



# China's mitigation actions and achievements

**LI Gao**




Ph.D, Director

Department of Climate Change



National Development and Reform Commission, China

March 16, 2009, Washington, D.C., US

# Outline

- 
- Challenges and Achievements
  - Climate Change Policy and Institutional Arrangement
  - Principles to Address Climate Change
  - Mitigation Objectives
  - Mitigation Actions and Accomplishments
  - Further Efforts
- 
- 

# Challenges and Achievements (1)

- 
- By the end of 2007, the total population in China was 1.32 billion, accounting for 20% of the world total;
  - GDP per capita in 2008 was approximately 3,000 USD, ranking around 100th in the world; the population living under UN poverty line is around 150 million;
  - Primary energy mix is dominated by coal;
  - At the stage of rapid industrialization and urbanization;
  - China's embedded carbon in exported products to the world accounts for about 15-25% of its total emissions.
- 

## Challenges and Achievements (2)


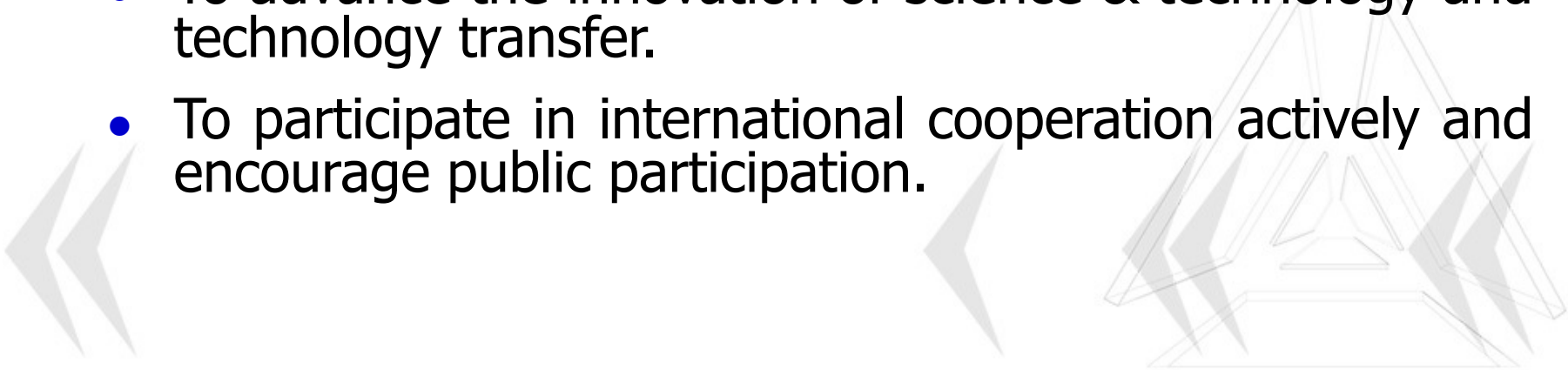
- From 1994-2004, the annual average growth rate of GHG emissions in China was around 4%; economic growth rate was around 9%;
- From 1994-2004, China's accumulated CO<sub>2</sub> emission per capita ranked 92nd in the world; CO<sub>2</sub> emission per capita is about 1/5 of that of US;
- From 1990-2004, China's emission intensity dropped from 5.47 kgCO<sub>2</sub>/USD to 2.76 kgCO<sub>2</sub>/USD, a 49.5% decrease (IEA). During the same period, the world average dropped only 12.6% and the OECD countries dropped 16.1%.

# Climate Change Policy and Institutional Arrangement

---

- In June 2007, China issued its 1st National Climate Change Programme (NCCP), which sets out the basic principles, objectives, policies and measures to address climate change up to 2010;
  - 18 provinces have developed their Provincial Climate Change Programmes (PCCP) in accordance with the NCCP. The development of another 14 PCCPs are underway;
  - In June 2007, China established a National Leading Group on Climate Change (NLGCC) chaired by Premier Wen Jiabao; NLGCC's operation and coordination is led by the National Development and Reform Commission (NDRC). The Department of Climate Change at NDRC guide and implement climate change task nationwide;
  - A series of policies and measures to address climate change have been adapted and mainstreamed in governance system to enhance China's comprehensive capacity in combating climate change.
-

# Principles to Address Climate Change

- 
- To address climate change within the context of sustainable development.
  - To adhere the principle of “common but differentiated responsibilities” of the UNFCCC.
  - To place equal emphasis on both mitigation and adaptation.
  - To advance the innovation of science & technology and technology transfer.
  - To participate in international cooperation actively and encourage public participation.
- 
-

# Mitigation Objectives

- Achieve a 20% reduction of energy consumption per unit of GDP by 2010 on the 2005 level;
- Raise the proportion of renewable energy in primary energy supply up to 15% by 2020 (7.5% in 2005);
- Increase the forest coverage rate up to 20% on the 2005 level by 2010, an increase of 50 MtCO<sub>2</sub> of carbon sink on the 2005 level;
- Extract coal bed methane up to 10 billion M<sup>3</sup> by 2010;
- Stabilize emissions of N<sub>2</sub>O from industrial processes at 2005 level by 2010.

