VLIR-BVO project 2003
‘Elaboration of the concept of ecological debt’

Presentation of the Final Report

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Flemish Platform on Sustainable Development

Overview

1. **Core research**
   State of affairs, definition, methodology, frame of reference

2. **Multilateral Environmental Agreements**
   Status in international law, obstacles, solutions

3. **Energy and climate change**
   Application for Belgium

4. **Agriculture and food supply**
   Application for Belgium

5. **Policy implications**
   Historical responsibility, daily accumulation, recognition

1. Core research

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A state of affairs

Main conclusions:

- No univocal definition
- No uniform methodology for calculation
- Limited discussion on political translation
- Still, adds a meaningful new dimension to sustainability and North-South debate: historical perspective, reversal of debtor-creditor relation, daily accumulation, articulation of comparable experiences
- At this stage of development: utility in international negotiations restricted

Some causes:

- Bottom-up development through NGO campaigning
- Limited scientific literature and support
- Developing phase

Defining (1): working definition

Ambition: cover contents AND enhance utility of the concept

The ecological debt of country A consists of:

1) The ecological damage caused over time by country A in other countries or in an area under jurisdiction of another country through its production and consumption patterns, and/or

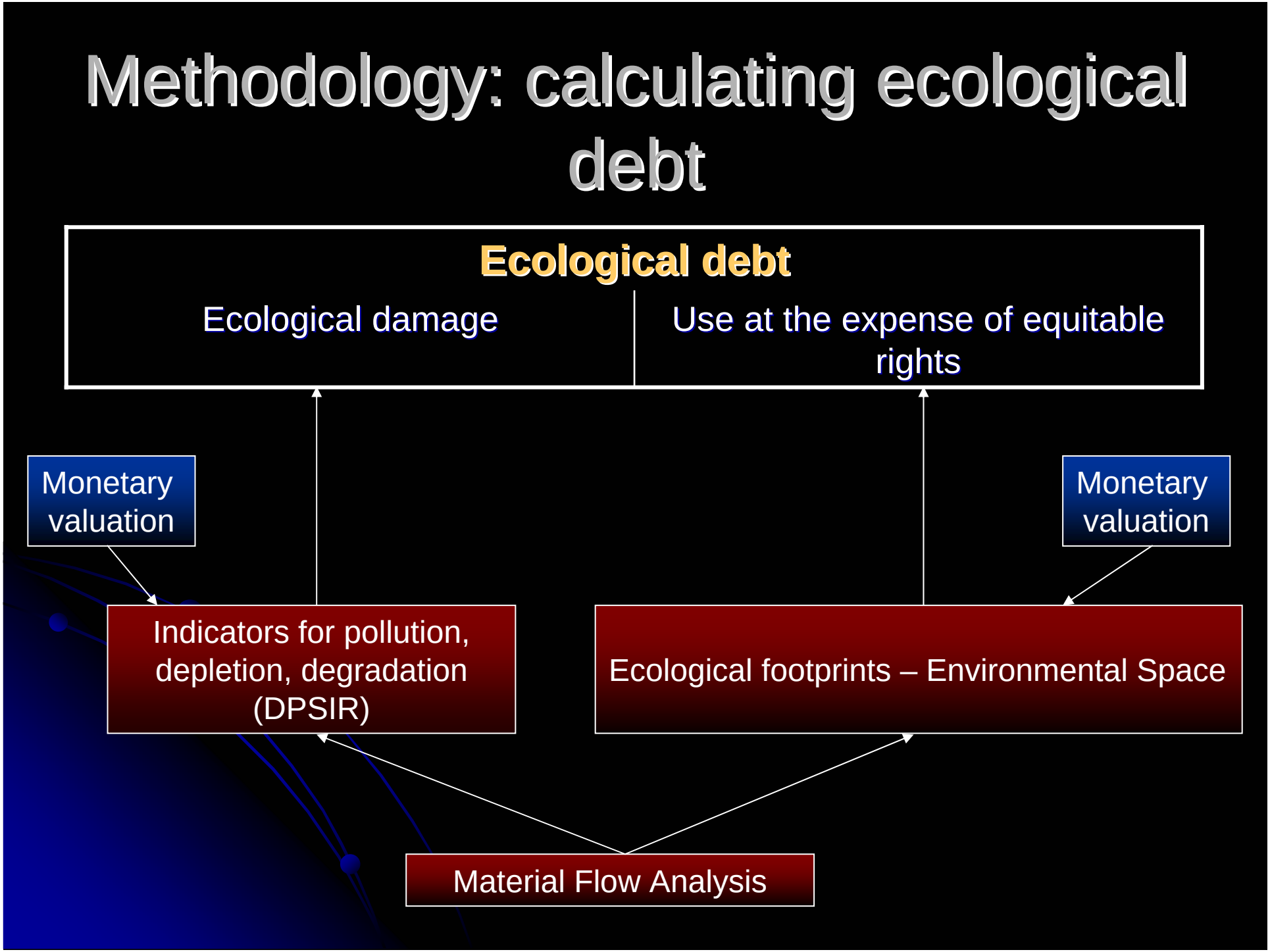
2) the ecological damage caused over time by country A to ecosystems beyond national jurisdiction through its consumption and production patterns; and/or

3) the exploitation or use of ecosystems and ecosystem goods and services over time by country A, at the expense of the equitable rights to these ecosystems and ecosystem goods and services by other countries or individuals

