

# Implications of Offshoring Carbon Emissions for Climate Policy

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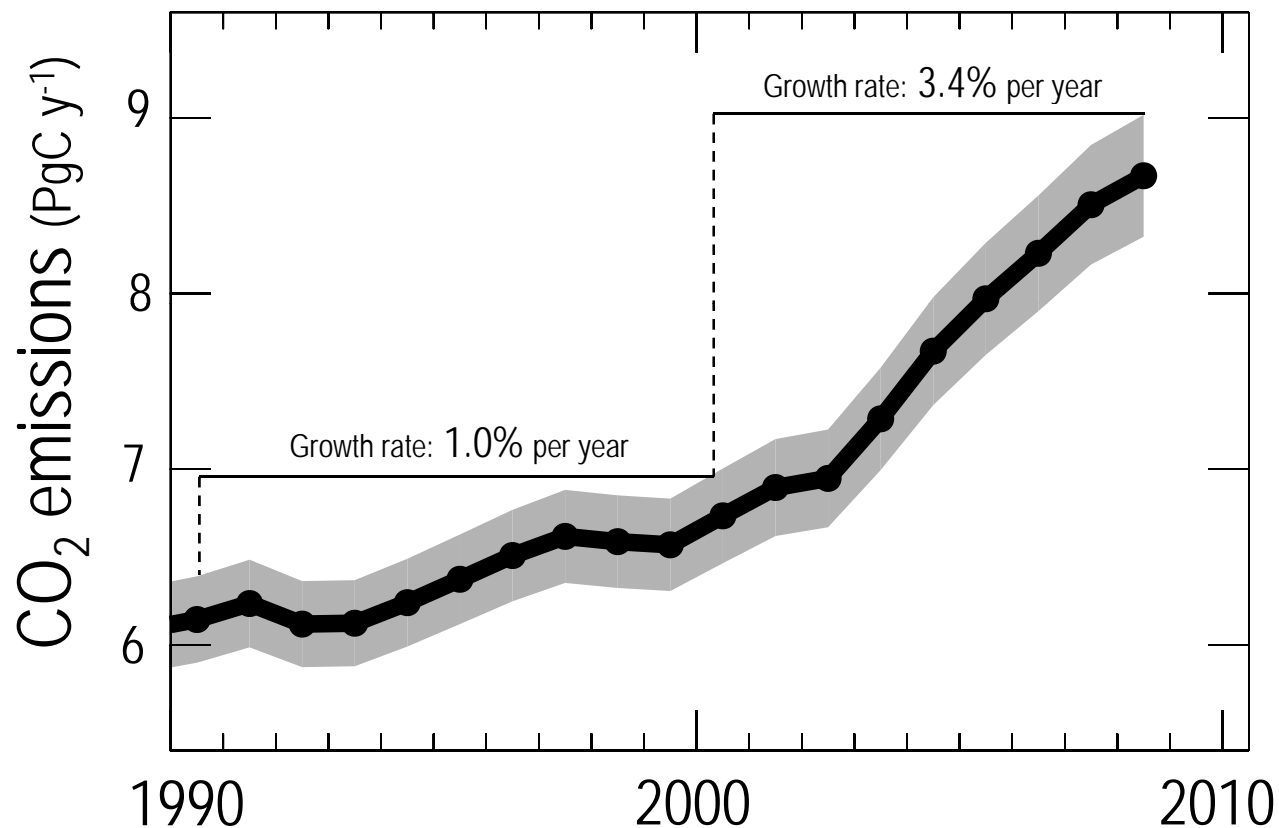
<http://www.harc.edu>

