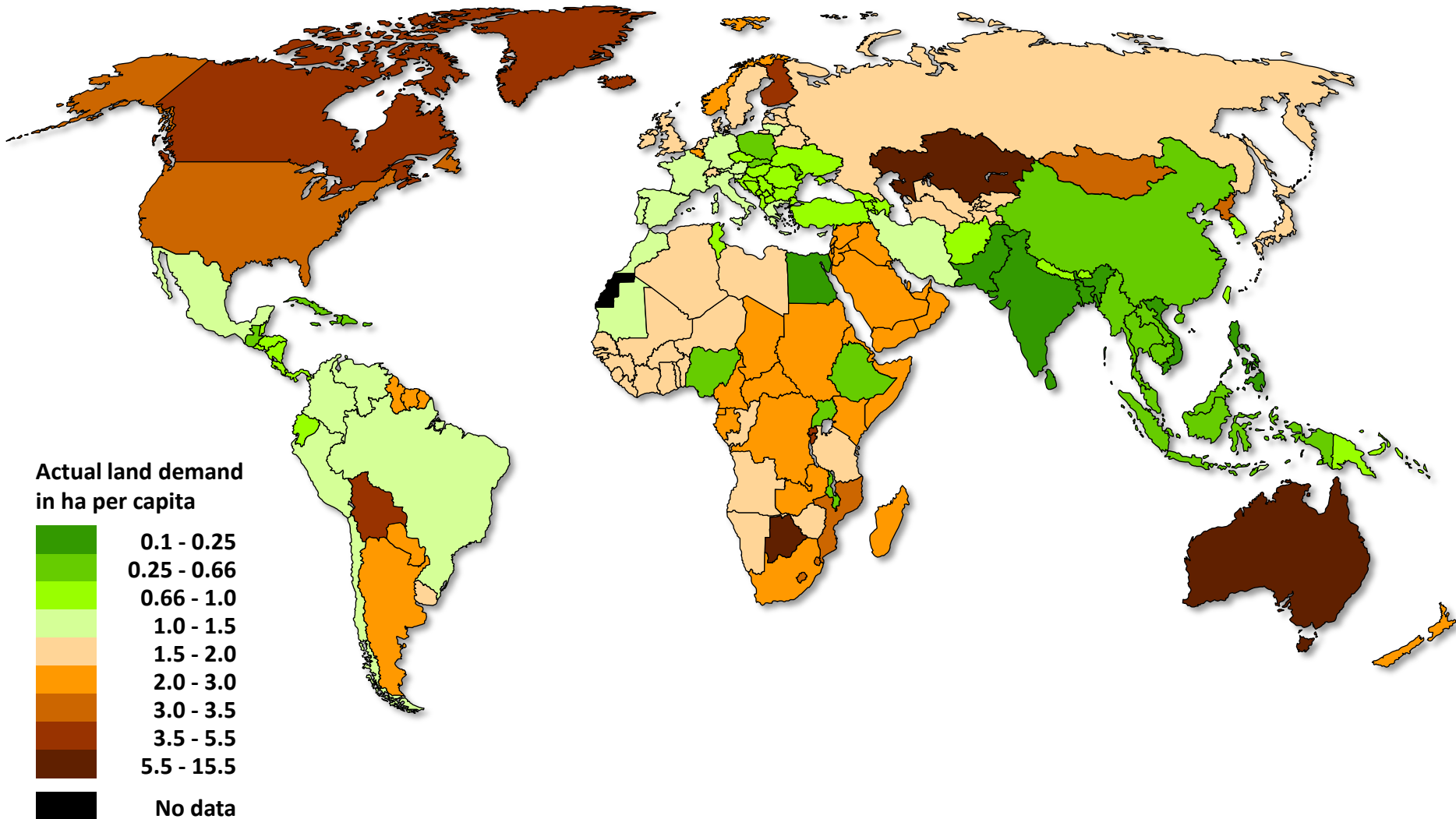
Data Source

Monetary data (IO tables, bilateral trade)

