

CHINESE PERSPECTIVES ON INTERNATIONAL CLIMATE POLICY & GHG EMISSIONS MITIGATION

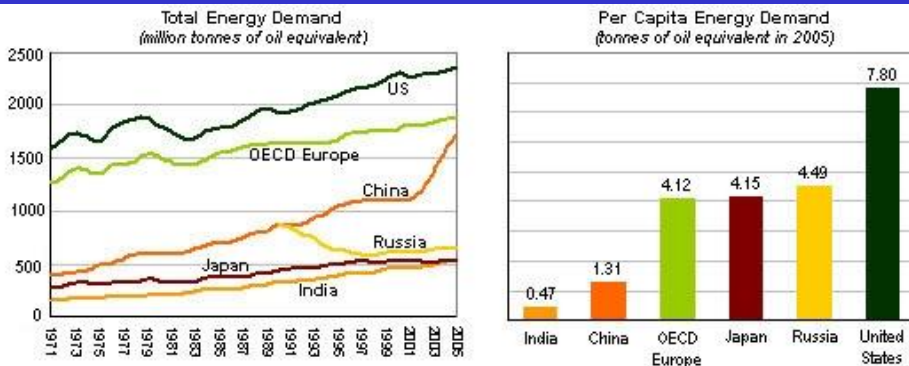
CCS 295 Climate Change: Science & Society

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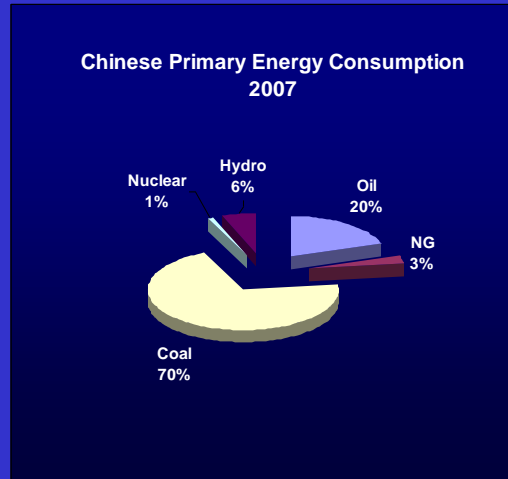
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CHINA'S ENERGY NEEDS: GROWING, YET MODEST IN PER CAPITA TERMS