<http://www.texasclimate.org>

<http://www.texasclimatenews.org>

# Fossil Fuel Emissions and Cement Production

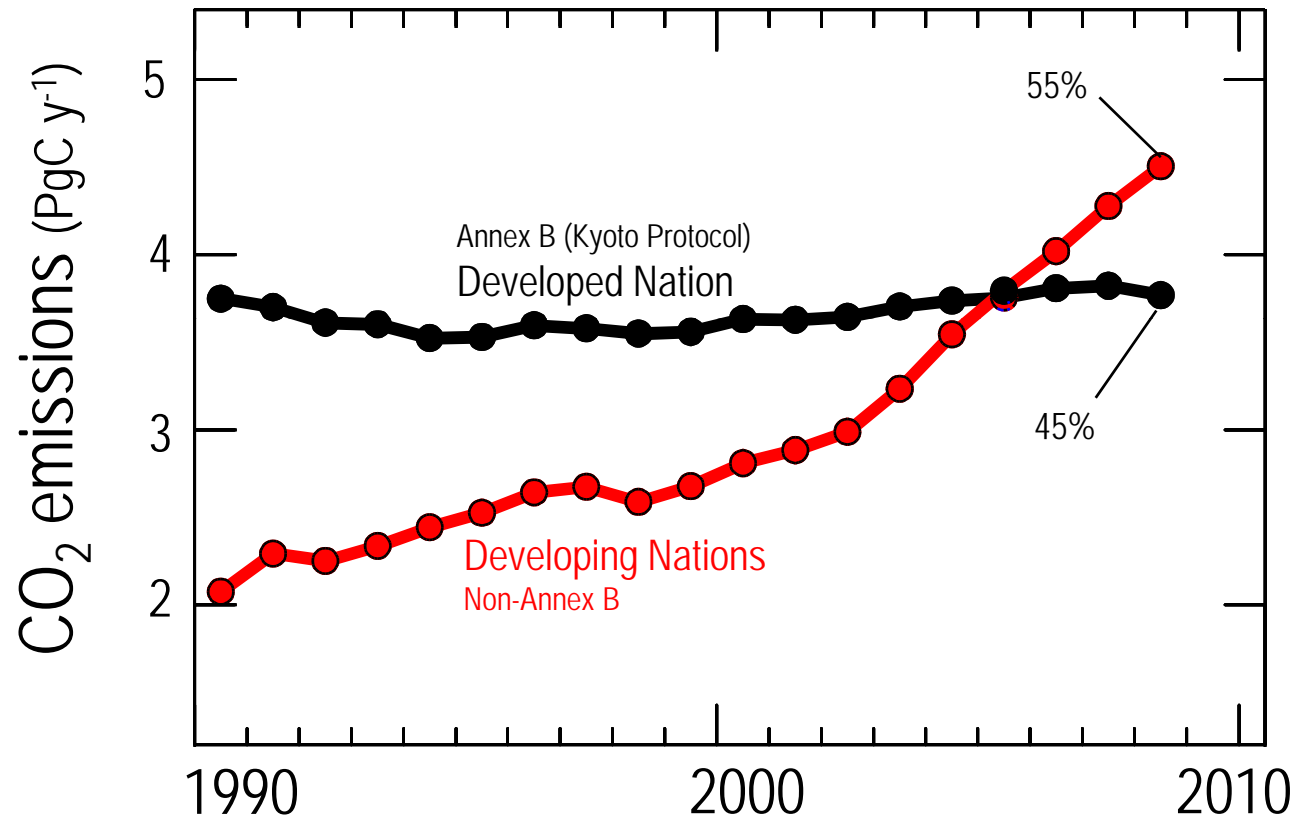
[1 Pg = 1 Petagram = 1 Billion metric tonnes = 1 Gigatonne =  $1 \times 10^{15} \text{g}$ ]