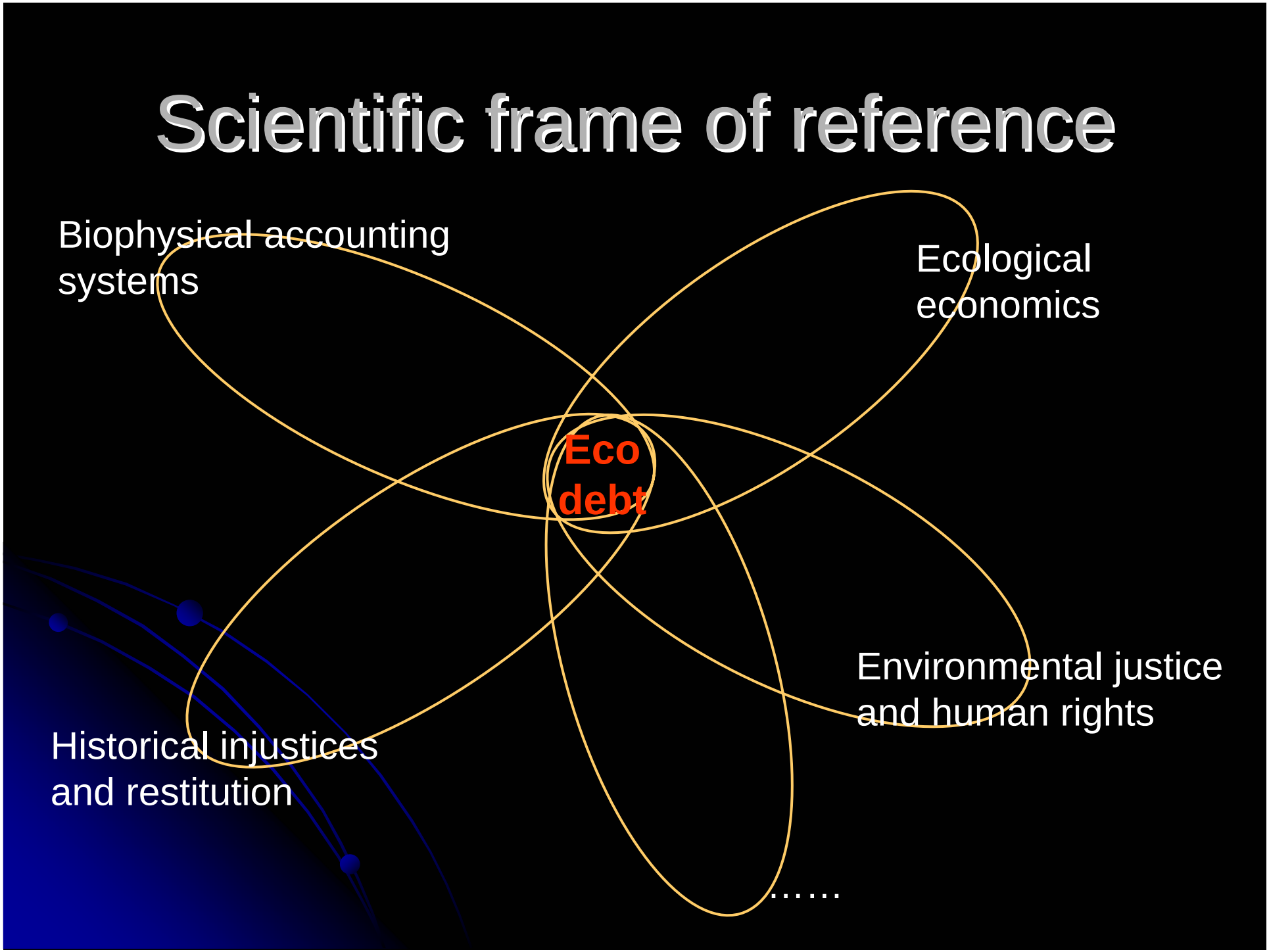
Defining (2): refinements

Working definition	Possible refinements
"The ecological debt of country A consists of: (1) … , and/or (2) … , and/or (3) …"	What is ecological damage? • Pollution, depletion, degradation Damage/use according to geographical scale? • Global, continental, fluvial, regional, local Equitable rights to ecosystem services? • Defining 'equity' • Selecting ecosystem goods and services Who are debtors and creditors? • Countries • Present and future generations • Actors Which quantification? • Physical or monetary Which time perspective? • Each refinement its own time perspective

Methodology: calculating ecological debt



Scientific frame of reference



Conclusions

- Adds a meaningful new dimension to sustainability and North-South debate: historical perspective, question of daily accumulation, reversal of debtor-creditor relations, articulation of comparable experiences
- At this stage of development: utility in international negotiations restricted

BUT

- Possible to formulate a suitable definition
- Possible to work on a consistent methodology for calculation, physical and monetary
- Possible to further develop the concept through the use of building blocks in a scientific frame of reference

2. Module Multilateral Environmental Agreements (MEAs)

Jesse Lambrecht
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Outline

- Status of ecological debt in international environmental law
  - MEAs
  - Case law
  - Other links
- Obstacles for introducing ecological debt
- Towards solutions

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Status of ecological debt in int. environmental law

- MEAs
- Case law
- Other links

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MEAs

- No direct reference
- Links with the concept of ecological debt: *principles* and *mechanisms*
  - Principle of common but differentiated responsibilities
  - Principle of intra- and intergenerational equity
  - Polluter-pays principle
  - Adaptation Fund (Kyoto Protocol)
  - Equitable Benefit Sharing (CBD and ITPGR)

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Case law

- No direct reference
- Links with the concept of ecological debt:
  - State Responsibility
  - The Alien Tort Claims Act?
  - Cases before Human Rights Commissions / Committees?

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Outline

- Status of ecological debt in international environmental law
  - MEAs
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  - Other links
- Obstacles for introducing ecological debt
- Towards solutions

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Obstacles

- Sovereign rights of states:
  - Basic principle in International Law
  - Principle 21 Stockholm Declaration: balancing?
- Most links are future-orientated
- Use of natural resources with equitable compensation?

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Outline

- Status of ecological debt in international environmental law
  - MEAs
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Towards solutions

- Compensation for a historical debt
  - A growing state practice?
  - Extensive interpretation of the principle of common but differentiated responsibilities
  - A litigation-based approach
- Preventing a further build-up of the ecological debt
  - Human rights
  - Common heritage of mankind and common concern of mankind
  - Intergenerational equity

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Conclusions

- No clear legal obligation in MEAs
- No clear legal support in international case law
- Several links found:
  - Principle of common but differentiated responsibilities and Polluter-pays principle seem to be the most suitable to develop a legal basis for the concept.
- Need for further research

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3. Module Energy and Climate Change