Source: WRI Earthtrends,
2007

CHINA'S ENERGY CONSUMPTION

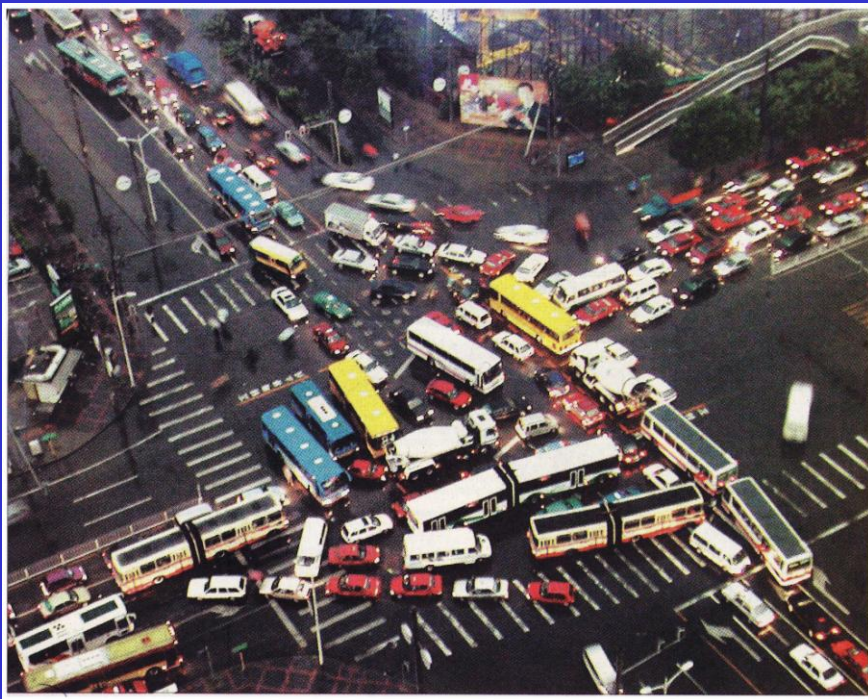


CHINA'S GHG CONTRIBUTIONS

- Currently #1 emitter
- Why? – if per capita relatively low?
 - 1.3B people
 - Rapid econ growth
 - 1/3 incurred making products for foreign consumers (\$1T sales)
- Recent derivation; historical responsibility low
 - Cumulative CO₂ emissions from fossil-fuel combustion 1950-2002 = 9.3% world's total (per capita ranked 92nd)
- Carbon emissions *per capita*
 - “average U.S. citizen dumps as much greenhouse gas into the atmosphere as nine Chinese citizens” (Roberts & Park, 2007)
 - 2020: PRC one-fifth of USA (per capita)

CHINA'S CURRENT TRAJECTORY

- Escalating production & consumption
- Troubling record of global stewardship: 133 of 146 on 2005 Environmental Sustainability Index (offshoring)
- Disastrous domestic transport decisions
 - WTO accession (2001)
 - 1996: 8 of 1000 owned car; 2006: 18 of 1000
 - Transport emissions on the rise as % total
 - Beijing roads already resemble “one gigantic parking lot”



BUSINESS-AS-USUAL SCENARIO

- Continued reliance on coal
- Escalating oil imports
- Environmentally damaging transport decisions
- Drivers:
 - Sustained economic expansion (10%-11%)??
 - foreign purchases?
 - Massive population (1.3 billion -> 1.5)
 - Unleashed domestic consumption (75% rural)
- Consequences of BAU scenario
 - Massive climate destabilization

CHINA'S CLIMATE CHANGE VULNERABILITIES

- Diminished supply of water available to 120 million people living downstream from the headwaters of the Yellow River
- Some China's most productive industrial and commercial cities, including Shanghai and Guangzhou, face prospects of major flooding due to combined effects of rising sea levels, land sinking, storm surges
- Sizeable proportion of China's annual GDP, and up to 100 million people, are at risk
- Overall loss of 5% to 10% country's agricultural productivity
- Epidemics of vector-borne disease

CLIMATIC STABILIZATION

- Requires *multilevel* action
 - International regime
 - National governments
 - **Subnational governments*
 - **Nonstate actors* (organizational and individual; domestic & transnational)
 - All have important future roles to play in consumption patterns, emission mitigation, & adaptation
 - *My scholarly focus (“Underneath Kyoto”)

CHINA IN INTERNATIONAL PERSPECTIVE

- Annex II (Kyoto Protocol)
- No targets
- China: “limitation” as contrasted with reduction
- North-South (China-US) stalemate
- Sydney Declaration (2007): 21 Pacific Rim agree to “long-term aspirational goal” No binding targets
- Increasing international pressure?
 - awareness growing that most severe consequences experienced by countries & people that contribute least to the problem

CLEAN DEVELOPMENT MECHANISM (CDM) CREDITS: CHINA V AFRICA (2006)

- **CDM: 1 Kyoto-target-offsetting credit to EU or Japanese country or firm for each ton of GHG that a developing country can prove it has eliminated thanks to funding supplied by the rich partner (av \$10.70 per)**
- **China: commanded \$3B of \$4.8B (61%).**
- **Africa as whole: \$150M (3%). Further, lacking expertise, poor countries often pay half the credits for credit brokers**
- **1.6B people lack any electricity. How poor countries choose to electrify: critical for climatic stabilization**
- **Is China still a developing country?**

CHINA'S POLITICAL SYSTEM

- **“Fragmented authoritarianism”**
- **No longer a command economy**
- **De facto federalism**
 - Delegated primary responsibility for enforcement of environmental laws & regs
- **Local govt pursue own interests**
 - Financial ties to polluting local enterprises
 - Economic growth/prosperity key to career success
- **Assessment: center does not control outcomes. Variability at provincial & local levels**

