



**Climate for Cooperation
The EU, China and Climate Change**

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Background

- The policy priorities of the Chinese government have undergone a significant change in recent years. Economic development remains a central objective, but this is increasingly considered in terms of sustainability.
- Energy security has become a primary concern of the Chinese government and it recognizes that China has already begun to suffer significant effects of climate change.
- The twin questions of energy and climate security have prompted China to focus increasingly on how it produces and consumes energy.
- China's greenhouse gas (GHG) emissions have increasingly contributed to global climate change. As China's economy and energy consumption has grown, so have its carbon emissions. Growth in emissions from China was particularly rapid in the period from 2001 when the economy expanded very quickly, notably in sectors that have high energy intensities..

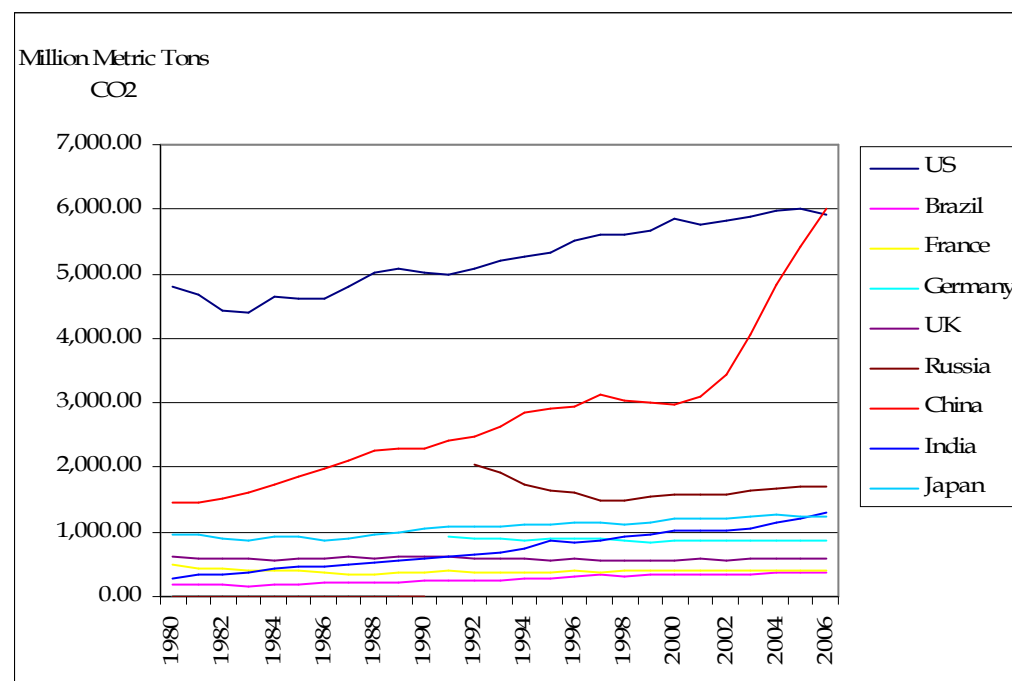
Impacts in China

- China has already begun to suffer significant effects of climate change. For instance, higher temperatures have been measured across China. According to the China National Climate Change Programme, annual average air temperature has increased by 0.5 to 0.8°C over the past 100 years, with an acceleration in the last 50 years.
- There have been seasonal changes in temperature, with most of the increase occurring in winter, and the commencement of spring has advanced by several days.
- There has been a fall in precipitation in the north, with an average decrease of 20 to 40 mm per hectare, while in the south and southwest there has been significant a increase averaging 20 to 60 mm per hectare.
- Temperatures will continue rising, annual mean air temperature will rise by 1.3 to 2.1°C by 2020 and by 2.3 to 3.3°C by 2050.

China's Economy and Energy

- The Chinese economy has expanded enormously over the past three decades, and its energy consumption and GHG emissions have also increased.
- According to figures from the Energy Information Administration (EIA) of the US Department of Energy, expressed in British Thermal Units (Btu), China's primary energy consumption roughly quadrupled from 17.3 quadrillion Btu to 73.8 quadrillion Btu between 1980 and 2006.
- The energy used to produce a unit of GDP of the Chinese economy has fallen by about 60 percent since 1980. The energy intensity of the Chinese economy declined from 37,299 Btu per 2,000 US dollars in 1980 to 13,780 Btu per 2,000 US dollars in 2006.

