

# Historical Responsibility

## A Brazilian Perspective

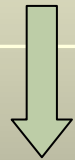
**José Miguez**

**Ministry of Science and Technology**

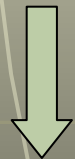
**June 4<sup>th</sup>, 2009**

# Temperature Increase by 2100

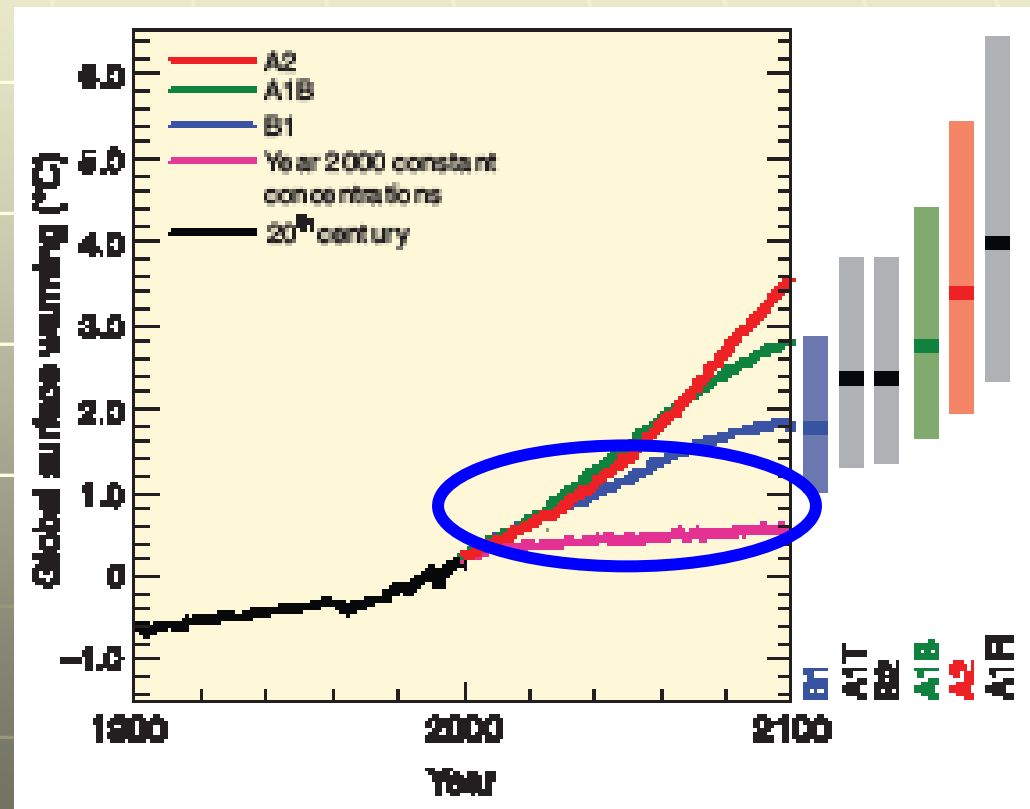
- Maintaining concentrations constant at 2000 level



1.5°C by 2100



- Annex I Responsibility  $\pm 90\%$



# Long time residence GHG in the Atmosphere

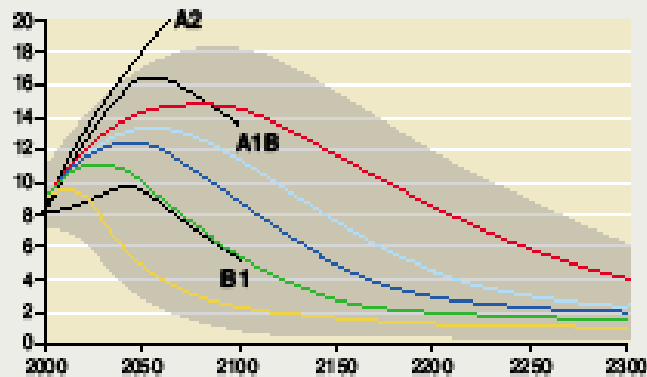
## ■ Climate Change

- Emission ⌚ → Concentration ⌚ → Temperature Increase
- Majority of GHG simple exponential decay  
CF<sub>4</sub> 50,000 years
- Bern Model CO<sub>2</sub>
  - 10% > 1.6 year
  - 29% > 20 years
  - 26% > 80 years
  - 22% > 330 years
  - 13% > 300,000 years
- Brazilian Proposal
  - 63% 20 years
  - 37% 990 years

