



EU, China, Energy and the 5 C's



**Denis FOURMEAU, Counsellor,
EU Delegation Beijing**



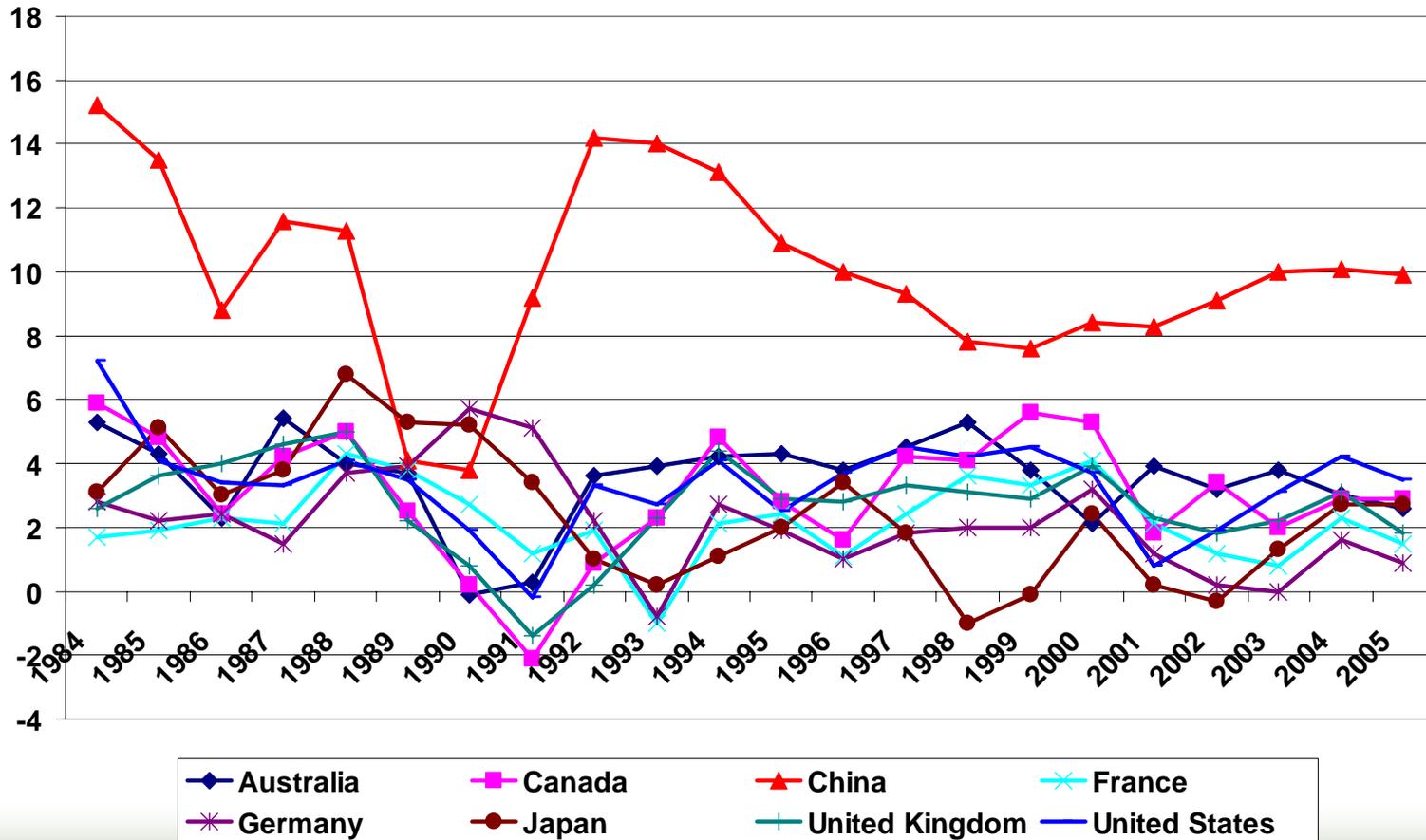
EU, China,
Energy and the 5 C's:
Climate Change,
From Competition to Convergence
through Cooperation



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China has been Growing...

GDP annual growth rate of selected economies
in percentage, data source: UNSTAT



...and is Changing the World (1)

- Demand from China is changing global production patterns in food and other key commodities. For example, if China's grain use continues to rise, by 2030 it will need to import some 370 million tons of grain, an amount roughly twice 2007 world grain exports.