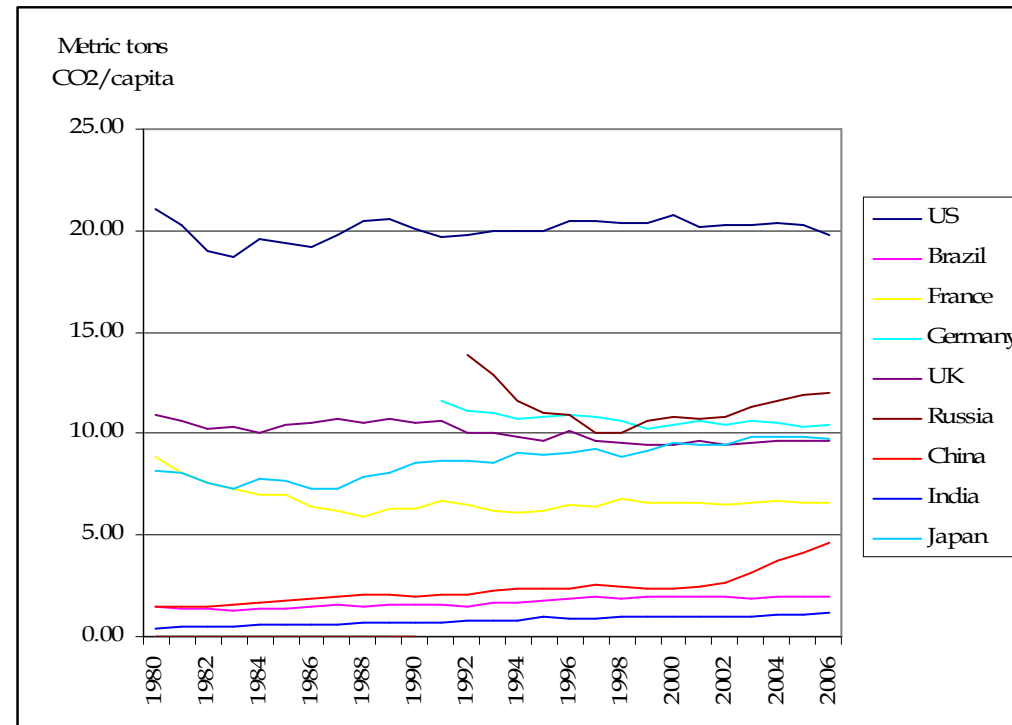
CO2 Emissions of Major Economies 1980-2006.



Source: EIA.

- China has overtaken the US as the largest GHG emitter in the world.
- China's emissions have grown rapidly in recent years

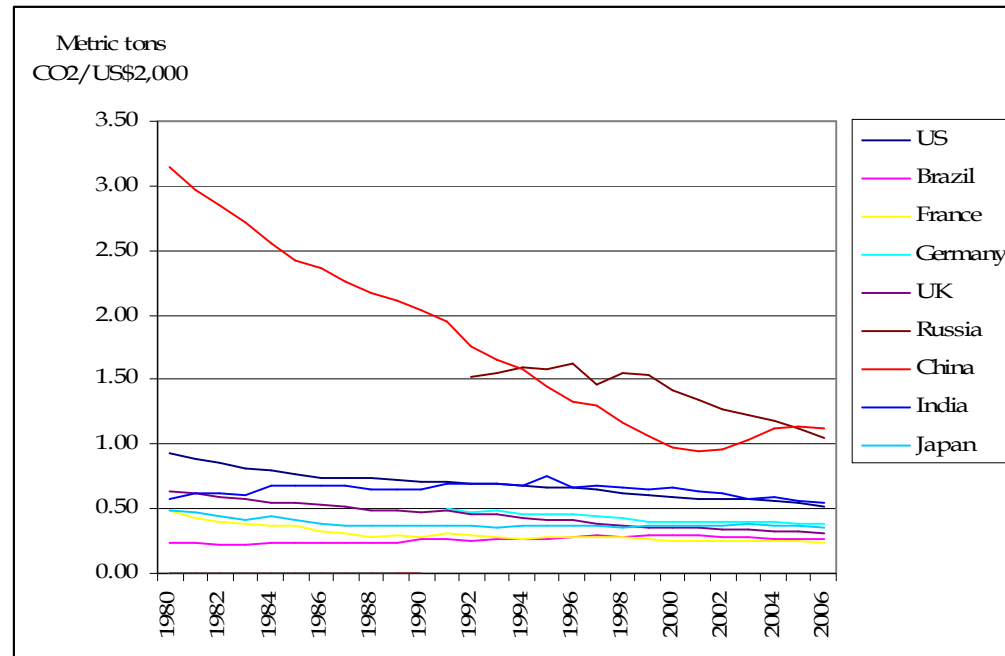
CO2 Emissions Per Capita of Major Economies 1980-2006



Source: EIA

- Per capita emissions in China remain low compared to developed economies but are rising.

