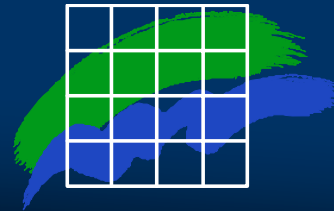


Climate policy and China

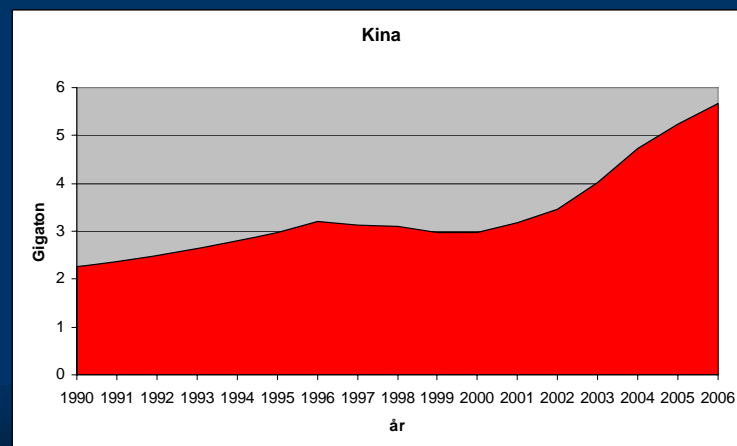
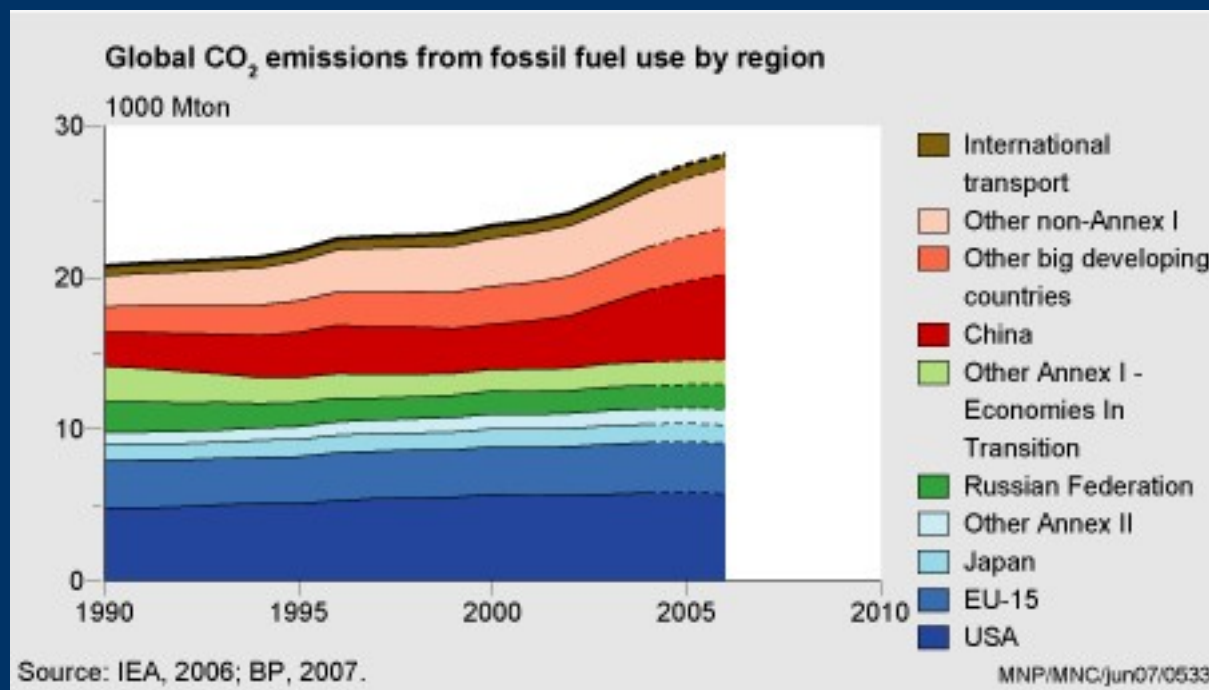


Prof. Mikael Skou Andersen, National Environmental Research
Institute, Dept. of Policy Analysis