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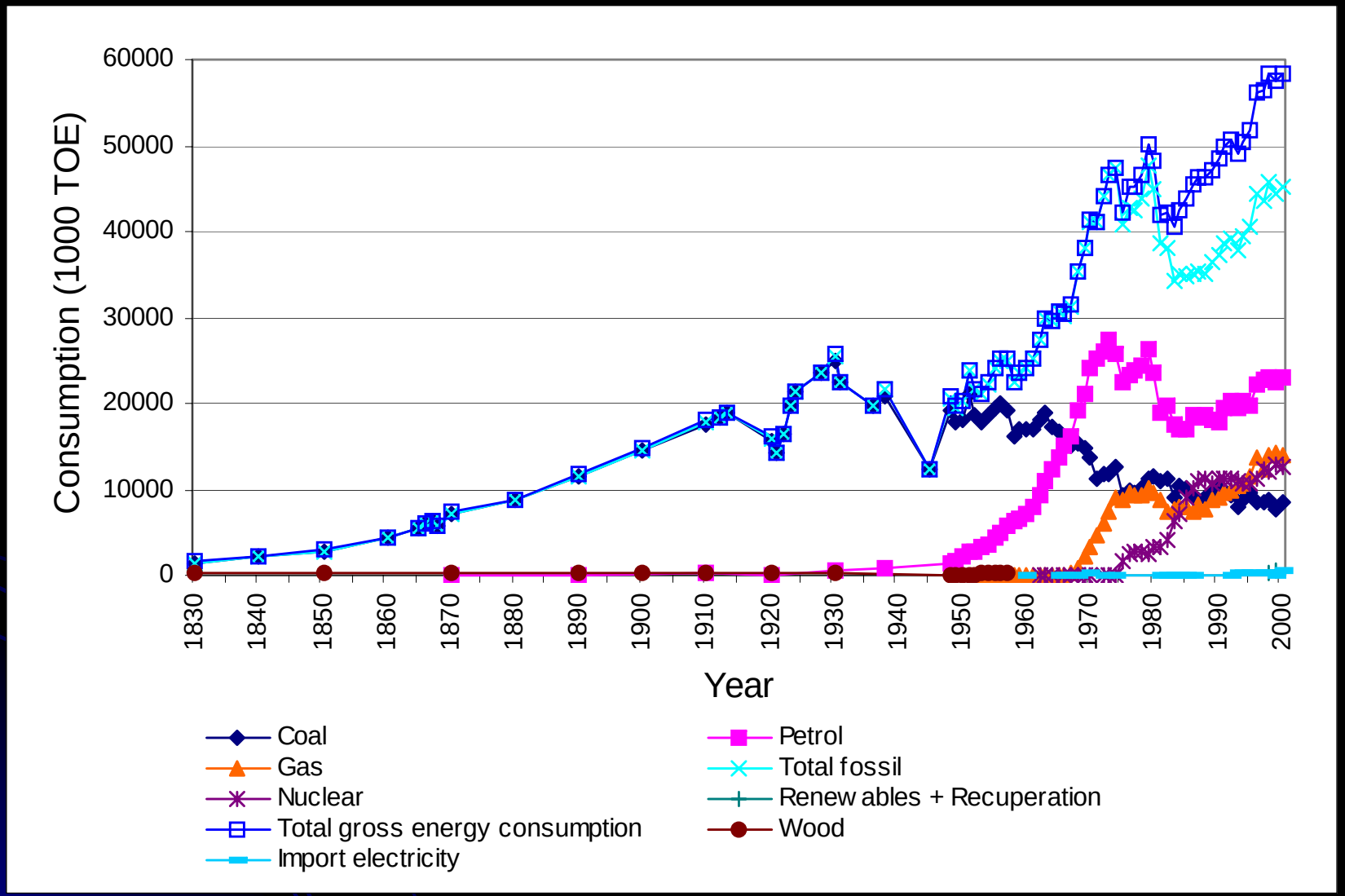
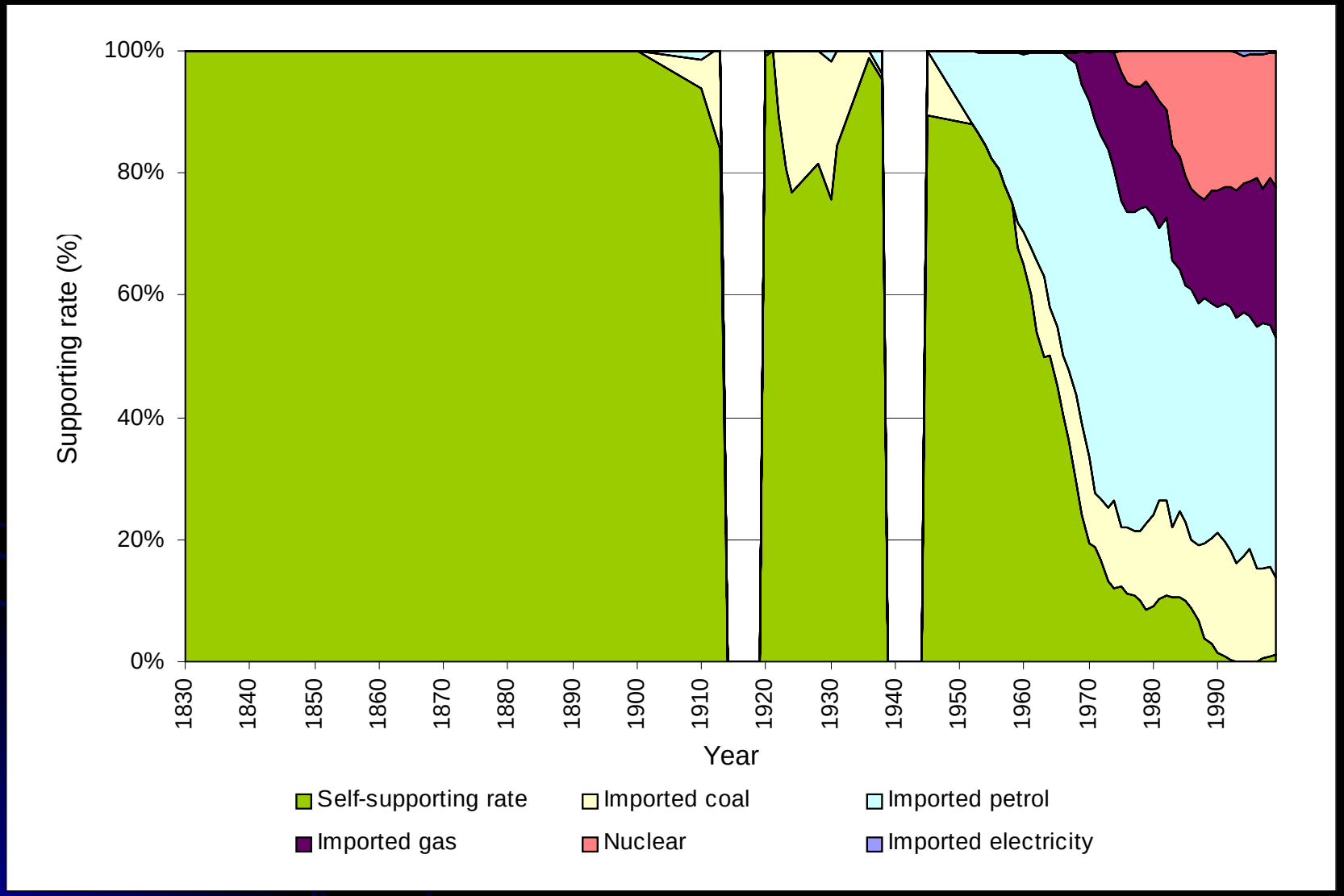
Overview

- Fossil energy consumption & CO_2 emissions in Belgium
- Fossil energy and ecological debt in a global context
- Ecological debt and fossil fuel consumption/depletion
- The Carbon Debt
- Conclusions