CO2 Intensity of Major Economies 1980-2008



Source: EIA

- CO₂ intensity of the Chinese economy has fallen considerably, but the trend was reversed in recent years.
- Resulting from rapid economic growth, especially in high energy consuming sectors, including exports.
- It has been estimated that in 2005 one third of China's emissions came from export industries.

Policy in China (1)

- Environmental, energy and climate security are now among the highest concerns of the Chinese government, and are arguably now considered to be a matter of fundamental national security.
- Government policy focusing on targeting energy efficiency and conservation. There are no CO2 emissions targets.
- The 2004, the China Medium- and Long-Term Energy Conservation Plan set energy intensity reduction targets.
- The 11th Five Year Plan for 2006-2010, for the first time in one of China's Five Year Plans, which remain the country's key economic planning document, set clear targets to reduce energy intensity per unit GDP by 20 per cent by 2010.
- In 2007 the government issued the National Climate Change Programme setting out in broad principles on how climate change will be tackled in the period up until 2010.

Policy in China (2)

- Targets include product energy efficiency, building energy efficiency, vehicle emissions.
- Focus on industrial policy. The NDRC is the key institution for climate change policy.
- Stimulus package. According to the Chinese government, out of the headline RMB4 trillion package, RMB210 billion was allocated to environmental and energy efficiency projects.
- statistics from the Chinese government show that energy intensity has been reduced. In 2006, there was a reduction of 1.79 percent, then in 2007 and 2008 the reduction increased to 4.04 percent and 4.59 percent. In the first half of 2009, the reduction was 3.35 percent
- The NDRC has set a target of closing inefficient thermal power plants totaling 50 GW by 2010, of which 40 GW are coal-fired and 10 GW oil-fired. According to the National Energy Administration, by the end of June 2009 a total capacity of 54 GW had been taken out of service.

Policy in China (3)

- Under the Medium- and Long-Term Renewable Energy Development Plan, China aims to increase the share of renewable energy in total primary energy consumption to 10% by 2010, with a target of 15% by 2020.
- Target to have installed hydropower capacity of 190 GW by 2010, and 300 GW by 2020.
- Biomass energy is targeted to reach 5.5 GW by 2010, and 30 GW by 2020.
- Wind power is targeted is to reach 5 GW by 2010 and 30 GW by 2020.
- Solar power target will be 300 MW by 2010 and 1.8 GW by 2020.
- Solar thermal applications such as solar water heaters target of 150 million m² in use by 2010 and 300 million m² by 2020.
- Nuclear power remains a relatively small part of China's energy mix and the target is 40 GW by 2020.
- On current trends it is likely that the targets for renewables will be met well ahead of 2020. Predicted 100 GW of wind power capacity by 2020 and nuclear power capacity may reach over 80 GW by 2020.

Key EU Climate Change Policies

1992	Energy Labeling of Domestic Appliances	Directive requiring energy labeling of domestic appliances. First applied to washing machines in 1996, subsequently expanded to cover other products.
1995	Programme to reduce CO2 emissions from cars	Voluntary agreements with manufacturers to reduce CO2 emissions from 186 g per km to 140 g per km by 2008/2009.
1996	Energy Efficiency Requirements for Industrial and Agricultural Installations Integrated Pollution Prevention and Control	Major polluting installations must obtain permit to operate based on Best Available Techniques to use energy efficiently and reduce emissions.
2000	First European Climate Change Programme	Established to identify environmentally and cost-effective measures to reduce GHG emissions and meet Kyoto targets.
2001	Directive Promoting Electricity Generation from Renewable Sources	EU Directive requiring promotion of non-fossil renewable energy sources. Target of 21% of gross electricity consumption from renewables by 2010.
2002	Energy Performance of Buildings	Directive requiring minimum standards for energy performance of buildings.
2003	Motor Efficiency Programme	Voluntary Programme to improve efficiency of motors .
2003	Promotion of Biofuels for Transport	Directive requiring Member States to promote bio-fuels in transport. Target of 5.75% of fuels sold by 2010.
2004	Promotion of Cogeneration	Directive establishing framework to support cogeneration.
2005	ETS Operational	ETS covering 11,500 plants in 25 Member States. Allocation of tradable emissions allowances.
2005	CDM Operational	CDM created under Kyoto becomes operational. EU companies active in China.
2005	Biomass Action Plan	Proposal to increase biomass in heating, electricity and transport sectors.
2005	Eco-design Requirements for Energy-using products	Directive requires integration of environmental considerations including energy efficiency in design of products.
2005	Second European Climate Change Programme	To further work of first programme, especially in areas such as CCS, emissions from small vehicles and aviation.
2008	Climate Action and Renewable Energy Package [AM1]	Commits EU to 20 percent reduction in emissions by 2020 and increasing share of renewables to 20 percent by 2020. Strengthens ETS. Promotes use of CCS.