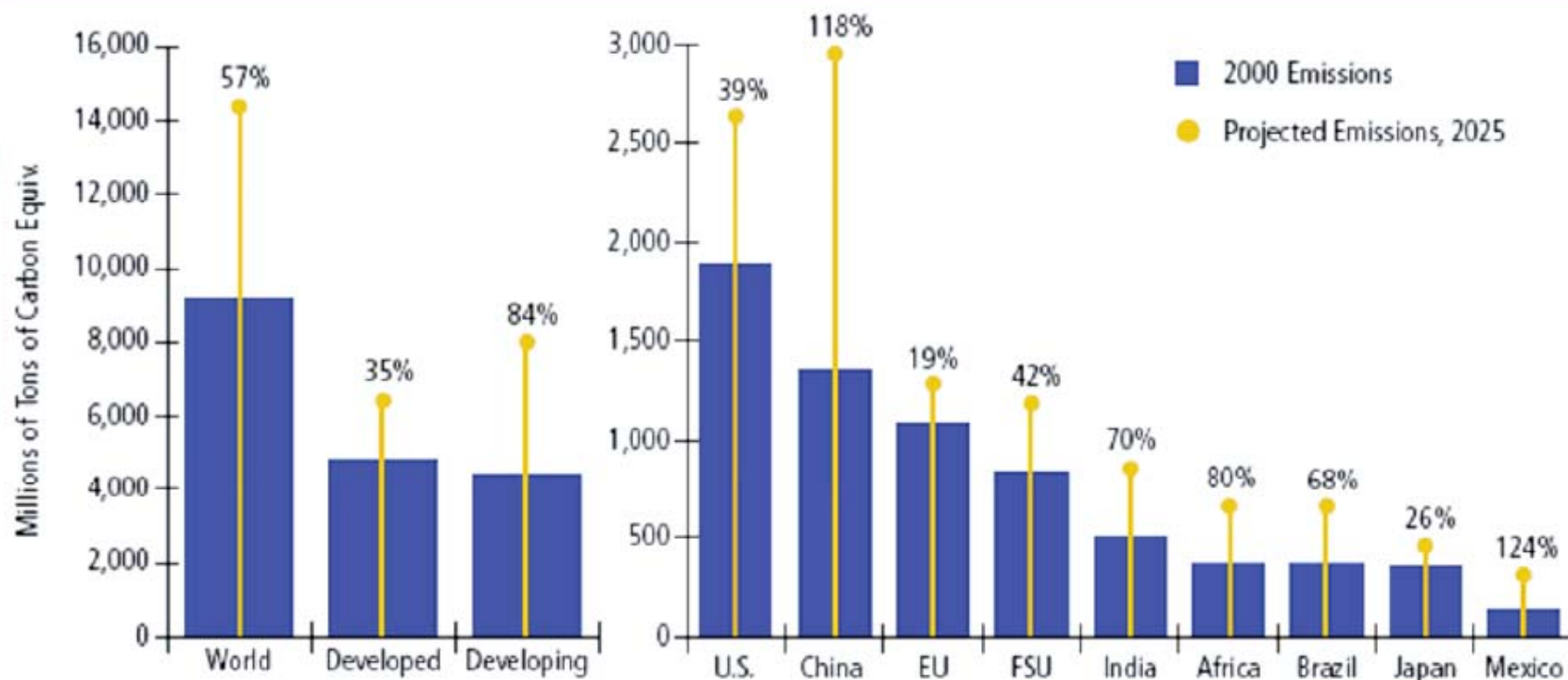
Global CO₂-emissions

- **USA: 20%**
- **China: 20%**
- **EU: 12%**
- **Developing: 11%**
- **Russia: 6%**
- **Japan: 4%**