NATIONAL: PRC LEADERSHIP PERSPECTIVES

- Reject binding emission commitments
 - emission limits hinder econ development/prosperity
 - China's economic growth must continue
 - Exceptions for all developing countries
- Historical contributions matter
 - Compensatory justice
- “wealthier countries must take lead”
- If caps, use *per capita* emission standard
 - Per-capita atmospheric carbon-absorption entitlement?
- Common but differentiated responsibility
 - mitigation & adaptation
- Growing recognition seriousness of environmental damage for China's future prospects

NATIONAL DOMESTIC POLICY MEASURES

Adopted a 20% Reduction in National Energy Intensity by 2010

- Failed to meet 1st year (2006) energy-efficiency target (1.2% v. 4% reduction goal)

11th five-year plan emphasizes clean technology

Established National Coordination Committee on Climate Change (17 ministries & agencies)

Passed a National Renewable Energy Standard of 15% by 2020

SUBNATIONAL GOVT (PROVINCES & MUNICIPALITIES)

- **Source of innovation in federal systems**
- **Efforts are numerous & diverse (but often below radar screen)**

EXAMPLES OF PROMISING SUBNATIONAL INITIATIVES

- **Benxi successfully transformed from the infamous city that could not be seen on satellite images due to the heavy smog that engulfed it into a model city for source-point pollution control and prevention**
- **Plans underway for a new city of half a million people in Dongtan, an island in the Yangtze River across from Shanghai, that is intended to generate a zero contribution to global warming**

NONSTATE ACTORS

- **Overseas Chinese**
 - *Climatic Change* focus (contributions & potential)
- **Multiple domestic nonstate organizations that address consumption issues**
- **Example: *Volunteers Association of Environmental Protection of Yueyang City***
 - decrease public consumption by promoting “reduce, reevaluate, reuse, recycle, and rescue principles”

POWERFUL FRAMINGS IN CHINA

- **Build on “reuse, recycle, repair” tradition (self-interest in voluntary simplicity)**
- **Concern for future generations**
 - Receptivity to precautionary principal
- **Green technology & renewable energy**
 - already forefront in small-scale wind turbines
 - **Estimates: if China develops ½ potential wind resources, could meet 1/5 country’s current energy demands (displace 65M tons carbon emissions from coal)**

ISSUE BUNDLING

- Issue bundling = *tying together the co-benefits of previously distinct public concerns*. Must be credible & persuasive
 - Reduced air pollution
 - Improved physical health
 - Less stress
 - Green development (renewable-energy)
 - GHG emissions mitigation

MOST PROMISING FRAMING STRATEGY

- Link limits on consumption and energy use with *health* (via air pollution)
 - 16 of 20 world's most polluted and health-damaging cities
 - vehicle emissions have replaced coal soot as principal source urban air pollution
 - WHO/World Bank: 500,000 deaths annually
 - Chinese Min Sci & Technology: perhaps 50,000 infants per year
 - Personal & family health priority

CARS AND HEALTH

Dramatic rise in obesity, diabetes, and abnormal blood lipid levels since 2000

- Coincides with the elimination of bicycle lanes and pedestrian sidewalks (nonmotorized travel down from 60% to 40% all trips over past decade)
- & rapid increases ownership & operation of personal automobiles
 - 80% higher household obesity rates than no motor-vehicle peers

PRINCIPAL ECONOMIC, SOCIAL, & ENVIRONMENTAL “DRIVERS” OF *SUSTAINABLE* TRANSPORTATION

- **Affordable to users; price promotes access for all**
- **Acceptable overall travel time**
- **No air pollution**
- **Builds healthy communities**
 - no damage to public health
 - enhances personal health
 - reduces health costs to society
 - minimizes accidents
- ***Produces no GHG emissions***
- **Leaves no burdens for future generations**

WHAT MEETS ALL THESE CRITERIA?