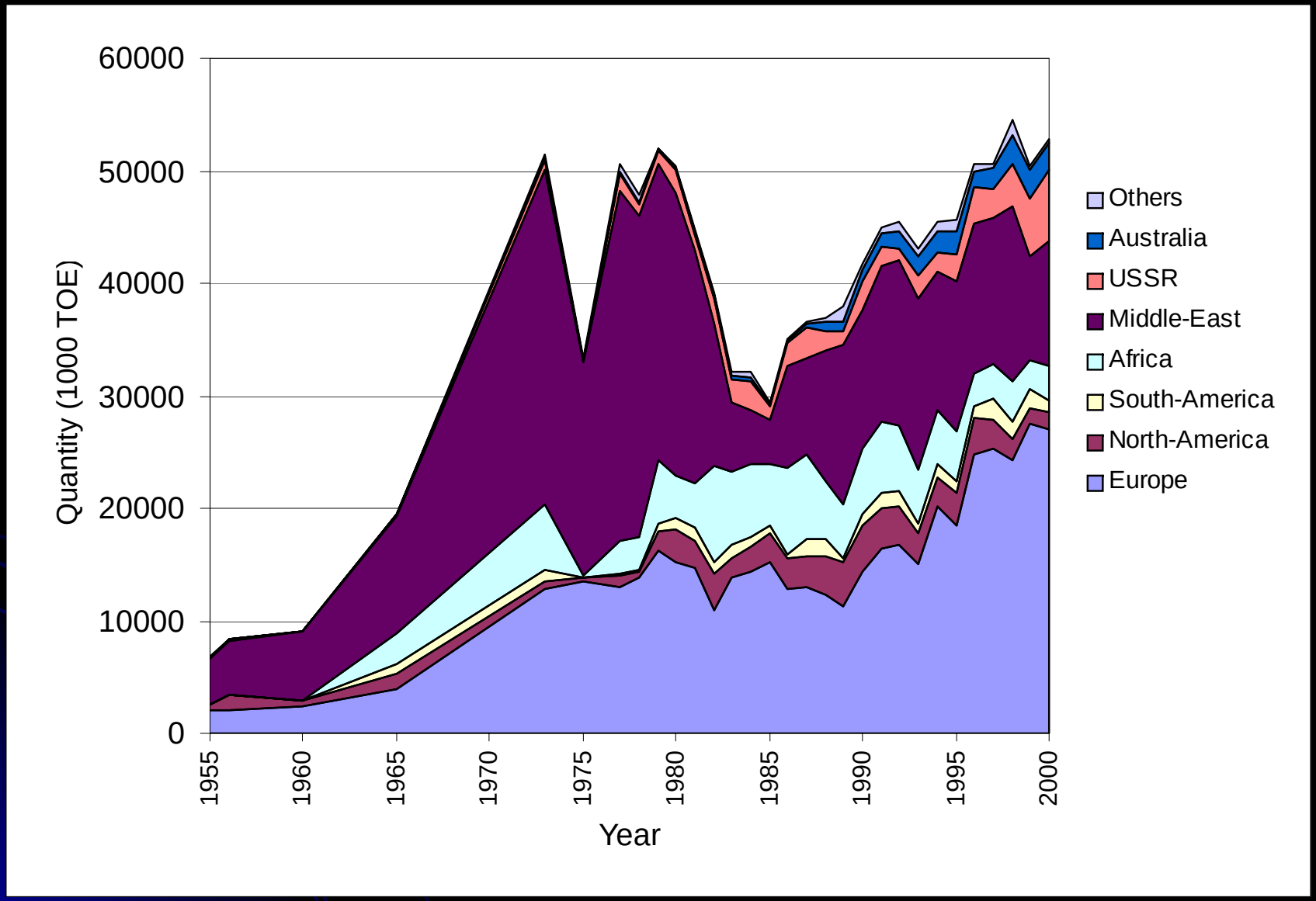
Fossil fuel consumption in Belgium



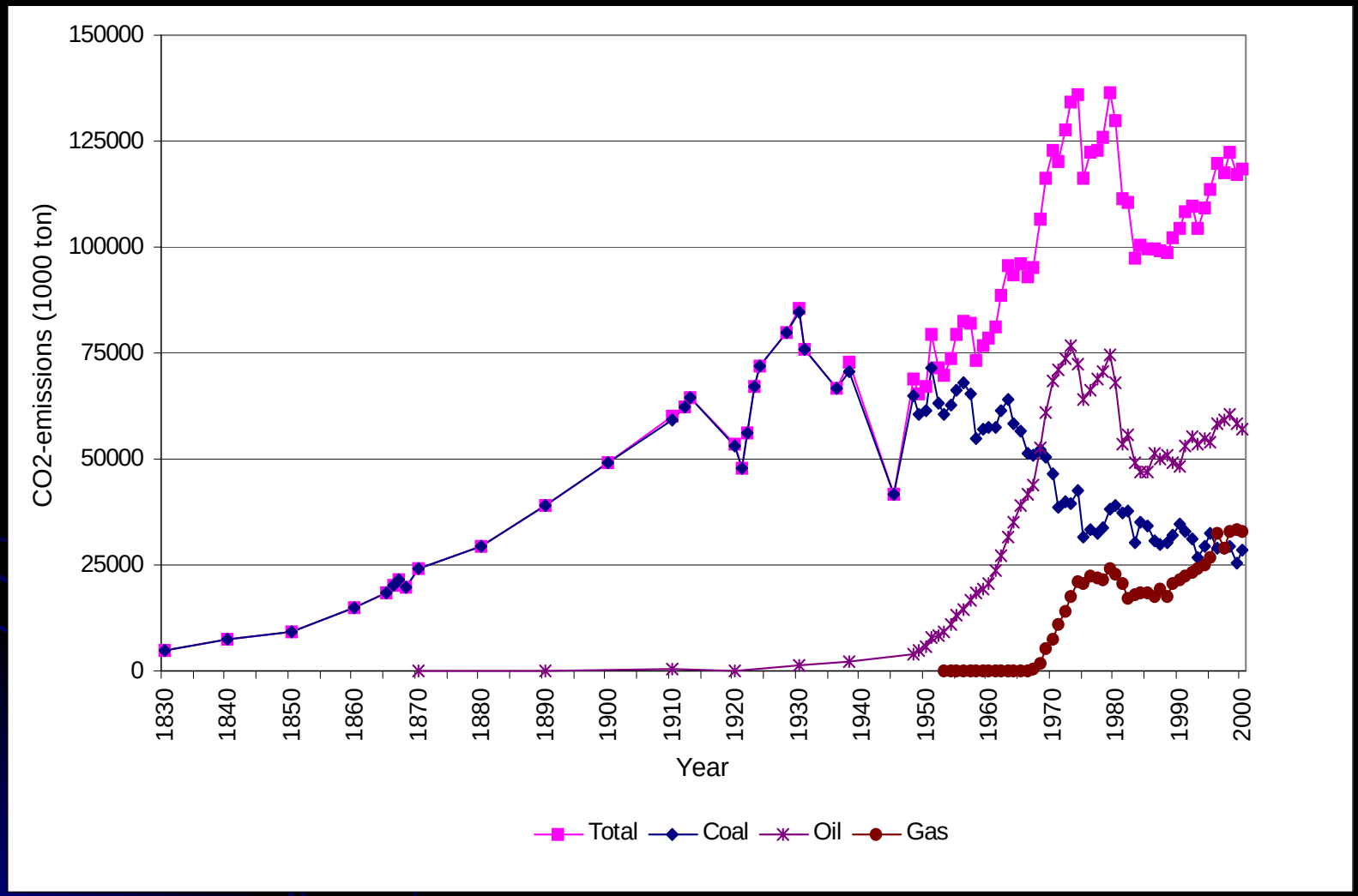
Energy (Self) Supporting Rate



Import raw fossil fuels



CO_2 from fossil fuels

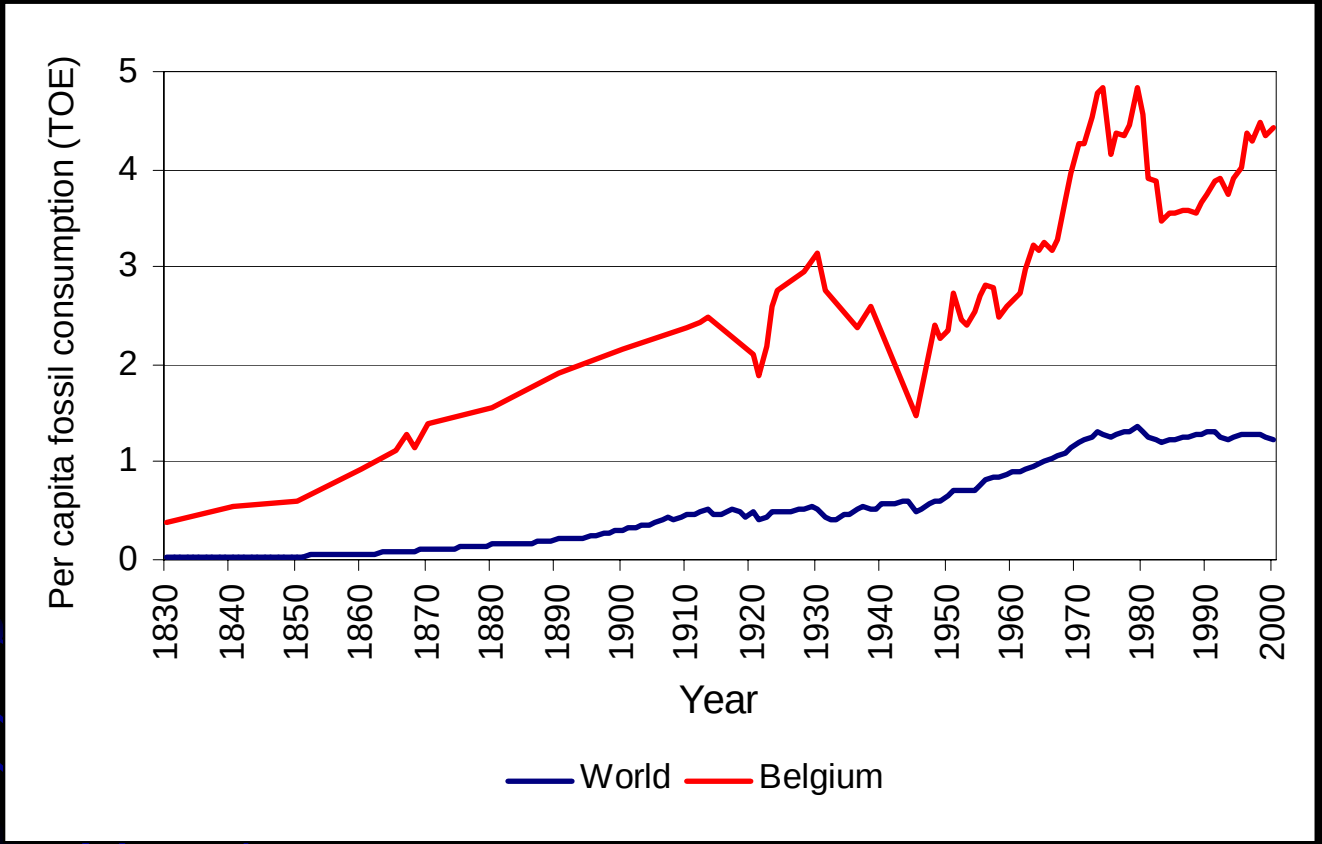


Ecological debt

- Ecological damage due to
  1. Extraction activities (degradation & pollution)
  2. Depletion of fossil fuel reserves
  3. Climate change from CO_2 emissions