Projection GHG 2025

Figure 3.1. Projected Emissions of GHGs in 2025

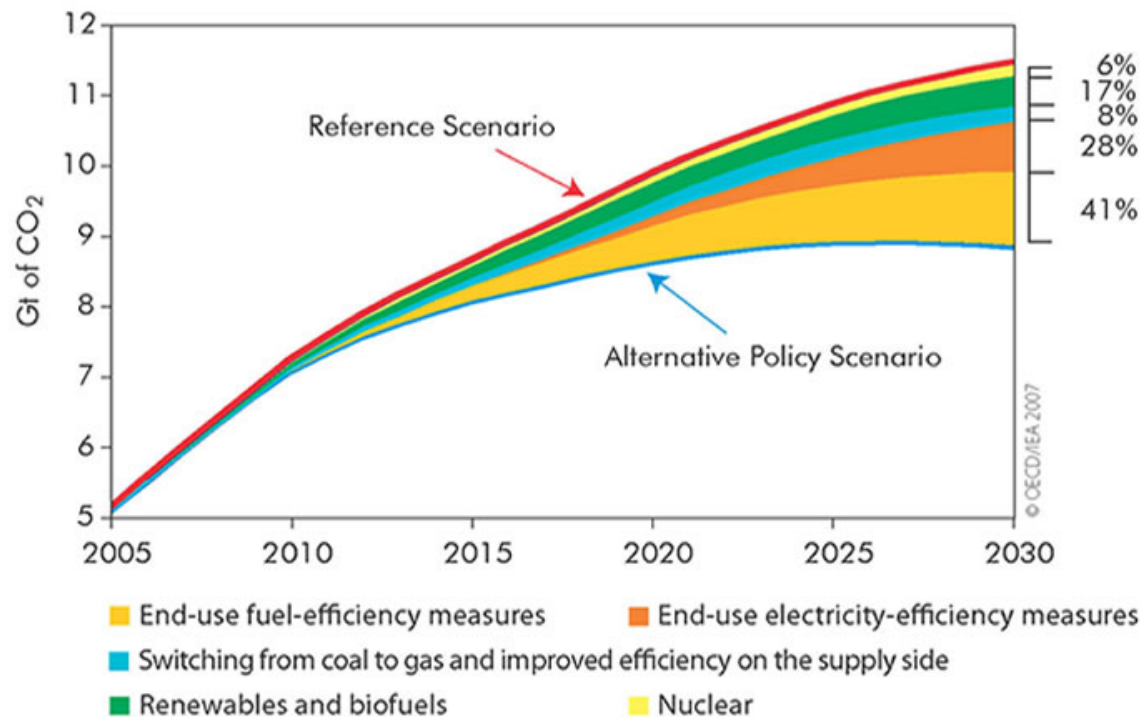


Sources & Notes: Projections are based on EIA, 2003 (reference case, CO₂ from fossil fuels) and POLES (non-CO₂ gases) (EC, 2003). GHGs do not include CO₂ from land use change. "FSU" is former Soviet Union.

- but doubling of China's CO₂-emissions have taken place 17 years before !

World Energy Outlook 2007:

China's CO₂ Emissions in the Alternative Policy Scenario Compared with the Reference Scenario