Key China Climate Change Policies (1)

1994	China's Agenda for the 21 st Century: China's Population, Environment and Development	Set broad development goals, including low consumption, low pollution, high efficiency.
1998	Energy Conservation Law	Makes energy conservation a basic goal of policy, and means for attaining it.
1997	Kyoto Protocol	Ratification of Protocol, but no binding targets.
2002	Wind Energy Tax Incentives	Reduction of tax rates for wind power projects.
2002	Ethanol Support Programme	Subsidies and tax reductions for ethanol producers.
2004	Government Procurement of Energy Efficient Products	Government units must give priority to energy efficiency when purchasing products.
2004	Medium- and Long-Term Energy Development Plan Outline 2004-2020	Set long-term efficiency targets for economy and specific industries.
2004	Medium- and Long-Term Energy Conservation Plan	Provides plans for energy conservation, and means to achieve targets.
2004	Efficiency Upgrade for Coal-fired Boilers and Kilns	Plan to improve efficiency of boilers and kilns.
2004	Electric Motor Efficiency Upgrade	Requires 2% average improvement in energy efficiency of electric motors.
2005	11 th Five Year Plan	Sets energy efficiency targets. Energy intensity to be reduced by 20% by 2010.
2005	Vehicle Fuel Economy Standards	Introduction on vehicle efficiency standards for vehicles, with passenger vehicles from 2005 and light-duty vehicles from 2008.

Key China Climate Change Policies (2)

2006	Top 1,000 Enterprises Programme	Programme to raise energy efficiency of 1,000 largest enterprises accounting for 33% of energy consumption. The programme covers, energy production, textiles, iron and steel, chemicals, construction materials, coal, petroleum and petrochemicals, non-ferrous metals and paper.
2006	Renewable Energy Law	Sets framework for development of renewable energy. Sets targets for development of renewable energy. Regulates pricing and connection to grid.
2006	Vehicle Tax Rates	Sets excise rates for vehicles depending on engine size
2007	Aluminium Industry Planning Controls	Sets efficiency targets in aluminium production chain from mining to processing.
2007	National Climate Change Programme	Sets out policies on climate change mitigation and adaptation
2007	Medium and Long Term Development Plan for Renewable Energy	Set targets for renewable energy and methods to achieve them. Targets include 300 GW of hydro power, 30 GW of wind power, 30 GW of biomass, 1.8 GW of solar power, 300 million m2 of solar hot water heaters and 44 billion m2 of methane a year by 2020.
2008	National Building Energy Standard	Set energy efficiency targets for all new buildings.
2008	Circular Economy Promotion Law	Provides principles for development of a “circular economy” based on recycling
2008	Energy Conservation Law Revision	Strengthens provisions of law
2008	Economic Stimulus Package	Provides funding for environmental and energy conservation projects, and improved infrastructure
2009	Implementation of the Bali Roadmap: China’s Position on the Copenhagen Climate Change Conference	Sets out position on principles for Copenhagen.

EU-China Cooperation

- The EU in particular considers the combat against climate change to be an important element in the development of its external relations and even as a source of soft power.
- China and Europe have highlighted clean energy cooperation as a key pillar of their partnership. Have made numerous statements to this effect.
- The EU and China launched their Partnership on Climate Change at their bilateral Summit in September 2005.
- At the 2007 China-EU Summit, both sides stressed the great importance they attached to the issue of climate change and their willingness to strengthen cooperation.