- Rapid economic growth at the expense of the environment – water, air, food, and biodiversity. Initial evaluation by SEPA – around 10 million hectares of farmland (10%) is polluted. Farms are losing over US2.5Bn a year to pollution. (SEPA, 2007) Sixteen out of the world's twenty most polluted cities are in China. (World Bank, 2007)

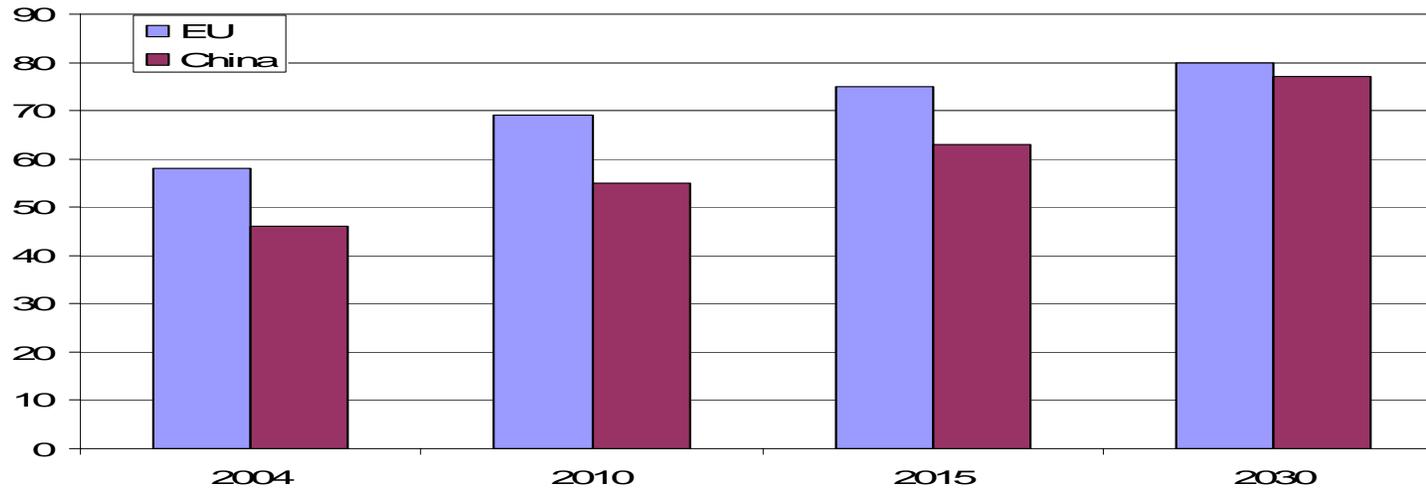
- China's growth is energy intensive. Energy consumption per unit of GDP is about 6.2 times than the EU average. (Eurostat, 2006) About 70% of its GDP are for exports.

=> In 2007 China topped the list of CO2 emitting countries, surpassing now the US

...and is Changing the World (2)

- Domestic energy shortages in China results in sharp increase in demand for imported oil, contributing to driving international energy prices to 20-year highs.
- Price rises and energy security have in turn driven investment into all energy options including carbon-intensive technologies and infrastructure – but also renewables
- China's resource needs are driving investments in many politically unstable regions. This is changing the geopolitical landscapes in fragile regions such as Central Asia, the Middle East and Africa

China and EU equally dependent on Oil Imports (%)



Reductions in domestic reserves and increased consumption will lead to both regions importing nearly 80% by 2030 (another kind of “peak oil”...)

OLD SHANGHAI – PUDONG 1991



NEW SHANGHAI – PUDONG 2006



OLD SHENZHEN



NEW SHENZHEN



THE SCALE OF URBANIZATION IS UNPRECEDENTED...

– In the last 15 years **146 cities more than doubled** their population



– ... and **30 of those have now more than 6 times the population** they had in 1990.

– Over the next 20 years, Chinese cities will add **more than 300 million** people ...



– ... the **population of the entire United States.**

– There will be **more than 200 Chinese cities** with more than a million inhabitants ...



– ... in **Europe** today there are only **35 cities** of that size.

– By 2025, **two-thirds** of China's citizens will **live in cities** ...



– ... **that's nearly one billion people.**

In a climate change world, it is no longer possible to assume 3% global economic growth...even less 10%!!!

- **The costs of climate change are still unclear.** The Stern Review estimates a range of 5 – 20% of future GDP;
- **Climate change will slow the pace of progress towards sustainable development** and undermine the achievement of the Millennium Development Goals;
- **Climate change will add to existing pressures** on natural resources, including population growth, water stress and biodiversity decline, and lessen the ability of nations to respond to pre-existing environmental challenges;
- **Higher temperatures (above 5 degrees) will bring growing risks** of abrupt and large-scale changes, such as the collapse of the Greenland Ice Sheet, risking large-scale movements of populations and global insecurity.
- **Under a high emissions scenario** it is no longer possible to assume 3% year on year global economic growth.

Business as usual is no longer an option !

Predicted impacts, China

- **Glacier melt** – in the Himalayas will increase flooding and rock avalanches. Water flow will peak from 2030 – 50 and decline thereafter as glaciers recede;
- **Freshwater availability** – predicted to decrease along with population growth and increasing demand;
- **Coastal areas** – especially heavily populated delta regions will be at greatest risk of flooding;
- **Crop yields** – could decline by up to 30% by the mid 20th century, increasing the risk of hunger;

***IPCC WG 2 Fourth Assessment Report, April 2007:
Climate Change Impacts, adaptation and vulnerability
“Global warming will hit through water”***

- **Endemic morbidity and mortality** - disease associated with floods and droughts could rise;
- ➔ **Sustainable (“Scientific”?) development** – will be undermined as climate change compounds the pressures on natural resources and environment associated with urbanisation and industrialisation. **Social stability in turn is threatened**