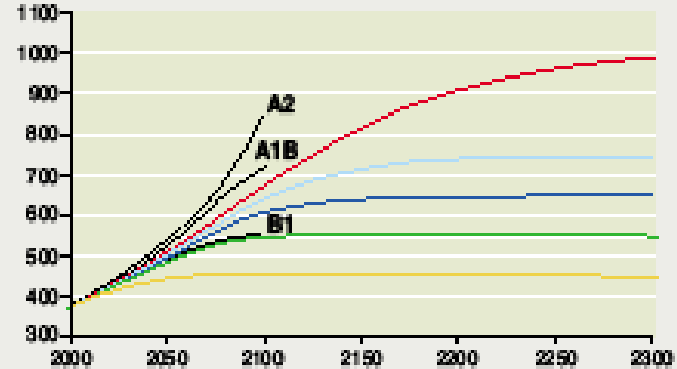
# Emissions $\Rightarrow$ Concentrations $\Rightarrow$ Temperature Increase

Emissions, concentrations, and temperature changes corresponding to different stabilization levels for CO<sub>2</sub> concentrations

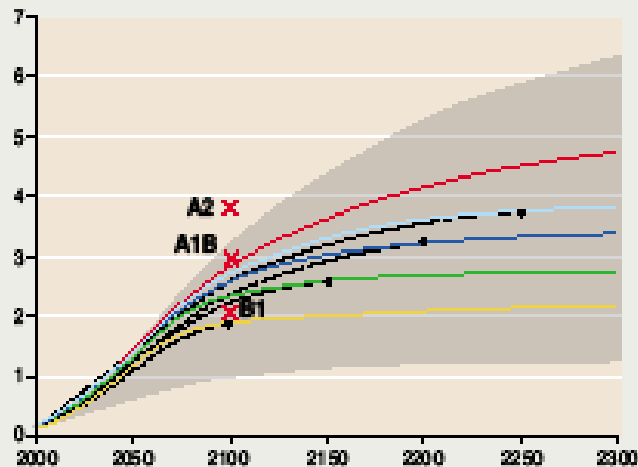
(a) CO<sub>2</sub> emissions (Gt C)



(b) CO<sub>2</sub> concentration (ppm)



(c) Global mean temperature change (°C)