EU Cooperation in China

Programme	Budget (Euros mil)
EIB loan to China's National Climate Change Programme	500
Energy and Environment Program	45
EU-China CDM Facilitation Project: 2007-2010	3
EU-China Environmental Governance Programme: 2008-2010	15
EU-China Clean Energy Centre (EC2)	10
Euro-Chinese Institute for Clean and Renewable Energy (ICARE)	10
FP-6 and FP-7 relevant joint research projects*	12
Construction of near zero emission coal fired power plant:	50
Total	633

- The EU has numerous cooperation programmes in China. Projects focus on clean energy, especially CCS. The EU budget for projects has totaled over 600 million euros.
- Member States have their own programmes in China.

Member States Cooperation with China

	2000	2001	2002	2003	2004	2005	2006	2007	Total
Germany	3.0	5.6	9.3	7.8	13.0	4.0	54.7	1.1	98.5
Spain	1.3	0.0	0.1	0.4	14.8	1.9	2.2	32.4	53.2
Denmark	4.1	2.7	1.2	9.3	3.4	5.4	3.2	0.9	30.1
Finland	0.0	0.1	2.9	4.0	5.5	5.0	2.3	0.1	19.8
Netherlands	1.0	8.9	0.4	0.2	0.0	0.0	0.0	0.9	11.4
Italy	0.0	5.3	0.0	4.2	0.0	0.0	0.0	1.0	10.5
UK	5.7	2.1	0.6	0.0	0.0	0.0	0.0	0.9	9.2
France	0.9	0.0	0.0	2.5	0.0	0.0	0.0	0.0	3.4
Sweden	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	1.8
Belgium	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.4
Total	16.0	24.7	14.7	28.4	38.5	16.4	62.4	37.2	238.2

- Germany leads with a total aid package of 98 million Euros, which is mainly invested in efficient electrical transmission and solar energy projects in various provinces.

More than 74 percent of Spain's 53 million Euro budget has been allocated to natural gas distribution projects in Lanzhou and Xian. Most of Denmark's aid was funneled into wind energy and heating projects.

Europe on Copenhagen

- The EU has set out its basic position for the Copenhagen Summit in the CARE Package of December 2008. By 2020 the EU will reduce its emissions from the 1990 level by 20%, and will increase this to 30% if other developed countries commit to the same target.
- The EU also argues that developing countries will need to limit the rise in their GHG emissions to 15-30 percent below the baseline projection for their growth by 2020. This should be achieved by Nationally Appropriate Mitigation Actions.
- In order to achieve this, the EU says that developing countries, except for the least developed countries, should commit to adopting low-carbon development strategies by 2011. The EU has proposed that developing countries should receive support in creating and adopting these strategies.
- The Commission has said that developing countries will need an increasing amount of finance for mitigation rising to 100 billion Euros a year by 2020. Domestic public and private finance from developing countries should cover 20-40%, about 40% would come from an international carbon market, and the remainder from international public finance. Finance from developed countries would depend in it responsibility for past emissions and its ability to pay. The Commission proposes the EU would provide 10-30% of the global total.

China on Copenhagen

- In its stated position on the Copenhagen Summit China has reiterated its belief in common but differentiated responsibilities, and the rejection of binding targets for developing nations.
- It also has said that the commitment by developed nations to financing of mitigation and adaptation in the developing world is necessary if developing countries are to take action on climate change.
- In view of their historic responsibility, China has said that the developed nations must commit to a binding target of a 40% reduction in GHG emissions from the 1990 level by 2020. Developing countries, on the other hand, will adopt Nationally Appropriate Mitigation Actions.
- Technology transfer from developed countries is necessary to combat climate change, and appropriate mechanisms, including a fund to provide financing, must be established to ensure this. The fund should be mainly financed by the developed countries.

Recommendations

- 1. A clear understanding of the priorities and realities of China policies concerning energy and climate change.
- 2. In negotiations the EU should harness China's domestic policy dynamic to wider global interests. China's policy in this area has been driven mainly by domestic concerns rather than international pressure.
- 3. The EU must balance concern for climate change with commercial interests.
- 4. The EU must ensure effective policy coordination between the EU and Members States.
- 5. The EU can provide policy models for China. China has a strong interest in EU policy development.
- 6. The development of CCS has been one focus of efforts by the EU in China. However, cooperation requires more coordinated and ambitious policy for support for CCS in China.
- 7. The EU should have coordinated policy on technology transfer mechanism with China within Copenhagen framework.
- 8. Coordinated support on development of standards, legislation and enforcement from the EU would be a positive contribution. This is one area where in China the EU has a perceived advantage.