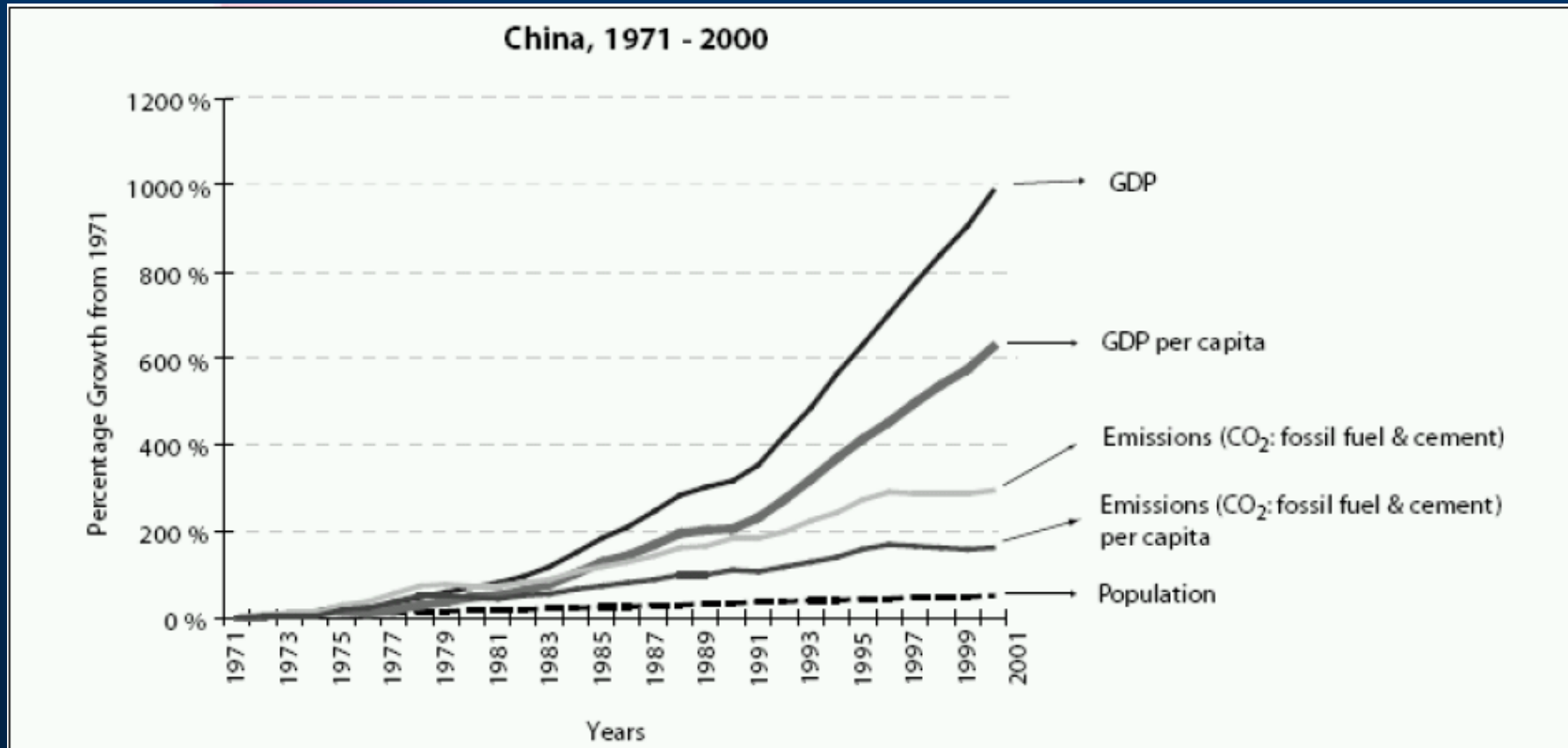
Two concerns

- **ENV: Will increase in emissions from China and developing world undercut the 2 degree target ?**
- **ECON: Will China and other non-Annex-1 countries gain competitiveness advantages ?**

China's economic development

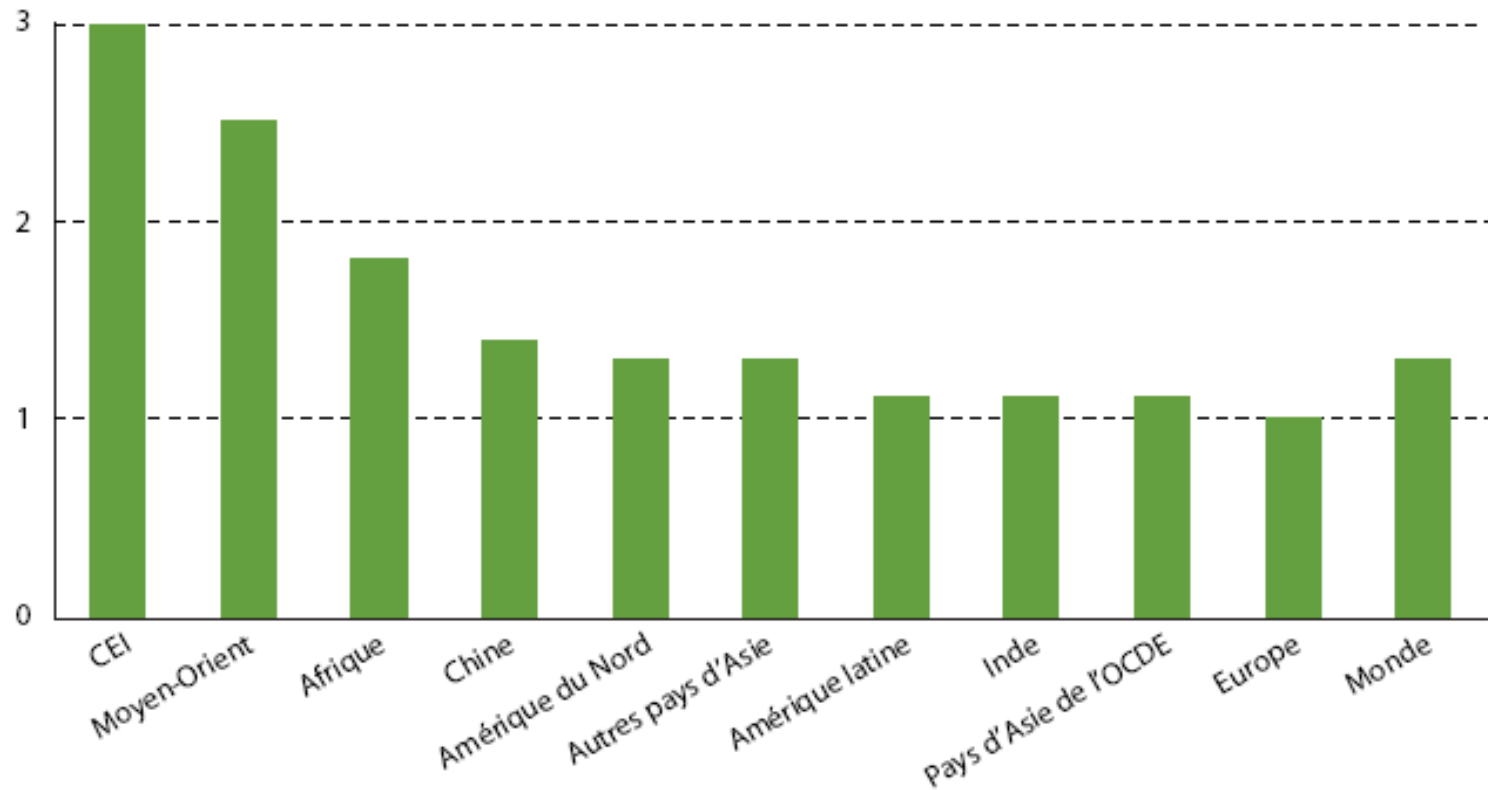
- **Transition from planned economy to market economy**
- **Strong economic growth**
 - GDP has tripled in 1990's
 - growth rate for GDP is 10-11% annually since 2000
 - nr. 4 in manufacturing industry (after US, FRG, Jap)
 - 2015: biggest car manufacturer in the world
 - trade has increased 20-fold from 1984-2004
 - exports represent 1/3 of CO₂-emissions