- Exploitation/use of ecosystem goods at the expense of the equitable rights of others
  1. CO_2 absorption capacity
  2. Fossil fuel reserves

Ecological debt and fossil fuel consumption/depletion



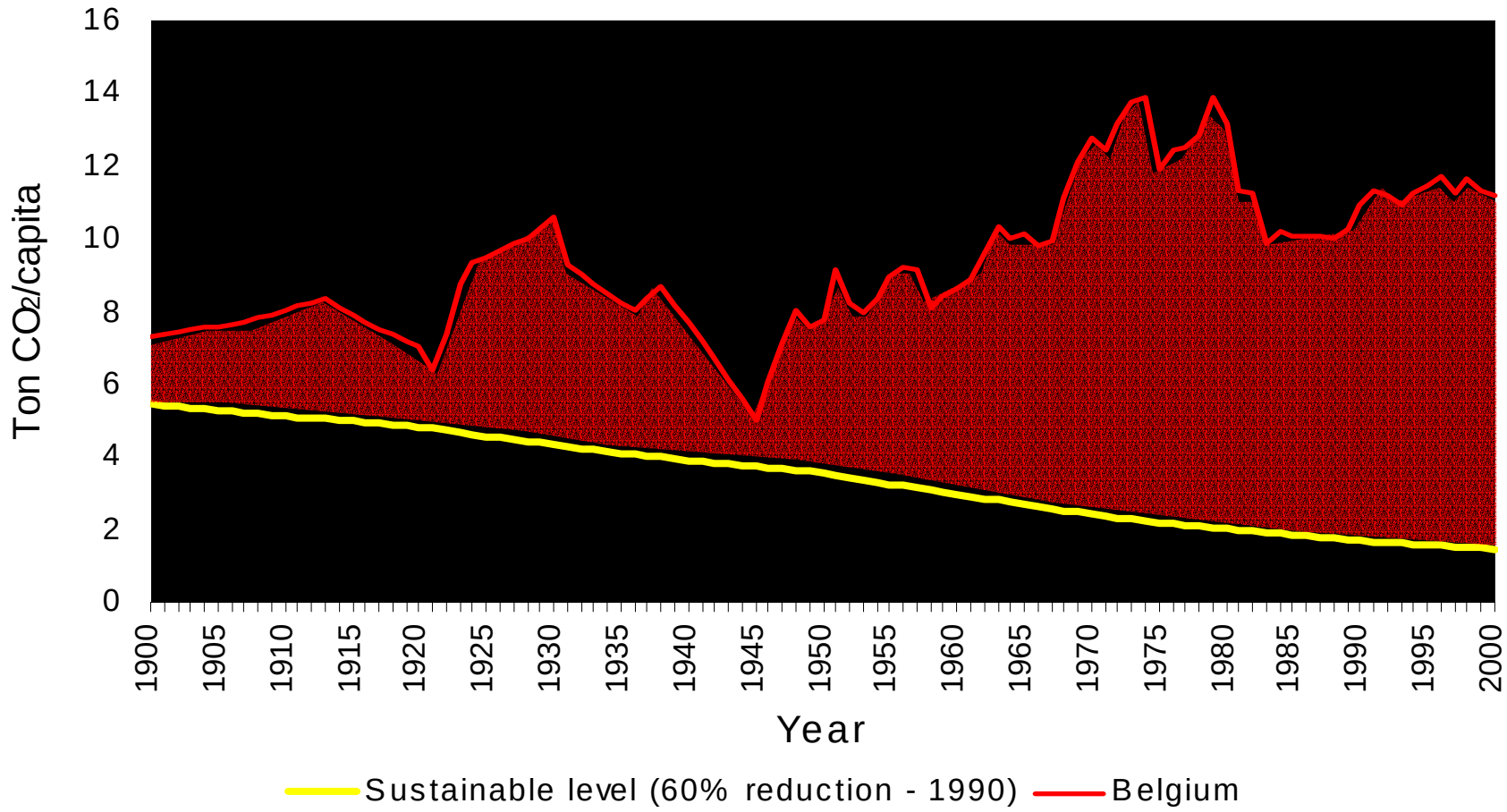
→ Proven World fossil fuel reserves (BP, 2002):
850 billion TOE = 140 ton/capita

Determining the ‘Carbon Debt’

- Sustainable level: 60% reduction (cfr. 1990)
  - →no ‘absolute’ levels of sustainability
  - →to “stabilise the world’s climate & to avoid worst consequences” (IPCC)
  - →Kyoto reduction for Belgium: 7,5%

- Equitable rights: equal per capita?
  - →atmosphere ‘belongs’ to nobody
  - →varying geographical, climatic,… conditions
  - →adjusted egalitarianism

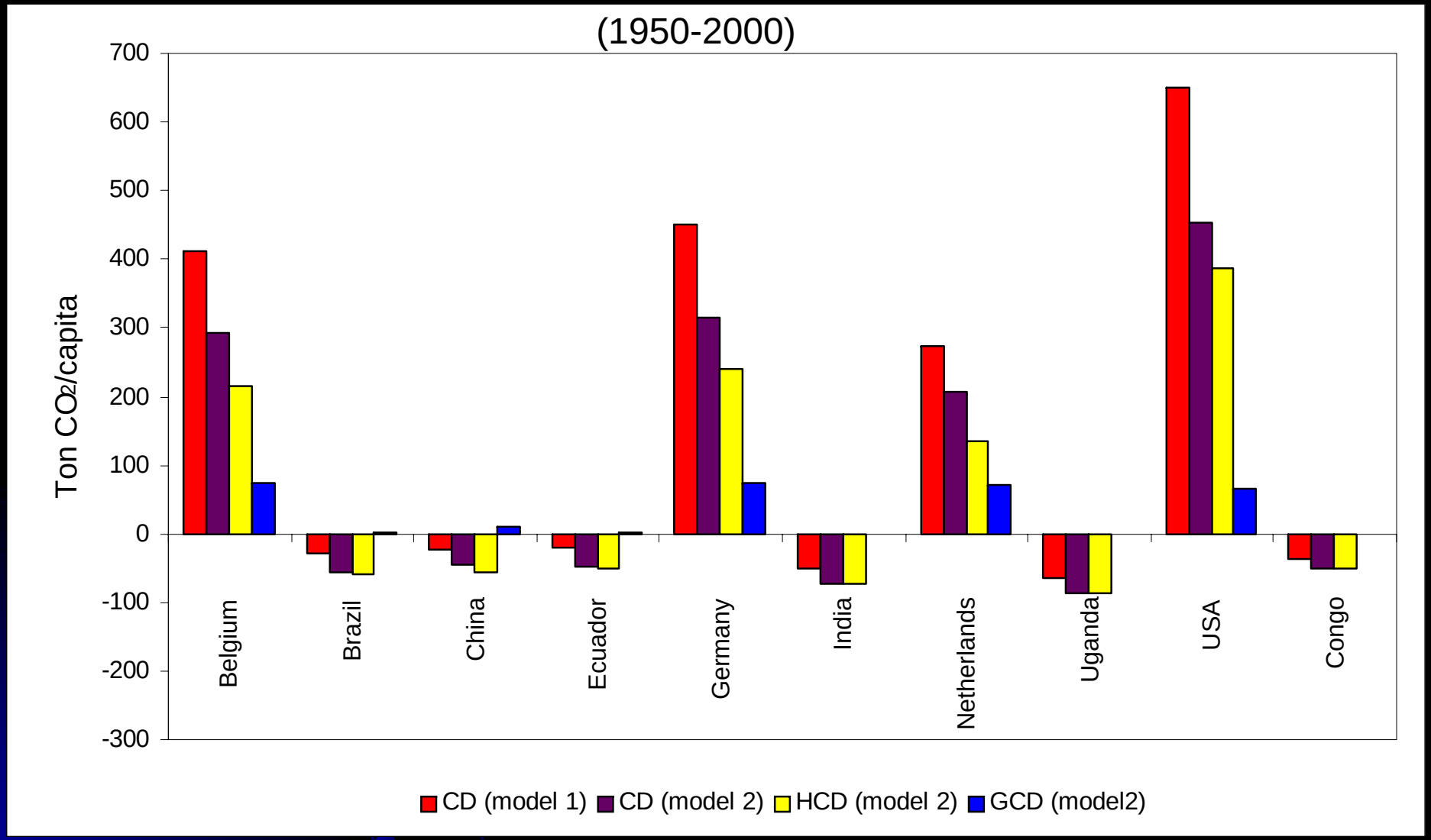
The Belgian Carbon Debt



total carbon debt = 5787 million ton CO_2

(Cfr: total CO_2 emission in 2001: 115 million ton)

Debtors and creditors



Implementing the carbon debt

HCD: basis for allocating future emission rights?