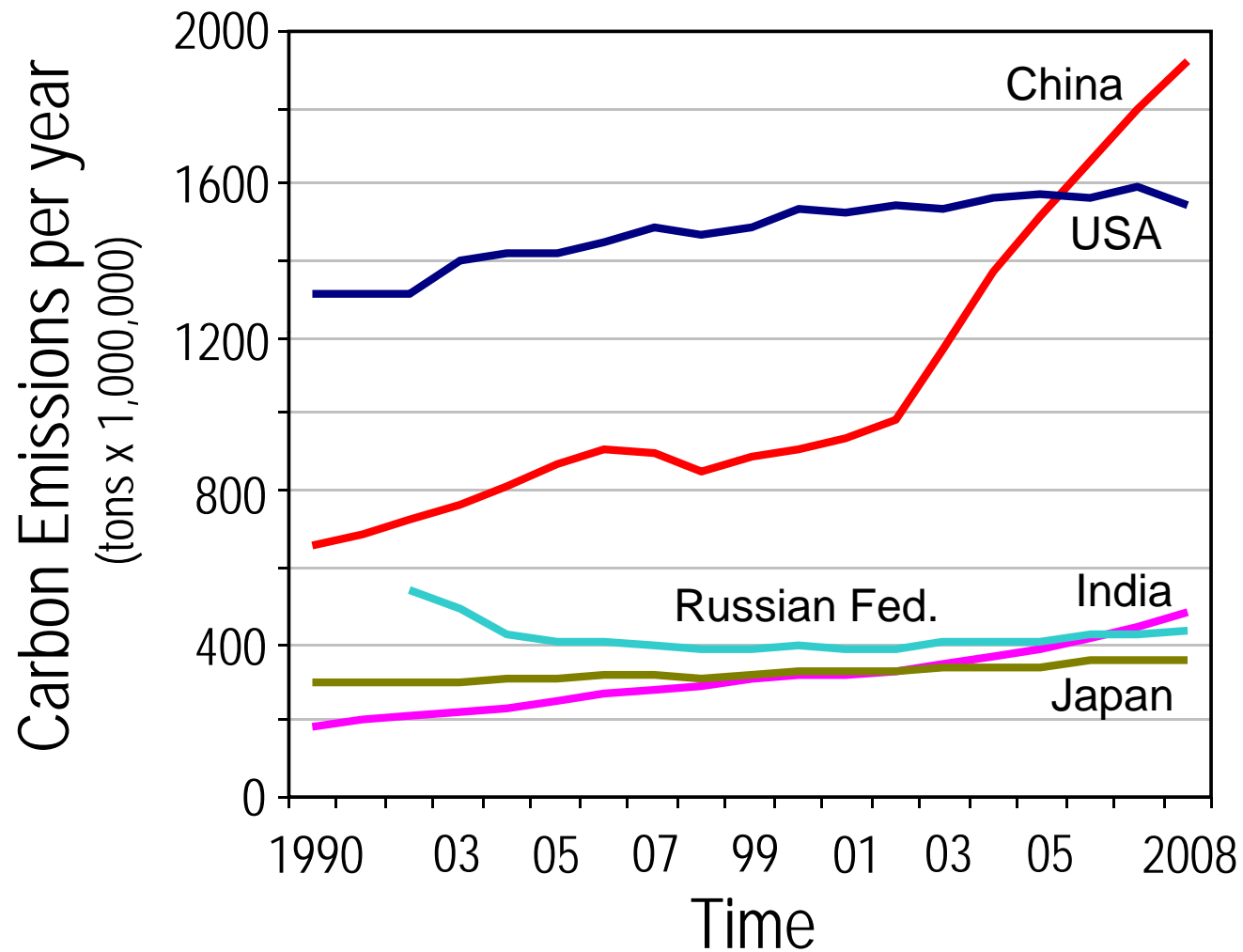
**2008:**  
Emissions: 8.7 PgC  
Growth rate: 2.0%  
1990 levels: +41%