Population-growth, GDP and emissions



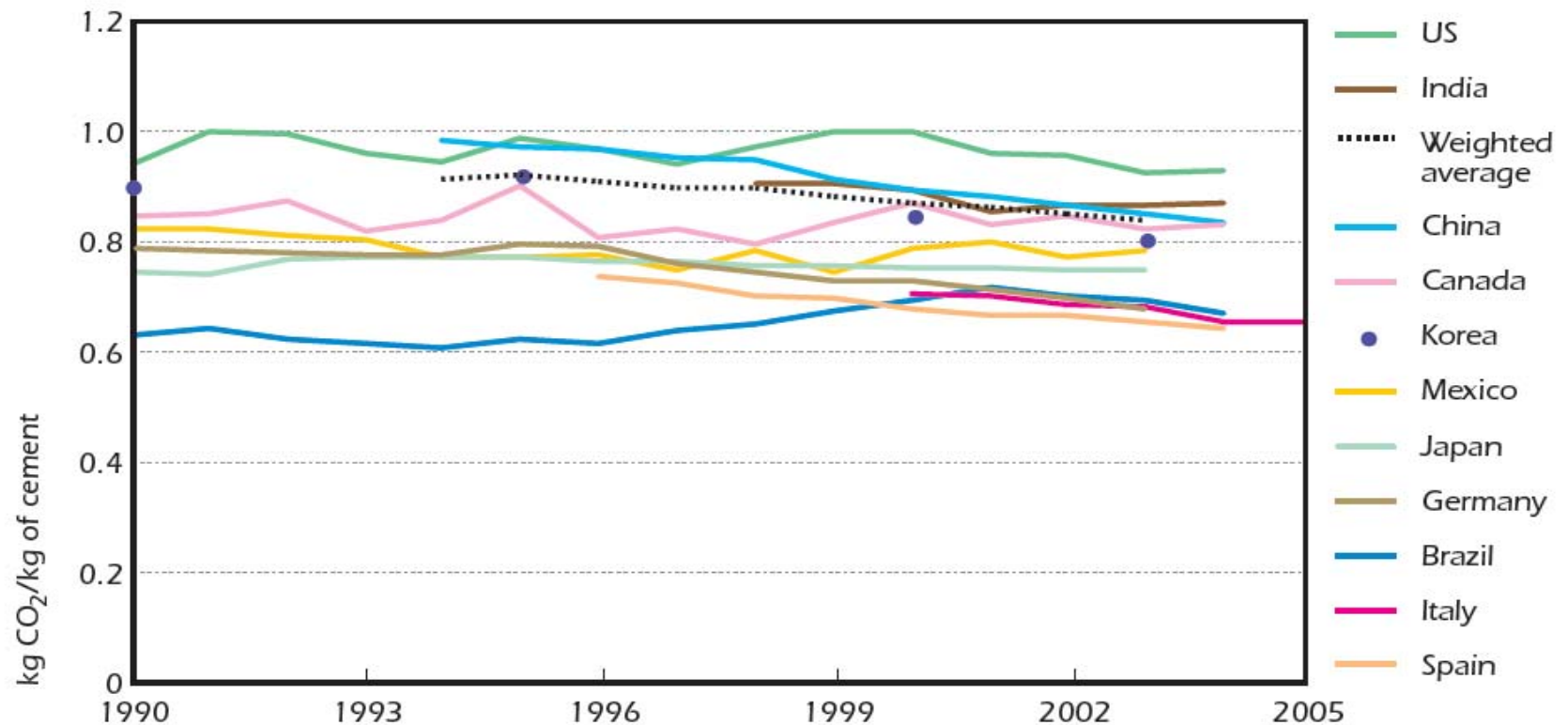
Energy-intensity – officially...