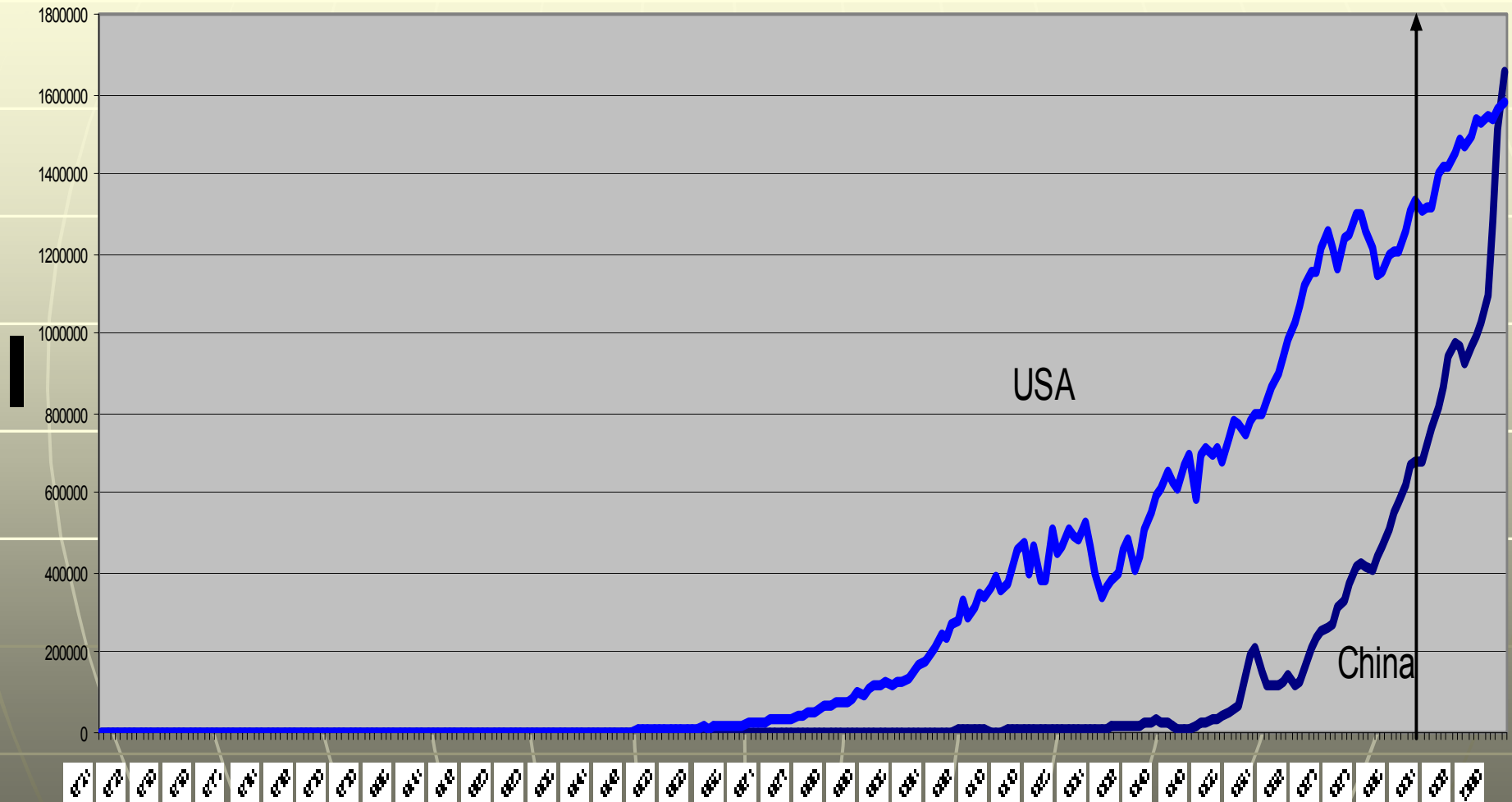
**WRE profiles**

- WRE 1000
- WRE 750
- WRE 650
- WRE 550
- WRE 450

**S profiles**

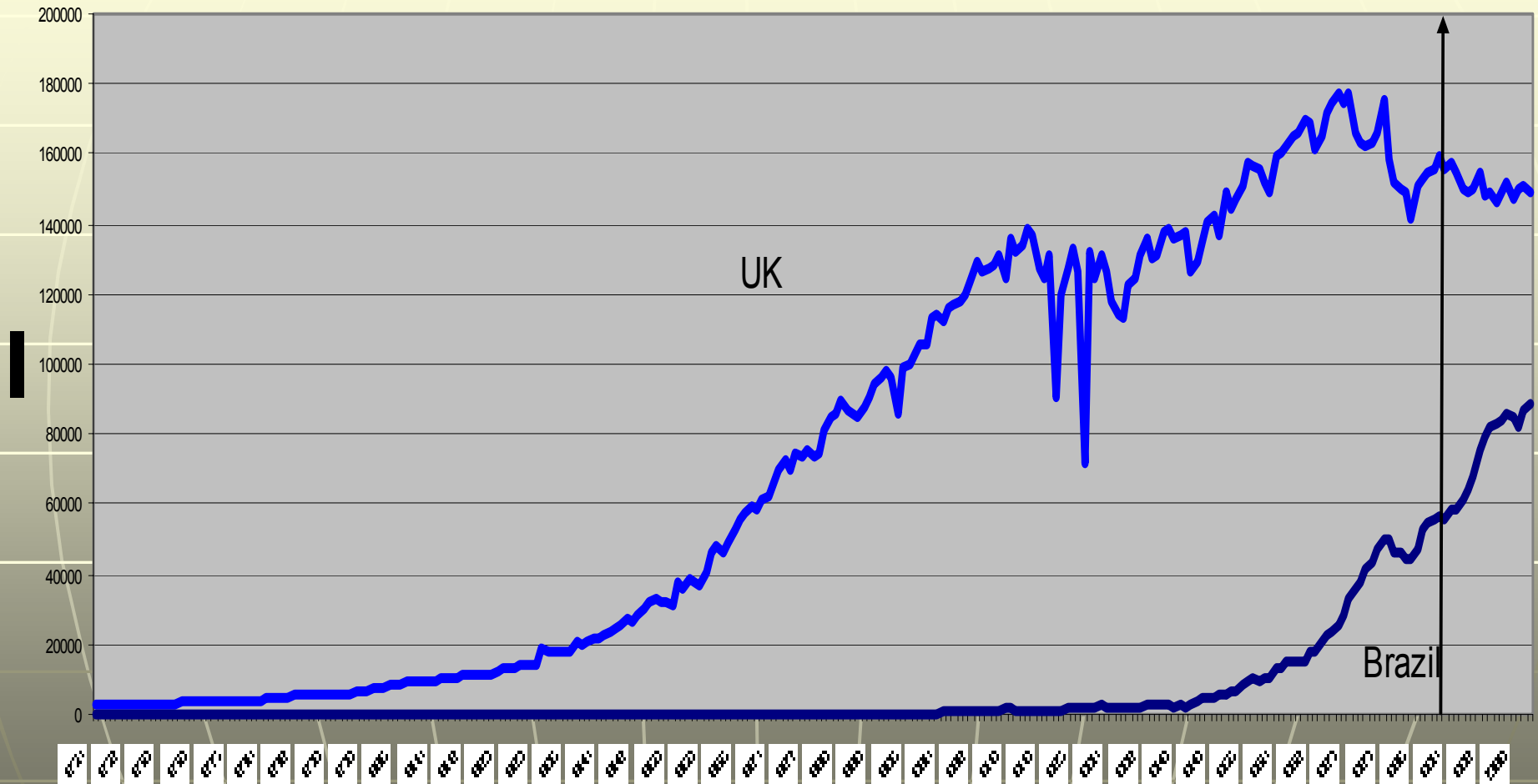
— SRES scenarios

# China and USA



Data: Oak Ridge National Laboratory USA  