EU has Ambitious Climate and Energy Plans

EU - 2020

« Climate & Energy Package « (2008):

- 20% reduction in energy intensity

« 20-20 by 2020 »

- 20% of EU's energy from Renewables (today 8,5%)
- 20% reduction in GHG emissions (beyond Kyoto: 8% by 2012 over 1990 levels)
- 10% of transport fuels from biofuels
- Post 2020, if possible, all new fossil power stations with CCS

China and EU have Ambitious and Parallel Climate and Energy Plans

China – 2006-2010-2020

- 20 % reduction in energy intensity (energy consumption per unit of GDP) compared to 2005 in current FYP 2006-2010 + specific program targeted at 1000 largest enterprises
- 15% of China energy from renewables in 2020 (today 7%)
- No obligation under present Kyoto protocol
- Increased forest coverage to 10% by 2010

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- **BREAKING NEWS 03/12/2009: INDIA joins the fray as well !!! (20% reduction in energy intensity by 2020)**

EU - 2020

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These policy shifts present genuine opportunities for seeking common ground between China and the EU

- The EU is the world's largest single market, and China is the world's fastest growing economy. This means that there are unprecedented opportunity to generate scale effects for low carbon/energy efficient/environmental investments in goods and services.
- With uncertainty around US leadership in global affairs, the EU is well placed to engage with emerging powers like China in discussions around global public goods.
- EU and China are major importers of energy and will face energy import dependence challenges over the next two decades.

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- Both EU and China will have to confront the impacts of climate change, including water stress, shifting agricultural zones, and extreme weather events.
- Long EU experience in internalization of externalities, and on **sustainable cost recovery**, basis of most EU regulatory framework (directives) on environment
- Example of the EU (continued growth despite GHG stabilization then reduction) shows that fight against climate change should not be seen as a threat to economic development, but rather as a fantastic opportunity.

Concrete cooperation already under way (1)

- Several ongoing Chinese participations in 6th and 7th R&D Framework Programmes <http://ec.europa.eu/research/fp7>
- **HYDROGEN:**
 - HYAPPROVAL (Handbook for Approval of Hydrogen Refuelling Stations) 4 M€, NEMESIS (New Methods for Superior Integrated Hydrogen Generation System) 4 M€
 - HYFLEET:CUTE (Hydrogen for Clean Urban Transport in Europe) 43 M€
 - IPHE-GENIE (International Partnership for a Hydrogen Economy for Generation of New Ionomer membranes) 2.6 M€
- **BIOFUELS:** BEST (BioEthanol for Sustainable Transport) 17.4 M€
- **WIND:** UPWIND (Integrated Wind Turbine Design) 22.6 M€
- **CCS:** CACHET (Carbon Dioxide Capture and Hydrogen Production from Gaseous Fuels) 13.5 M€
COACH (Cooperation Action within CCS China-EU) 2.6 M€

Concrete cooperation already under way (2)

- EU-China Partnership on Climate Change (8th EU-China summit 09/2005): high-level political framework complementing UNFCCC and Kyoto Protocol
- Actions detailed in “Rolling Work Plan” (agreed October 2006): deployment and transfer of low carbon technology, including advanced near zero emission coal (NZEC) through Carbon Capture and Storage (CCS), CDM facilitation project launched in June 2007...
- Future EU-China Clean Energy Centre (EC²): focal point for collection and distribution of information on clean energy to potential stakeholders in Europe and China
- Other projects in capacity building (key issue for implementation of clean and renewable energy projects)

EU-China Clean Energy Centre (EC²)

- **Aim:** promote use of clean energies through improved access to EU policy & regulatory framework, technology experiences & best practices
- Platform for capacity building to relevant Chinese authorities, advisory role on clean energy issues in general, partner for EU stakeholders involved in clean energy projects in China
- **Topics:**
 - Sustainable coal (including CCS)
 - Sustainable biofuels
 - Renewables
 - Energy efficiency and savings
 - Sustainable and efficient distribution systems
- **Implementation:** consortium of EU and Chinese non-profit organizations selected via Call for Proposals
- 10 M € EU financing for 5 years, before self-sustainability



And what about water?



And what about water?

=> similar stories, similar challenges, offering opportunities for further cooperation



EU and China rivers: Similar History – Similar challenges

- Rapid industrialisation
- Water pollution
- Trans-border issues
- Limited water resources and competitive use
- Impact of climate change: glaciers melting, floods and droughts



EU-China Cooperation on Water Management

Rationale for EU-China cooperation on integrated river basin management

- Europe and China are facing similar challenges
- EU experience can be useful for China
- Inspired by the EU Water Framework Directive: Integrated River basin management more than water resource utilisation



EU-China Cooperation on Water Management

EU-China River Basin Management Programme (RBMP)

- Integrated river basin planning and management practices, which are environmentally sustainable and address global environmental concerns as well as those of local population, and which can be replicated in other regions in China.
- Covering parts of the Yangtze and Yellow River basins
- Linking “soft” to “hard”: policy development, institutional set-up, monitoring, identification of priority areas for intervention, feasibility studies, etc
- EC contribution: € 25 million (2007-2012)