→HCD as a measure for historical responsibility
→Common but differentiated responsibilities (UNFCCC)

emission right = target emission – HCD/N

(Compensation of the interstate HCD over N years)

→Developed countries (HCD +) take the lead
→Developing countries (HCD -) get space to grow

Some conclusions

- Belgium has incurred ecological debt by increasingly depending on *finite foreign fossil* fuels

- Determining the Carbon Debt involves choices: sustainable level, equitable distribution of entitlements, basis for calculations (emissions, territorial perspective,…)

- Carbon Debt as a measure for historical responsibility and as a basis for allocating emission rights (cfr. 2nd commitment period)

4. Module Agriculture and Food Supply

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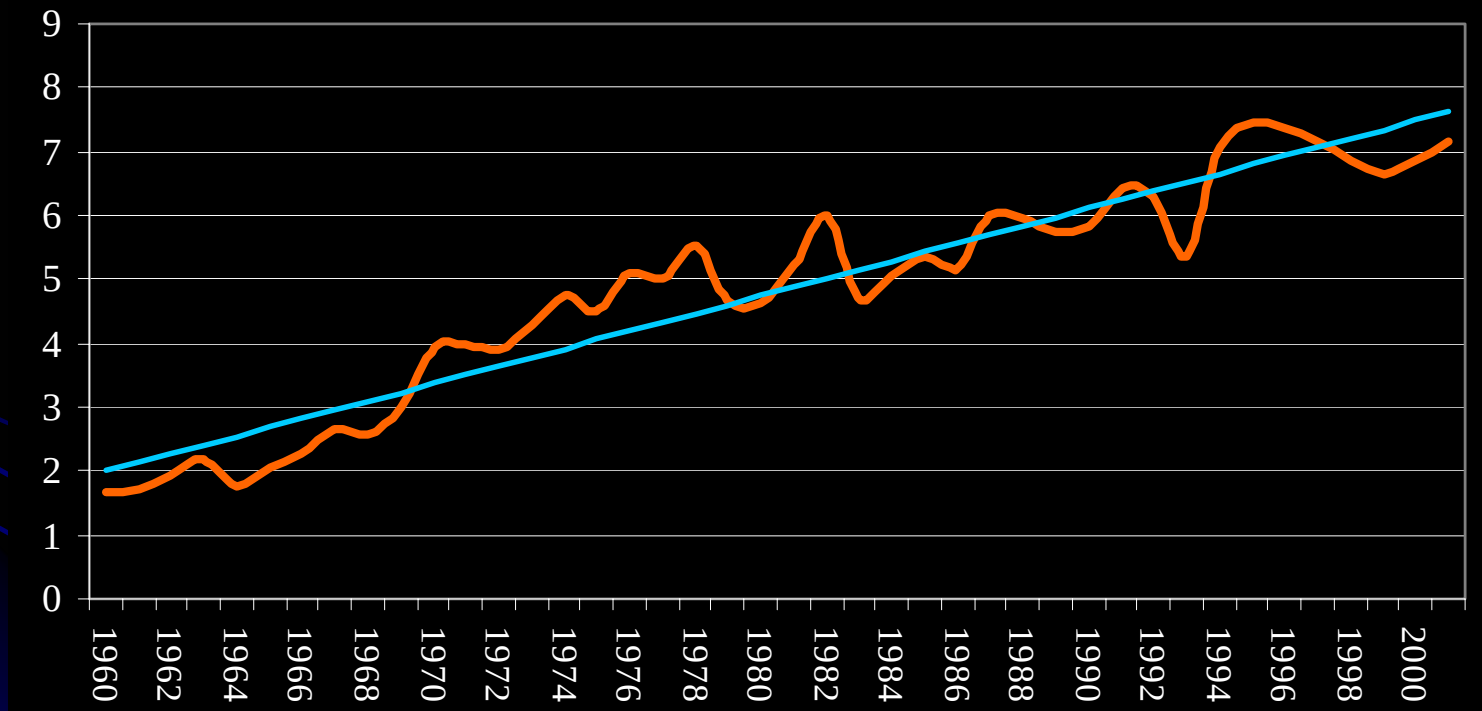
Investigated topics

1. international context of the Belgian livestock sector
2. magnitude of material flow toward the Belgian livestock sector;
3. amount and whereabouts of land cultivated abroad to obtain fodder crops for the Belgian livestock;
4. impact on the environment of this fodder crop cultivation;
5. equity issues of arable land appropriation abroad.

Analysis of Material Flows to the Belgian livestock sector

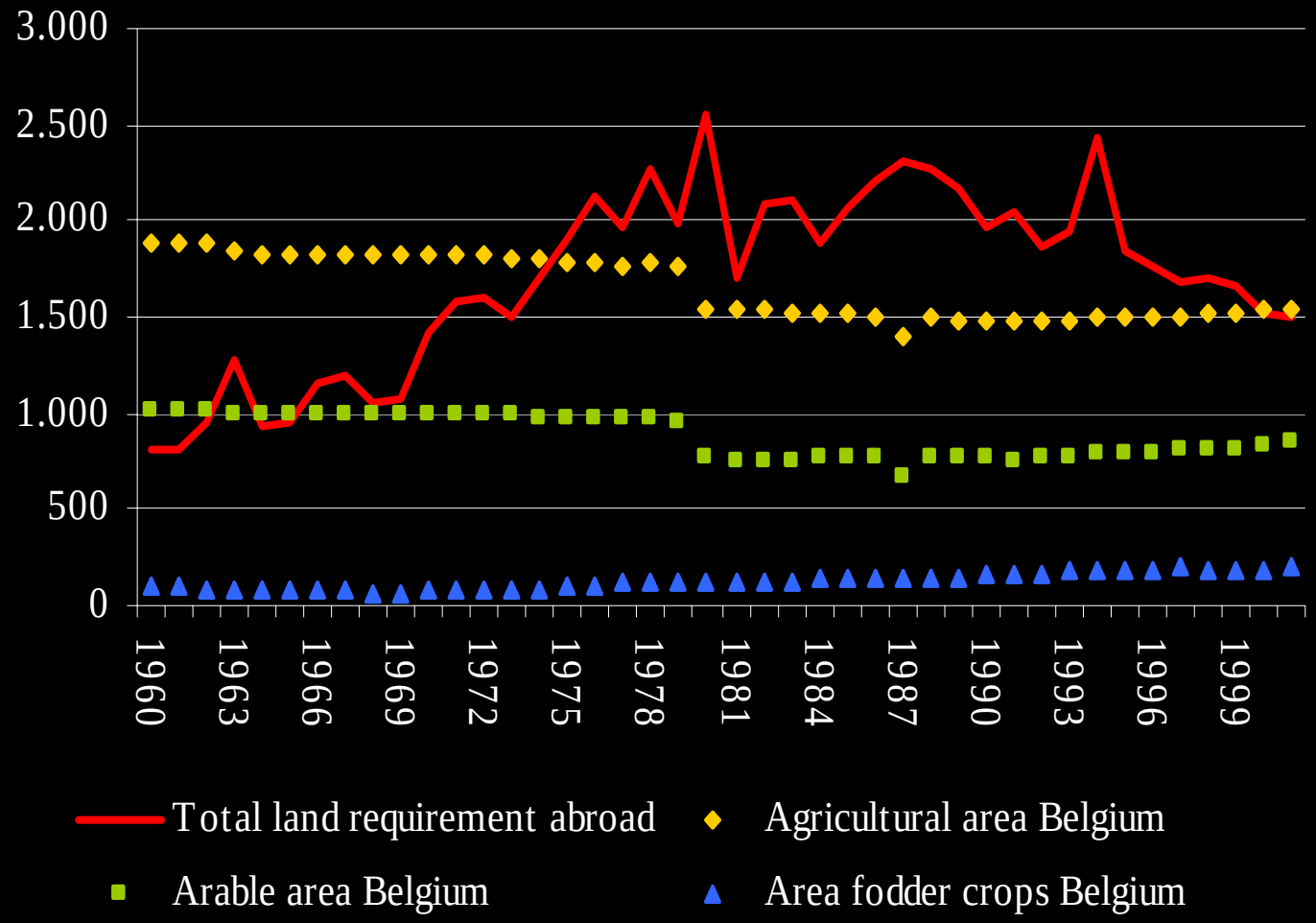
Total Material Requirement (million tonnes of fodder)