2000-2008  
Growth rate: 3.4%

# CO<sub>2</sub> Fossil Fuel Emissions

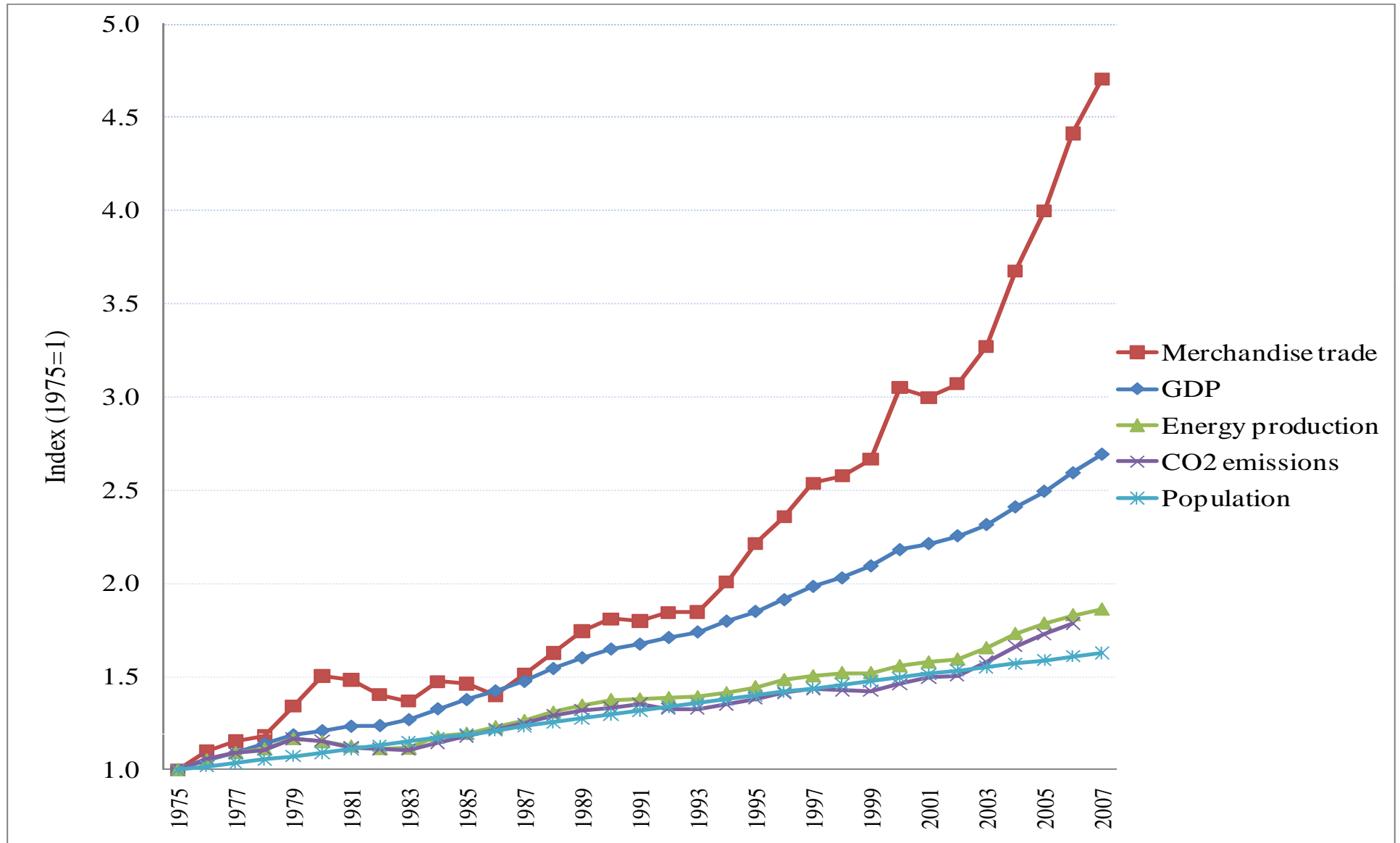


# Fossil Fuel Emissions: Top Emitters



# Growth of global trade in goods, gross domestic product (GDP), energy use, CO2 emissions, and global population, 1975-2007.

Source: Data obtained from World Development Indicators (2010).