CO<sub>2</sub> emissions Energy, Cement and Bunker Fuels

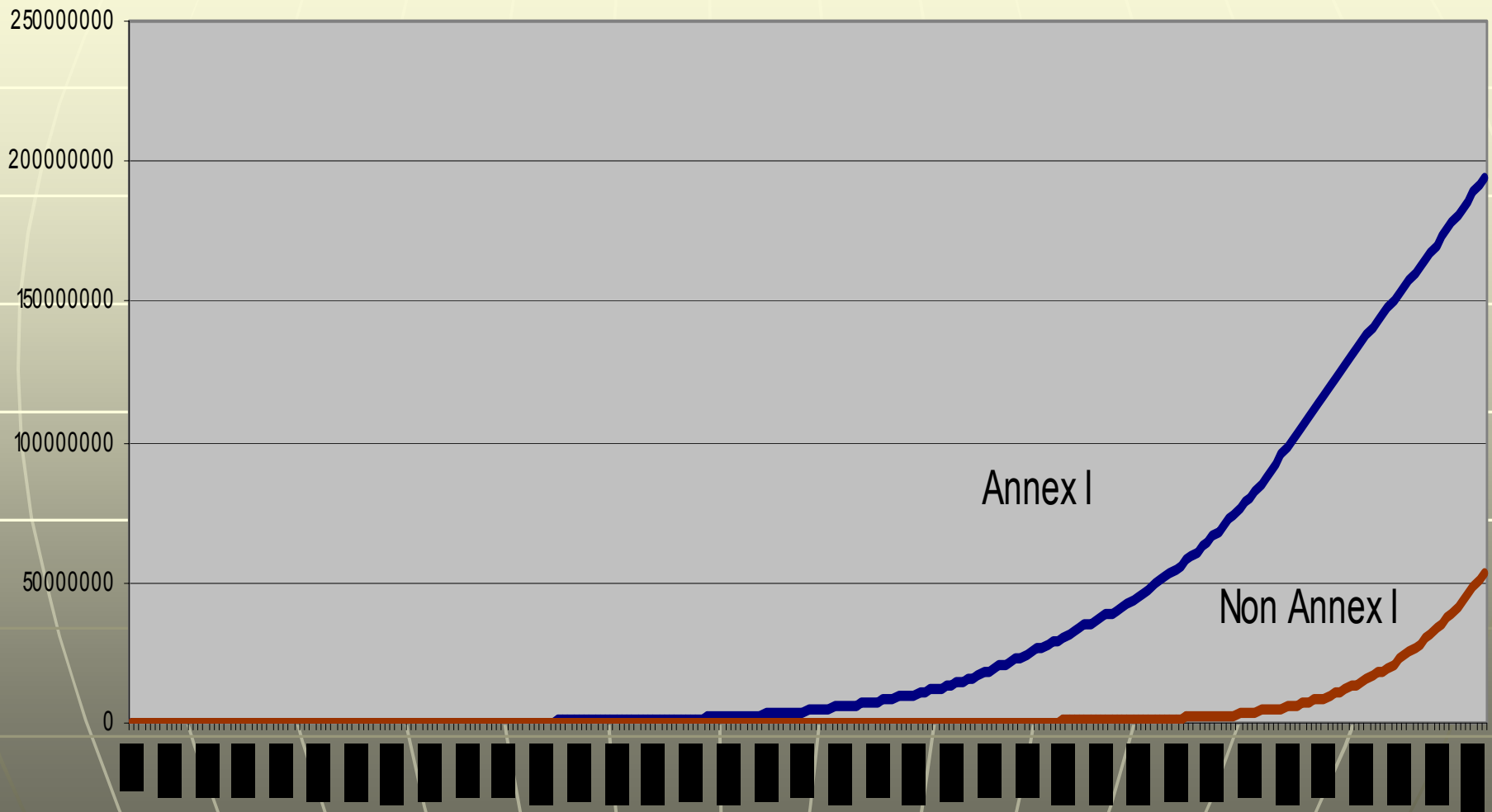
# Brazil and UK



Data: Oak Ridge National Laboratory USA  
CO<sub>2</sub> emissions Energy, Cement and Bunker Fuels