- GTAP v7 – Global Trade Analysis Project
- Data coverage:
  - 113 countries and world regions
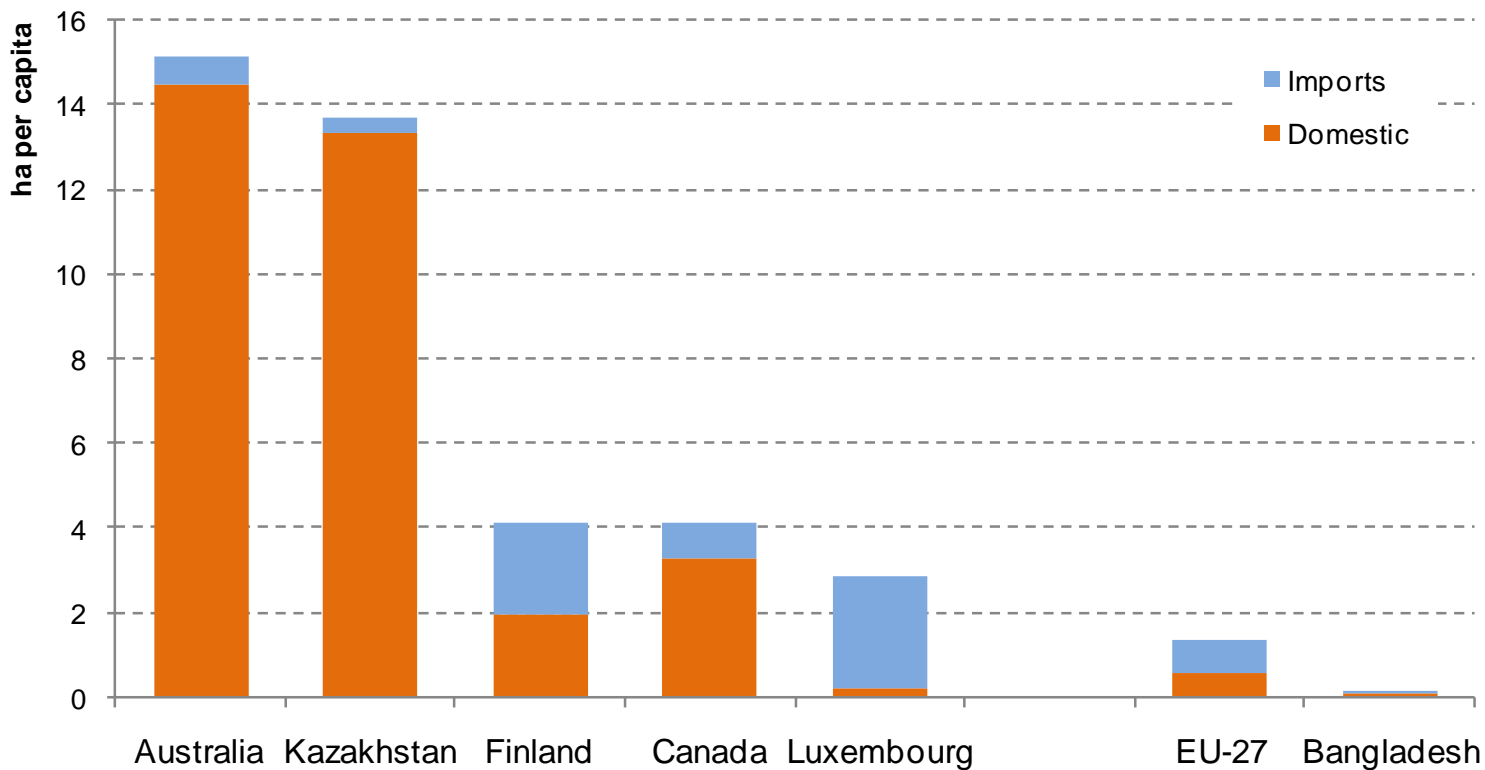 - 57 economic sectors
  - Year 2004 (& 1997)