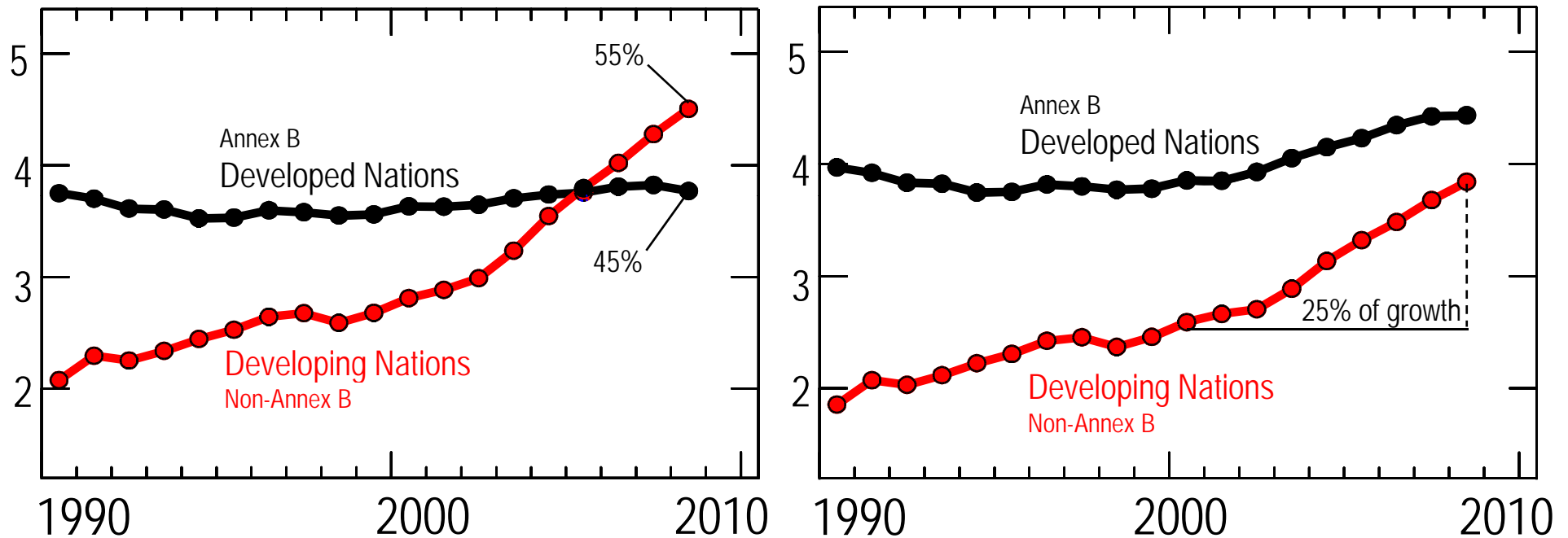


# Production vs. Consumption

- Production based (territorial) accounting
  - Advantage: data availability
  - UNFCCC (e.g. Kyoto Protocol)
- Consumption based accounting
  - Modelling required
  - Consumer responsibility and social justice
  - Consistency of climate policies