Linear regression (R^2 = 0.9095). Annual increase = 140 000 tonnes

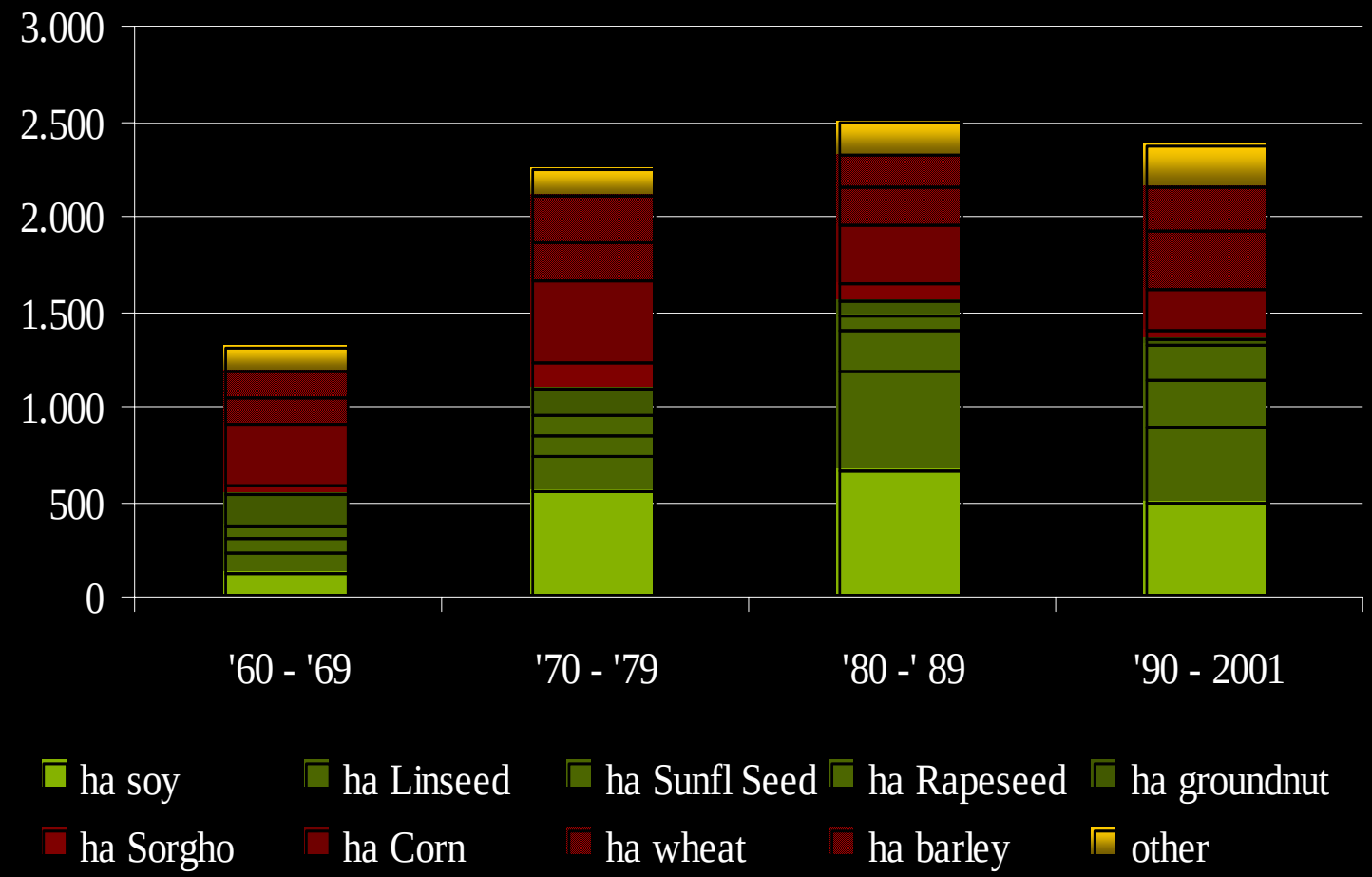
3. Land requirement abroad (1000 ha) for the Belgian livestock sector

Aggregation of results



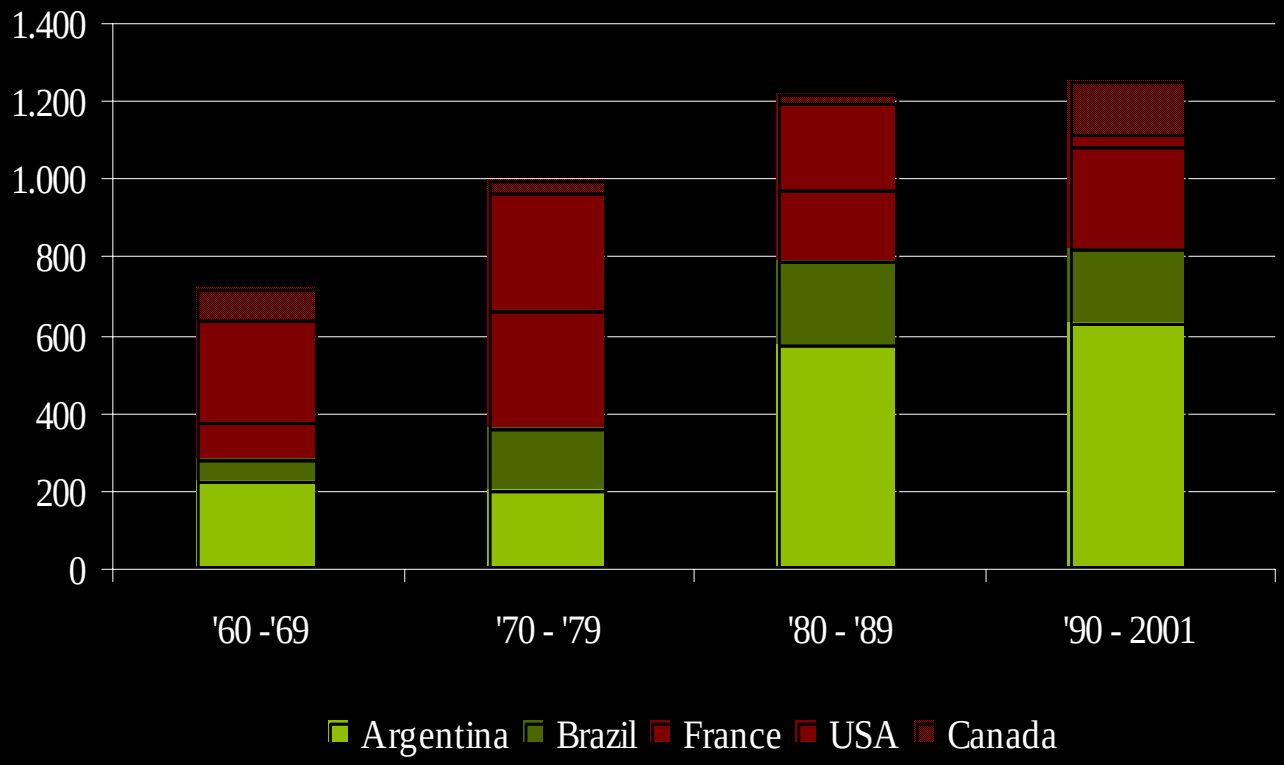
3. Land requirement abroad (1000 ha) for the Belgian livestock sector:

Per *crop* assessment



3. Land requirement abroad (1000 ha) for the Belgian livestock sector:

Per *country* assessment (top 5 countries)



Other important countries:
Sudan, Thailand, Indonesia, Nigeria, Malaysia, Philippines, Paraguay, Russia, China

Eco Debt of Belgium: livestock sector
Ecological Debt by Ecological Damage

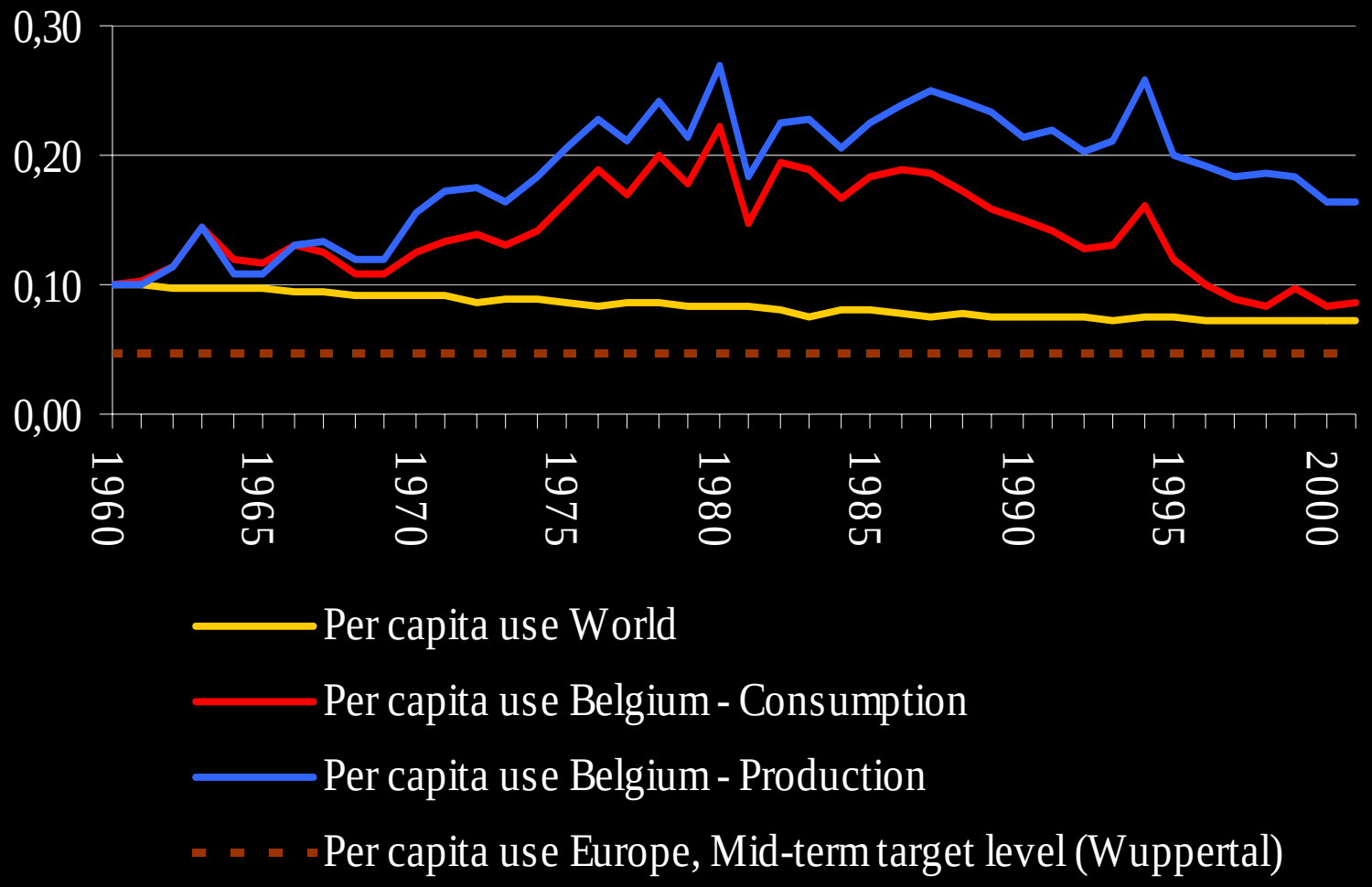
- Ecological Damage depends on several variables:

  Crop, Country of production, Producer, Year of production

  *Environmental Damage = Σ damage per ha * number of ha*

- Sort of interferences:
  - Interferences with SOIL ecosystems
  - Interferences with AQUATIC ecosystems
  - Interferences with FOREST ecosystems
  - Ecological damage caused by GMO's

EcoDebt of Belgium: livestock sector
I*nequity of land appropriation*



Conclusions

1. Since 1960 Total Material Requirement for the Belgian livestock sector has increased with 140 000 tonnes annually.
2. Analysis of the 5 main import countries: Over time, a shift in land requirement from the North (France, USA and Canada) to the South (Brazil and Argentina) is observed.
3. Concomitant ecological damage is diverse. Aggregated damage or compensation is difficult to assess.
4. Belgium's per capita use of arable land doubles the per capita use of the world and is four times the Wuppertal mid-term target level. An internationally accepted target level has not yet been developed.

Conclusions

Possible solutions:

- Transition towards European self-sufficiency for fodder crops?
- Less affluent diets in the North?

Problems:

- Belgium's policies towards its livestock sector are embedded in a CAP; transition will have to be implemented on a European level
- Currently, world trade agreements enhance export oriented trade of fodder commodities from South to North and the concomitant environmental damage

5. Policy implications

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Linking ecological debt and policy

		Aspects of ecological debt	
		Ecological damage	**Use at the expense of equitable rights**
Aspects of policy	**Accounting for historical responsibility (restitution)**	• **Climate policy**: mitigation and adaptation • **External debt relief**: who owes whom?	
	Avoiding daily accumulation	• On the level of **policies**: reorientation towards sustainable production and consumption • On the level of **instruments**: inclusion of ecological debt	

Accounting for historical responsibility

- In climate policy:
  - ‘historical responsibility’ as one of the determinants in post-Kyoto negotiations
  - Implications for mitigation and adaptation

- In external debt policy:
  - “who owes whom?”, ecological debt as an additional argument for debt cancellation
  - External debt owed to Belgium (2000): 16 billion €
  - Carbon debt of Belgium (1900-2000, at 10 €/tCO_2): between 42 and 58 billion €, of which around 34 billion € is inter-state debt

Avoiding daily accumulation

- On the level of **policies**: reorientation of e.g.
  - energy policies
  - agricultural policies
  - trade policies
  - development cooperation
- On the level of **instruments**: inclusion of ecodebt
  - Indicators for sustainable development
  - sustainability impact assessment
  - scientific research
  - awareness raising

Some final conclusions

- Operational weaknesses of the concept can be remedied: definitions, methodology, scientific frame of reference
- Juridical leads exist, but demand interpretation and elaboration
- Applications and calculations are possible, but demand value bound choices
- Policy interventions can be identified for addressing ‘historical responsibility’ and ‘daily accumulation’
- Sound SD policies should systematically address impact abroad (regardless of the term ‘ecological debt’)