Land use data

- FAOSTAT
- Agricultural, grazing and forestry land use, split up in 10 categories
- Data quality!
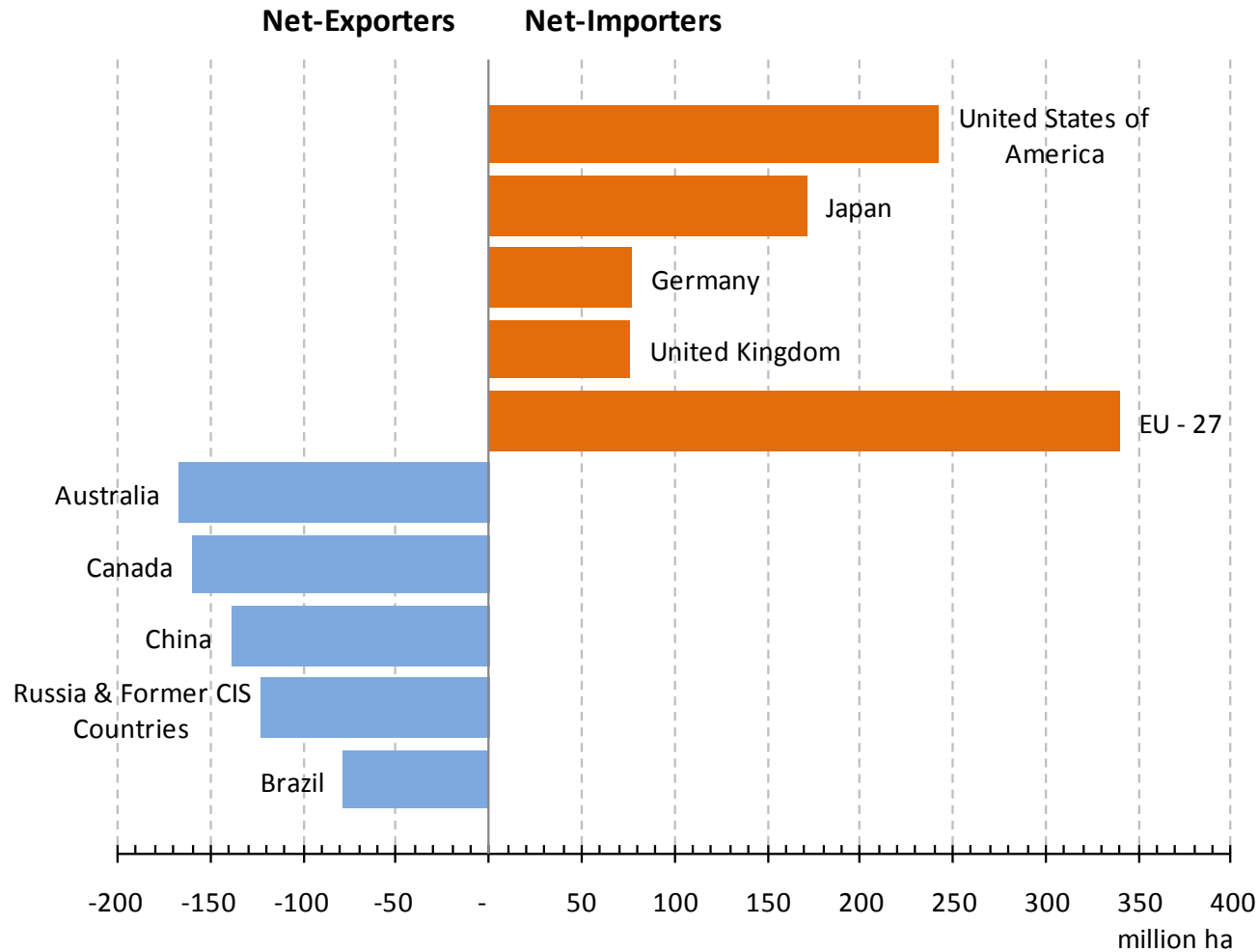
Land Footprint in ha per capita, 2004

Actual land demand in ha per capita

- 0.1 - 0.25
- 0.25 - 0.66
- 0.66 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 3.5
- 3.5 - 5.5
- 5.5 - 15.5
- No data

Land Footprint per capita 2004

Trade balance, out of Top 5, 2004

Net-Exporters **Net-Importers**

United States of America
Japan
Germany
United Kingdom
EU - 27
Australia
Canada
China
Russia & Former CIS Countries
Brazil