**Brazilian Emissions in 2005 < UK Emissions in 1888**

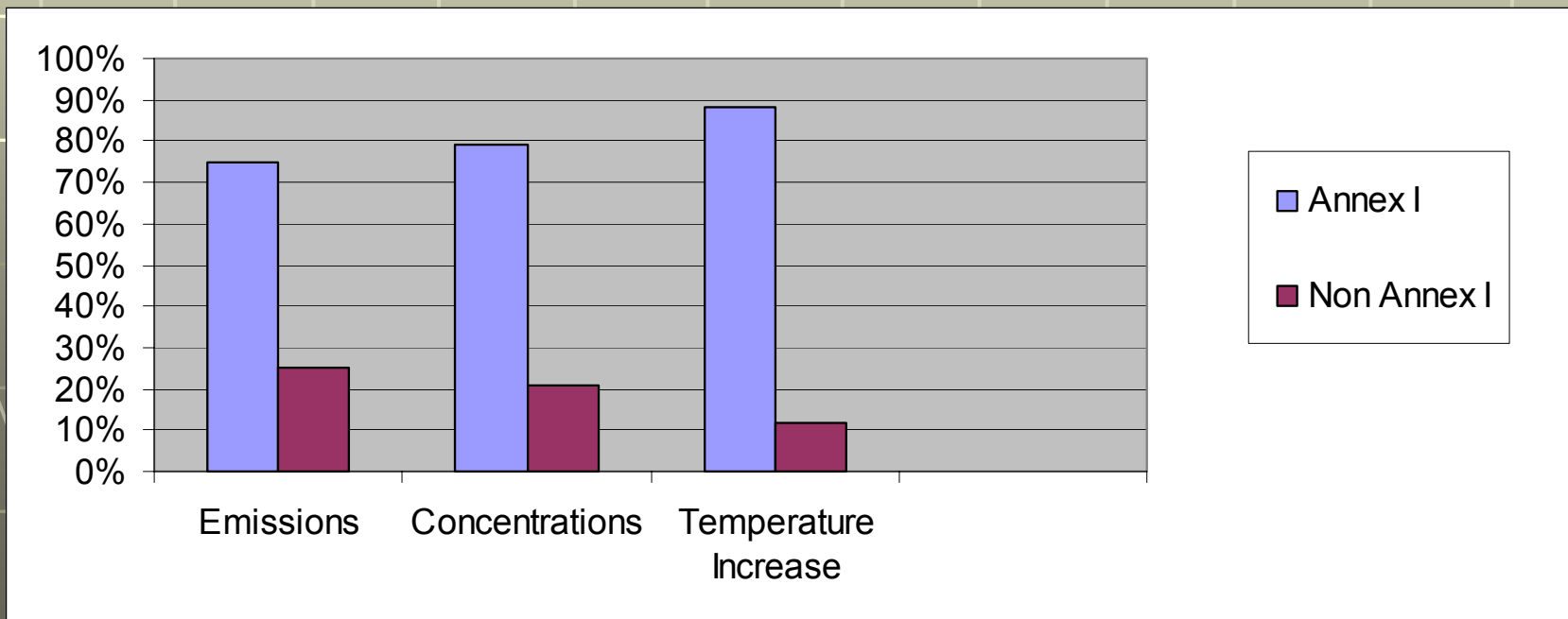
# G20 Cumulative Emissions



Data: Oak Ridge National Laboratory USA  
CO<sub>2</sub> emissions Energy, Cement and Bunker Fuels

# Polluter pays principle

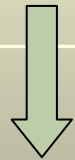
- Annex I countries claim not responsible for emissions before 1990
- Historical responsibility conveyed in 2 findings:
  - 0,7°C average temperature increase in 2005
  - 395 ppmv CO<sub>2</sub> concentration in atmosphere in 2005



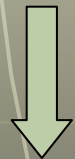


# Temperature Increase by 2100

- Maintaining concentrations constant at 2000 level



1.5°C by 2100



- Annex I Responsibility  $\pm 90\%$