Europe = 1



Source : WEC-ADEME d'après Enerdata

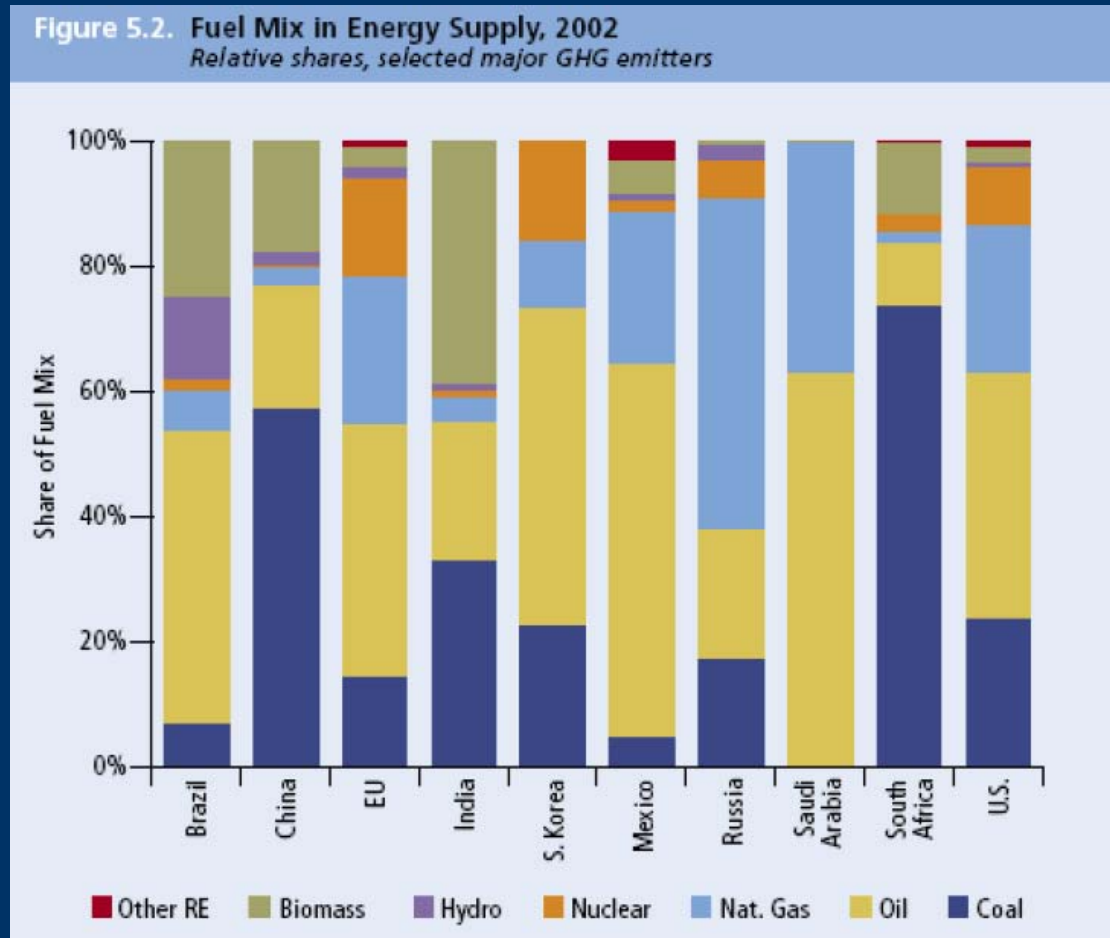
Cement: 46% of global production in China - but lower emission per kg than USA (cf. IEA)



Note: Includes impact of electricity generation from waste heat in Japan. Boundary definitions may differ by country.

Sources: As for Figures 6.4, 6.5, 6.8 and 6.9; IEA statistics.