-200 -150 -100 -50 - 50 100 150 200 250 300 350 400

million ha

Trade balance EU-27 and rest of the world

Net-trade with the European Union (Im-Ex) in thousand ha

-3,000 – -1,000
-1,000 – -100
-100 – +100

100 – 1,000
1,000 – 2,000
2,000 – 5,000
5,000 – 10,000
10,000 – 51,000

No data

Seven highest Im-Ex
Seven highest Ex-Im

incl. Macau and North Korea

Hong Kong

Singapore
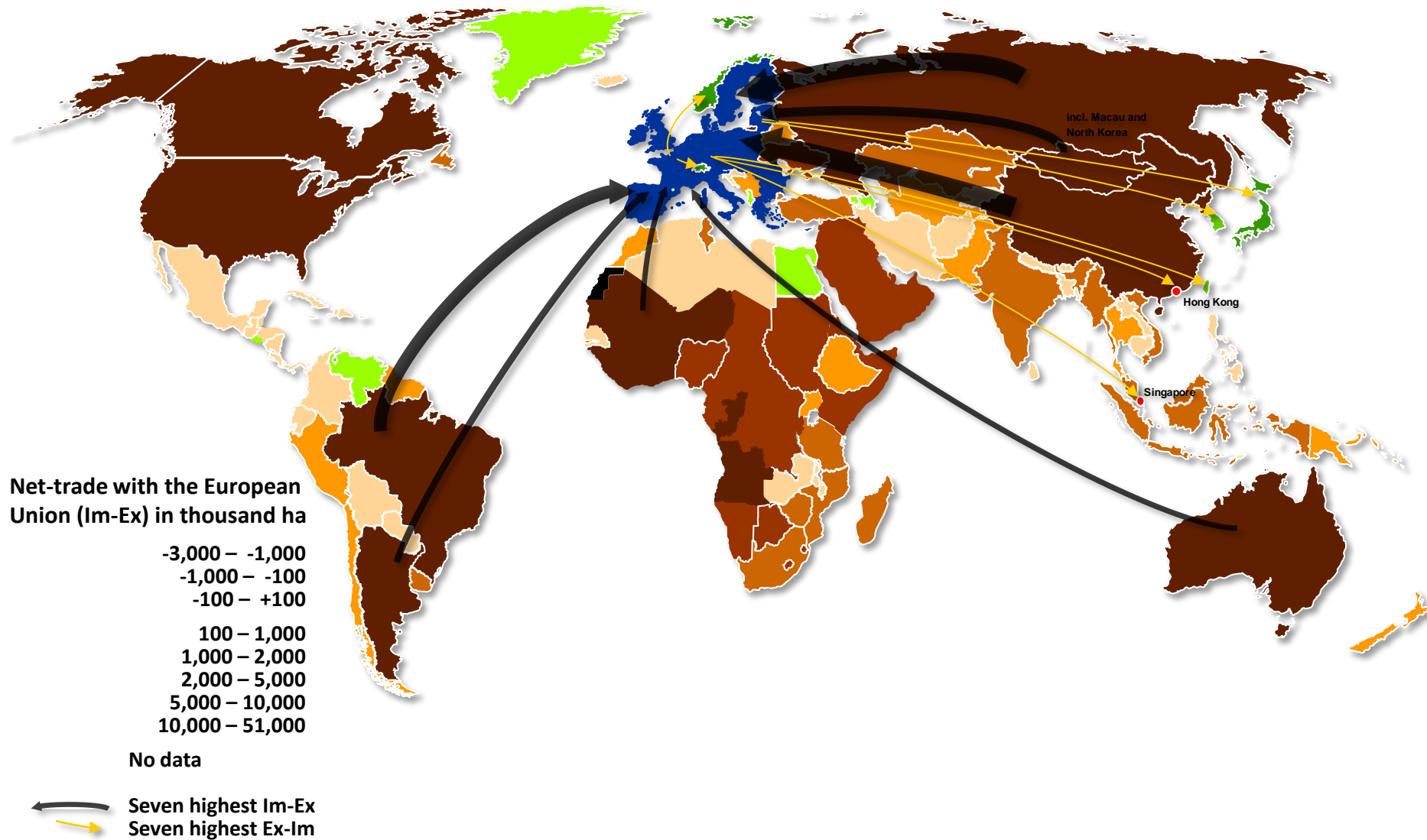
Land Footprint - UK
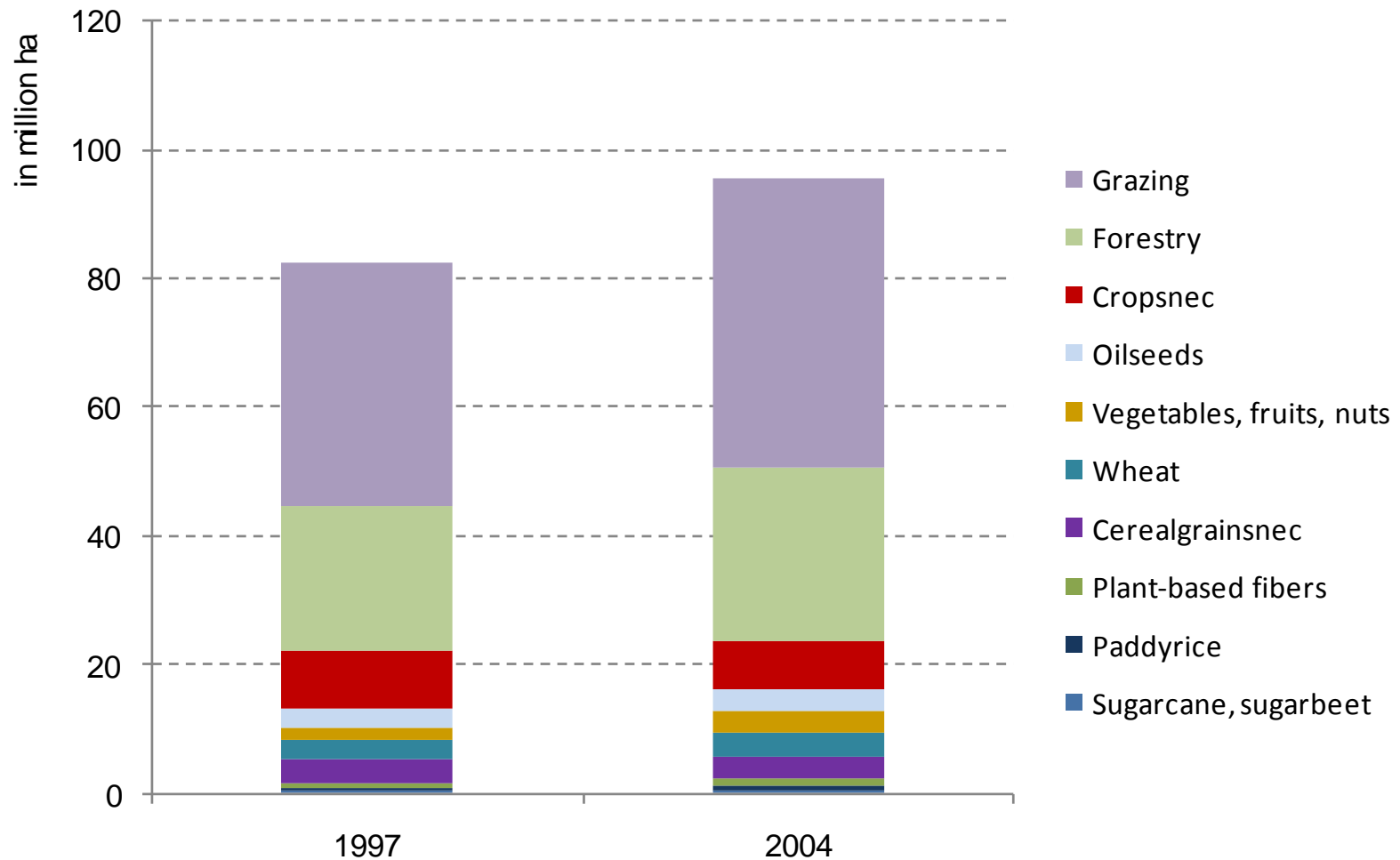
UK: impact map per capita, in 10 m²

	Oceania	Asia	North America	Latin America	Europe	Africa	Total
Crop products	15	60	19	44	121	80	**340**
Animal products	35	53	9	49	146	107	**399**
Wood products	1	21	7	2	26	5	**61**
Clothing	5	120	5	7	6	9	**153**
Manufactured products	7	117	24	10	48	22	**229**
Construction	2	41	11	5	42	16	**117**
Service	17	107	24	23	82	45	**299**
Total	**82**	**520**	**99**	**140**	**471**	**285**	**1597**

2004

Conclusions

- **Comprehensive methodology:**
  - Actual land area (no weighing with productivity):
    - ➢ EU-27 imports almost 350 million hectares
  - Geographically explicit
    - ➢ Highest imports from China, Russia, Brazil
  - Sectoral perspective
    - ➢ UK example: agricultural & animal products, but also services
- **Data quality** issues
- **Interpretation in relation with other resource categories** – e.g. biomass/water consumption

Thank you for your attention!

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