BACK TO THE FUTURE

(CES #9 contribution)

- Reach back for the vehicle of the future
- Pedal-power options include:
 - traditional “affordable” bicycle model
 - upscale versions designed for managers
 - various load-carrying models
 - zero-pollution zinc-air-battery-powered bicycles

“China is the Leader in Electric Two Wheel Vehicles”

- China leads the world in battery/electric two wheel vehicles
- “Chinese factories will have the opportunity to build these vehicles for hundreds of millions of people outside of China” (70 makers in 2004) (Benjamin, “Export Opportunities for Chinese Electric Bicycle Companies”)

REACHING BACK FOR PEDAL POWER CAN PROPEL CHINA FORWARD

- The “yellow-shirt” position!

ZERO-EMISSION ACCOUNTING: FAIR & EFFECTIVE

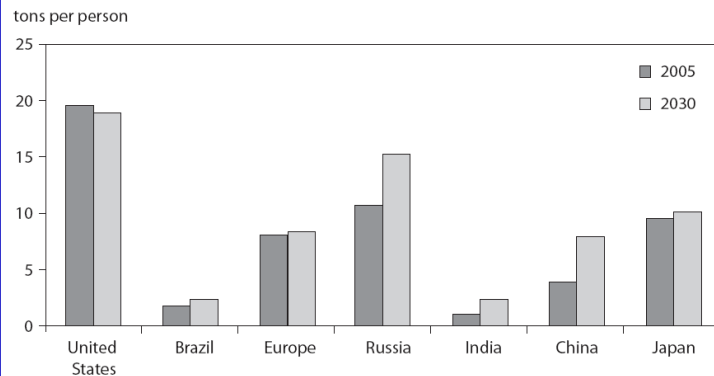
- “Zero-emission” transportation accounting & reward system (*CES #9*)
 - Each zero-emission trip (bike, walk, roller-blade), one kilometer or more = **1 point**
 - Each trip (single occupancy) of any distance in a personal motor vehicle = **-3 points**
 - Each trip (multiple occupancy) of any distance in a personal motor vehicle (or taxi) = **-2 points**
 - Each motorcycle trip of any distance = **-2 points**
 - Each public transportation trip, any distance = **-1 pt**

IMPLEMENTING ZERO-EMISSION ACCOUNTING WORLD-WIDE

- Combine honor-system reporting, estimation (especially for those without access to personal motor vehicles), and trip-monitoring technology
- Individuals, families, organizations, localities, and countries recognized and rewarded/docked (both in terms of health co-benefits and by financial remuneration, tax relief, and/or clean-development credits) based on their annual GHG-transportation scores
 - Principle: *net emitters pay, net nonemitters reap*

THE EQUITABLE MITIGATION CHALLENGE

Figure 4.2 Per capita CO₂ emissions, current and projected



Sources: Economist Intelligence Unit Country Data, Bureau Van Dijk Electronic Publishing, 2007; IEA (2007b). Brazil 2030 forecast is from International Energy Agency, *World Energy Outlook 2006*.

CONCLUSIONS

- China must be part of the global mix
- China's leadership beginning to recognize that emissions mitigation is in China's interest
- Big question: progress on *binding* limits?
Requires:
 - Framing strategy
 - Collaboration with new U.S. administration
 - U.S.-China agreement on principles
 - Per capita/gross emissions
 - Historical responsibility/current & future levels
 - Common but differentiated responsibility
 - Mitigation & adaptation

MEANWHILE, STAY TUNED TO WHAT IS TRANSPIRING “UNDERNEATH KYOTO”

- **As long as China-U.S. stalemate continues, most interesting developments in connection with climate-change politics will be subnational and not reflected in international agreements**
- **Subnational governments & nonstate actors: inspiring & valuable actions**
 - independently
 - in partnership (domestically & transnationally)
 - **Cities for Climate Protection**
 - >600, 8% total GHG, agreed reduction target/action plan
 - Encouraging signs emerging in China, below the radar screen

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