China's energy supply: 60 percent coal

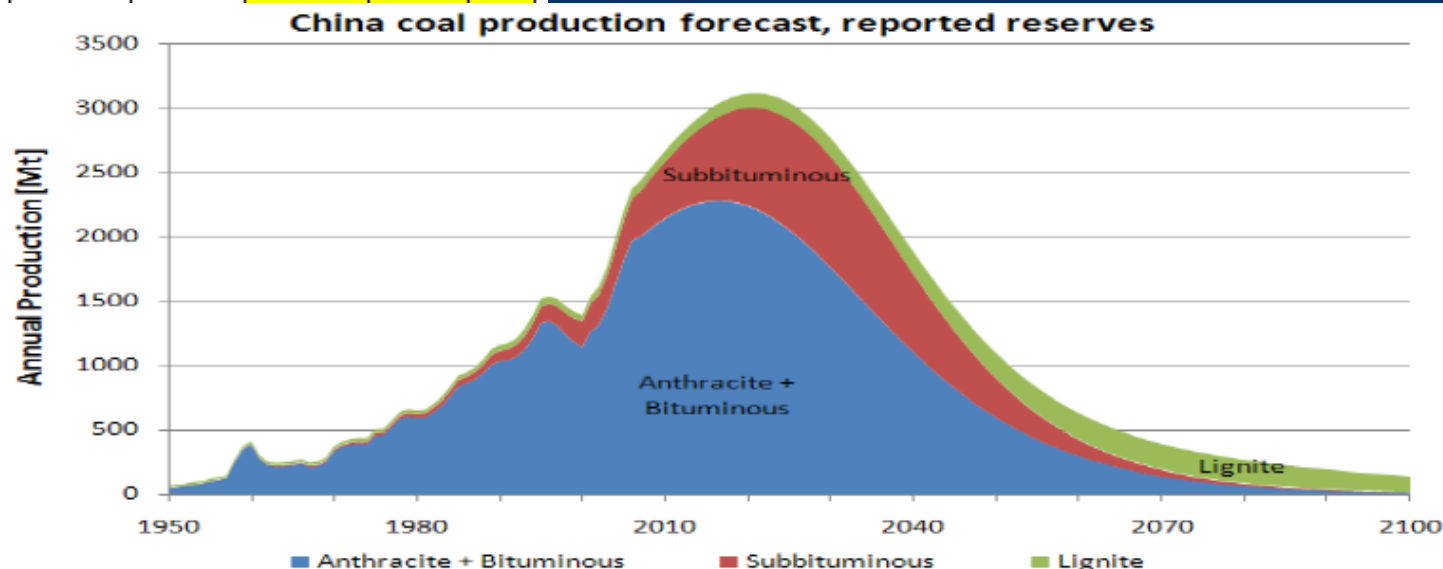


- 40 % of global coal consumption
- but only 13% of global coal reserves

Year	USA	China	India	FSU	Australia	S. Africa	Germany	Poland	UK
1987	131,971	156,400	12,610	108,800	29,138	58,404	23,919	28,300	9,000
1988	131,971	156,400	12,610	108,800	29,138	58,404	23,919	28,300	9,000
1989	131,971	156,400	12,610	108,800	29,138	58,404	23,919	28,300	9,000
1990	129,543	152,831	60,098	102,496	44,893	54,811	23,698	28,182	8,602
1991	129,543	152,831	60,098	102,496	44,893	54,811	23,698	28,182	8,602
1992	112,668	62,200	60,648	104,000	45,340	55,333	23,698	29,600	3,300
1993	112,668	62,200	60,648	104,000	45,340	55,333	23,919	29,600	3,300
1994	106,495	62,200	60,047	104,000	45,340	55,333	23,919	29,100	2,000
1995	106,495	62,200	60,047	104,000	45,340	55,333	24,000	29,100	2,000
1996	106,495	62,200	60,047	104,000	45,340	55,333	24,000	29,100	2,000
1997	106,495	62,200	60,047	104,000	45,340	55,333	24,000	29,100	2,000
1998	111,338	62,200	72,733	96,476	47,300	55,333	24,000	12,113	1,000
1999	111,338	62,200	72,733	96,476	47,300	55,333	24,000	12,113	1,000
2000	115,891	62,200	72,733	96,476	47,300	55,333	24,000	12,113	1,000
2001	115,891	62,200	82,396	96,476	42,550	49,520	23,000	20,300	1,000
2002	115,891	62,200	82,396	96,476	42,550	49,520	23,000	20,300	1,000
2003	115,891	62,200	82,396	96,476	42,550	49,520	23,000	20,300	1,000
2004	111,338	62,200	90,085	93,513	38,600	48,750	183	14,000	220
2005	111,338	62,200	90,085	93,513	38,600	48,750	183	14,000	220
2006	112,261	62,200	52,240	92,609	37,100	48,000	152	6,012	155

- China's coal-reserves are not updated since 1992
- from 2007 China a net importer

peak
coal ?



Interests (national)