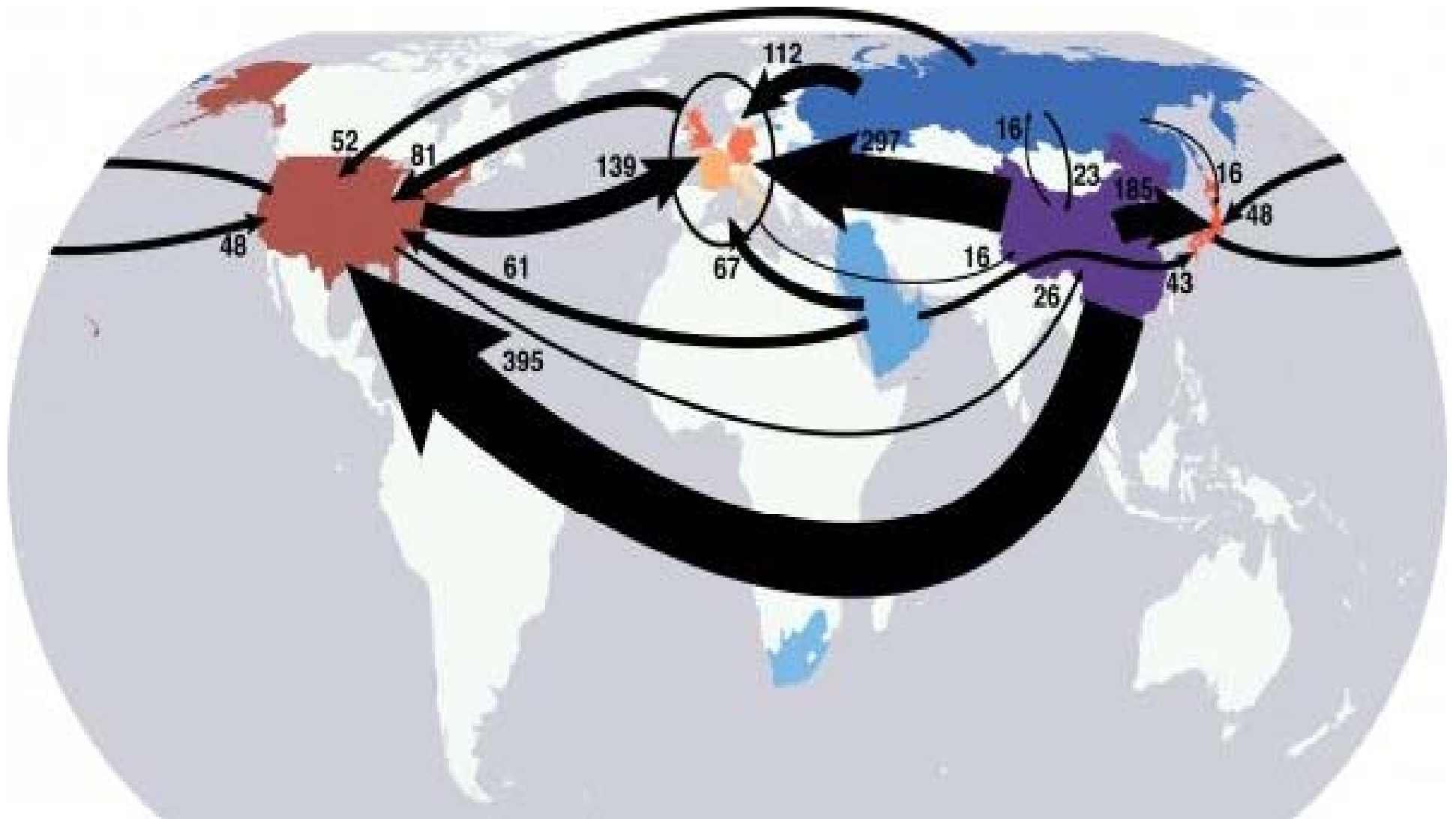
# Transport of Embodied Emissions

CO<sub>2</sub> emissions (PgC y<sup>-1</sup>)



Movements of embodied carbon in trade from dominate net exporting countries (purple and blue) to dominant net importing countries (red) in 2004.

Source: Davis and Calderia, 2010. (Mt CO<sub>2</sub>-million metric tons per year)





# Reasons for the increasing importance of embodied carbon

- Relocation of industries to countries with less strict environmental regulations
- Satisfaction of increased demand by countries with lower production costs

# Conclusions

1. Embodied CO<sub>2</sub> in international trade is increasing.
2. Global agreements on emission reductions will not be acceptable without an agreement on **shared responsibility between producers and consumers.**
3. Consumption-based accounting of carbon, nitrogen, water and other environmental variables will increasingly inform the design of policies related to climate and sustainability.

# So what else can we do?

(Change our way of life?!?)