# Mitigation Actions and Accomplishments (1)

## Restructure economy and upgrade industrial structure

- Promoting the development of tertiary industry: an 3% increase in GDP by 2010 on 2005 level;
- Developing high-tech industry: an 5% increase in industrial added value by 2010 on 2005 level;
- Accelerating the elimination of inefficient production capacity: from 2006-2008, a total installed capacity of 38.26 GW small coal-fired generating units were closed down. In addition, 104 million tons of inefficient steel and iron refinery capacity, and 140 million tons of obsolete cement production capacity were phased out;
- Controlling the growth of energy intensive industries through the deployment of more stringent standards and market/fiscal tools. (e.g. Export taxes on energy intensive products have increased: 15% export tax on copper, nickel, aluminum and other metals; a 10% tax on primary products, and a 5% on petroleum, coal and coke).

# Mitigation Actions and Accomplishments

## (2)

### Promote energy conservation and increase energy efficiency

- Reduced national energy intensity (energy use per unit GDP) on the level of 2005: by 1.79% in 2006, 4.04% in 2007 and 4.59% in 2008; Through improving energy efficiency and adjusting industrial structure, about 335 million tons of CO<sub>2</sub> emission was reduced in 2006 and 2007;
- Develop and implement key energy-saving projects: 240 Mtce will be conserved during 2006-2010 through 10 key energy-saving projects;
- Enforce energy efficiency practices through China's Top 1000 Enterprises Program (comprises 33% of China's energy consumption and 47% of industrial energy demand); The T-1000 Program is on track to meet its 2010 target, and 38.71Mtce was saved in 2007;
- Promote energy conservation in key sectors including building, transportation and lightening, etc.

# Mitigation Actions and Accomplishments

## (3)

### Develop renewable energy and optimize energy mix

- The total installed capacity of hydropower generation has reached 163 GW in 2008, ranking the 1st in the world;
- The installed capacity of wind power generation has reached 10 GW in 2008;
- The installed capacity of biomass power generation has reached 3 GW in 2007;
- Solar PV power generation reached 0.12 GW in 2008;
- The proportion of hydropower, wind power and nuclear power has increased to 7.2% by the end of 2007, which was 4% in 1980;
- The proportion of coal in primary energy mix has reduced from 72.2% in 1980 to 69.4% in 2007;
- The second line of Xi Qi Dong Shu Project has started in early 2009.

# Mitigation Actions and Accomplishments (4)

## Develop circular economy and control GHG emissions

- Formulate Clean Production Promotion Law, Solid Waste Pollution Prevention Law and Municipal Solid Waste Management Measures;
- Develop and implement Circular Economy Law;
- Establish national circular economy pilot sites/projects, which include the recycle of waste appliances and the re-production of automotive spare parts;
- Formulate policies that incentivise landfill gas recovery and utilization;
- 1/3 of the raw materials of steel, nonferrous metal and paper pulp was from renewable resources; 20% of the raw materials of cement and 40% of building materials was from industrial solid waste.

# Mitigation Actions and Accomplishments (5)

## Reduce agricultural emissions

- Improve agricultural production and increase agricultural ecosystem carbon storage to reduce N<sub>2</sub>O emissions and to prevent grassland degradation;
- Develop farmland and pasture protection construction plans, control land reclamation in areas with fragile ecosystems, and prohibit any destruction of pasture or waste of land;
- Promote household biogas utilization in the countryside: by the end of 2007, a total of 26.5 million households have used biogas, equivalent to 44 million tons of CO<sub>2</sub> emission reduction.

# Mitigation Actions and Accomplishments (6)

## Promote afforestation and increase carbon sink

- By the end of 2003, the forest coverage rate was 18.21%; the figure of 2008 will come out in this September;
- By the end of 2007, the acreage of conserved artificial forests in China was 54 million hectares, ranking the 1st in the world, and the amount of growing stock was 1,505 million M3;
- From 1980 to 2005, a total of 3.06 billion tons of CO<sub>2</sub> absorption was achieved by afforestation; a total of 1.61 billion tons of CO<sub>2</sub> absorption was achieved by forest management, and a total of 0.43 billion ton CO<sub>2</sub> reduction was achieved through avoided deforestation.

# Mitigation Actions and Accomplishments

## (7)



---

### Strengthen R&D and advance science and technology to address climate change

- Formulated the Framework of National Program for Medium-to-Long-Term Scientific and Technological Development on climate change related scientific research;
  - Formulated the Specific Scientific Action on Climate Change, which outlines the objectives of climate change science up to 2010 and 2020;
  - Identified priority areas of R&D on climate change: energy efficient technologies, new and renewable energy technologies, clean coal, nuclear, CO<sub>2</sub> and methane control technologies, agricultural and land use tech, etc.;
  - Increased financial support to climate change related scientific and technological research: a total of 2.5 billion RMB was contributed to support scientific study on climate change during 2001-2005; By the end of 2007, a total of 7 billion RMB was allocated to R&D on energy conservation and climate change in support of the 11<sup>th</sup> Five-year Plan (2006-2010) .
-

## Further Efforts

- New energy efficiency target during the 12th 5-Year Plan (2011-2015).
- The second National Climate Change Programme (NCCP 2011-2015).
- Climate friendly investment from China's economic stimulus package:
  - 210 billion RMB for energy conservation & pollution reduction, and ecological projects;
  - 370 billion RMB for restructure and technology renovation;
  - other areas: upgrading the rural grid, biogas development, and building efficiency, etc.
- Research on China's strategies towards a low carbon economy. Pilot projects will be implemented in selected provinces/municipalities.

---



---

# Thank You!

Tel: 86-10-6850 5864

Fax: 86-10-6850 5881

Email: [ligao@ndrc.gov.cn](mailto:ligao@ndrc.gov.cn)



---