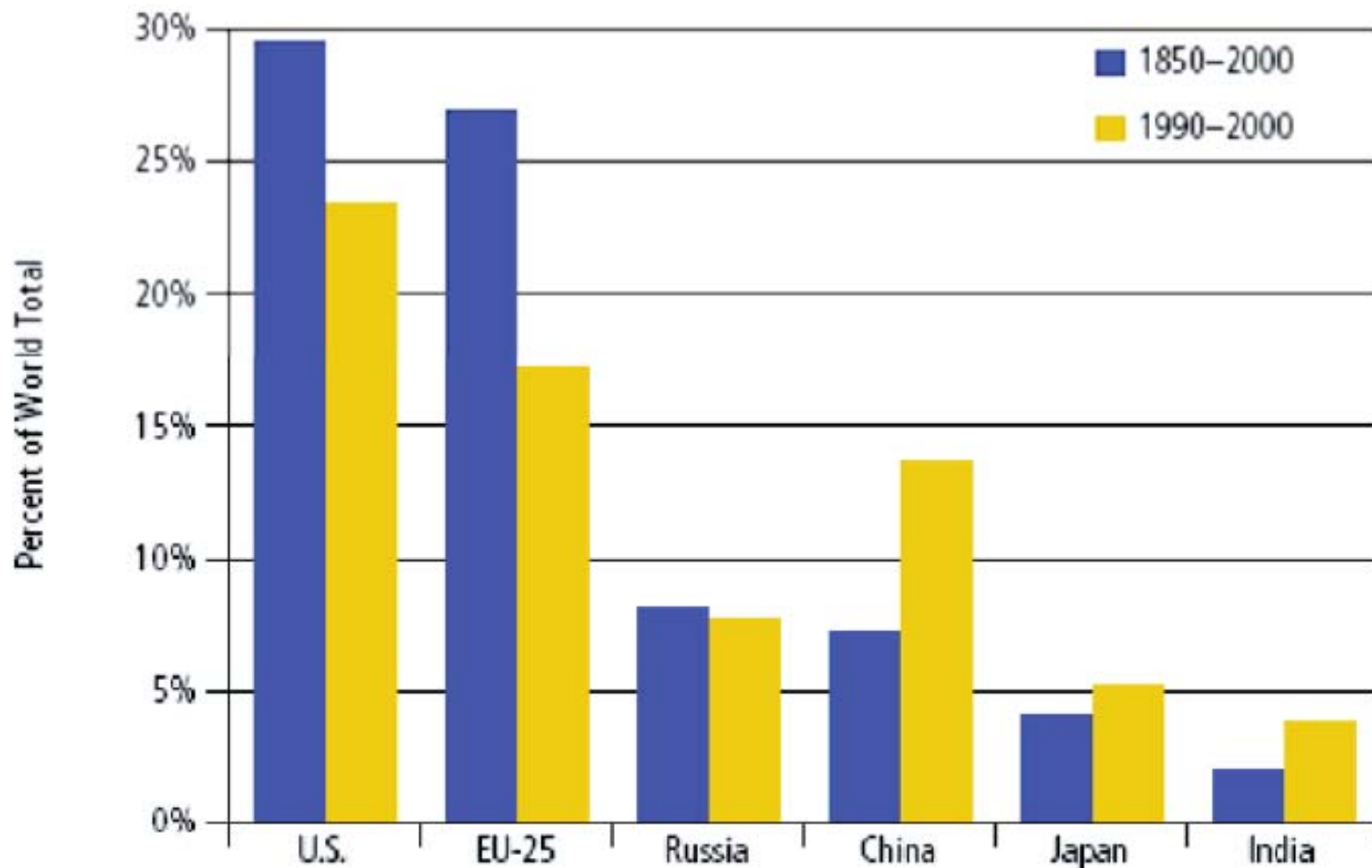
- **Sixth five-year plan (2006-2010) aims at a quadrupling of GDP before 2020, while energy consumption may only double**
- **Energy-intensity to be reduced with 4% per year and with 20 % before 2010**
- **Reforms og liberalisation in energy sector, more competition**
- **But State determines electricity prices**
- **Mix of Plan and Market economy creates serious difficulties for adjustment to increased coal prices**

Interests (climate negotiations)

- **Active participation in negotiations**
- **Representatives for G77/China reject commitments**
 - 'right to development'
 - low technological standards
 - low per capita emissions
 - 'historical responsibility'
 - industrial nations must fulfill reduction targets
 - economic support and technology transfer required

Cumulative CO₂ emissions

Figure 6.3. Cumulative CO₂ Emissions, Comparison of Different Time Periods



Sources & Notes: WRI, CAIT, CO₂. Includes emissions from fossil fuels and cement manufacture.

Multi-level governance

- **Type 1 "Russian doll"**
 - general-purpose
 - nonintersecting memberships
 - jurisdictions at a limited number of levels
 - systemwide architecture
- **Type 2 "Marble cake"**
 - task-specific jurisdictions
 - intersecting memberships
 - no limit to the number of jurisdictional memberships
 - flexible design



What are the alternatives ?

- **Carbon BTA for Chinese and other non-annex1 products (Sarkozy)**
 - appears to be WTO-acceptable, but China considers to introduce a carbon tax for export products only
- **Per capita emissions-right with international trade (Merkel)**
 - but China not likely to trade emissions with countries with higher purchasing power, rejects 'russian doll' MLG
- **Extend CDM as an instrument for technology-transfer and provide support for energy efficiency and transition to new energy technologies**
 - with limited energy reserves a special energy agreements under UNFCCC could be a 'marble cake' MLG attractive to China

[*http://www.dmu.dk/COMETR*](http://www.dmu.dk/COMETR)

