

Environment and Development: China and India

Book Release Workshop of CAEP-TERI study
"Environment and Development China and India"
Huaxingong, Xindadu Hotel, Beijing, China | 27th December 2010

Speaker: **Dr. R K Pachauri**

Director General, The Energy and Resources Institute (TERI) and
Chairman, Intergovernmental Panel on Climate Change (IPCC)



环境与发展比较：中国与印度
Environment and Development: China and India

Deng Xiaoping had indicated of keeping aside intractable issues and concentrating on cooperation on other fronts...

...This joint research initiative can be seen as is a step forward towards forging bilateral cooperation on the topic of 'environment and development' through knowledge cooperation ...



Photo by Shally

China and India flags at Rajpath during Premier Wen Jiabao's visit
(New Delhi, 17th December 2010)



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Environment and Development

Knowledge cooperation: CCICED and ICSD

- 1972** • United Nations Conference on Human Environment; Stockholm
- World Commission on Environment and Development (WCED); Rio de Janeiro
- 1992** • **China Council for Cooperation on Environment and Development (CCICED); secretariat based at the Ministry of Environment Protection (MEP)**
- 2002** • World Summit on Sustainable Development (WSSD); Johannesburg
- **Indian Council on Sustainable Development; secretariat based at The Energy and Resources Institute (TERI) – established in 2007**
- 2012** • Rio+20 Earth Summit; United Nations Conference on Sustainable Development in Rio de Janeiro



环境与发展比较：中国与印度
Environment and Development: China and India

Environment and Development

Some narratives

- Bridging dichotomies such as 'Growth fetish' and 'Conservation fetish' – the two cultures and need for balance (Ramesh: 2010)
- 'Progressive – YES'; 'Entropic – NO'
- 'Development' vs. 'responsible development'

“...Mankind's true problem at any time is not even economic in the usual sense of that word...the problem is *bioeconomic*...”

(Georgescu-Roegen: 1980; Pachauri :1980)



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

China and India: balancing sustainability

- HDI 2010 rankings among 192 countries
China: 89 India: 119
- Population dependent on agriculture
China: 39% India 56%
- Addressing human development issues:
Sanitation provisioning ; Infant mortality rates;
Maternal mortality; Drinking water; Poverty;
Energy access

*How do nation
states balance
other sustainability
needs?*



China and India: balancing sustainability



Construction site at Rajpath (New Delhi, 17th December 2010)

Photo by Stralily



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

The Project, “Environment and Development: China and India”



环境与发展比较：中国与印度
Environment and Development: China and India

The Project

- Joint research project, titled, “Environment and Development: China and India” was commissioned under the aegis of the China Council for International Cooperation on Environment and Development (CCICED) and the India Council for Sustainable Development (ICSD)
- Study carried out by The Energy and Resources Institute (TERI) and the Chinese Academy for Environmental Planning (CAEP)



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Project Team

CHINA

Team Leader	Mr Zhu Guangyao, Secretary General, CCICED
Leading Expert	Dr Wang Jinnan Vice President and Senior Research Fellow, Chinese Academy for Environmental Planning (CAEP), Ministry of Environment Protection (MEP)
Project Leader	Mr Ge Chazhong Director, Department for Research Management and International Cooperation, CAEP
Research Team (CAEP)	Mr Ge Chazhong • Dr Jiang Hongqiang • Ms Li Na • Dr Dong Zhanfeng • Mr Zhu Donghai • Mr Yang Qijia • Dr Liu Lancui • Dr Xue Dayuan • Ms Sun Guili
Report Coordinator	Ms Li Na, Senior Engineer, CAEP

INDIA

Team Leader	Dr R K Pachauri Director-General, TERI and Co-chair, ICSD
Project	Dr Ligia Noronha, Director, TERI
Reviewers	Dr T S Panwar, Director, TERI Dr Prodipto Ghosh, Distinguished Fellow, TERI Dr Uppeander Dhar, Former Visiting Senior Fellow, TERI Dr Ritu Mathur, Associate Director, TERI
Project Leader	Ms Prima Madan Research Associate, TERI
Research Team (TERI)	Ms Prima Madan • Ms Shilpa Nischal • Dr Suneel Pandey • Ms Shailly Kedia • Ms Suruchi Bhadwal • Mr Sumit Sharma • Dr Atul Kumar • Mr Anshuman • Dr Yogesh Gokhale • Mr Ashish Aggarwal • Dr Nirmala Saraswat • Ms Anju Goel
Report Coordinator	Ms Shailly Kedia, Research Associate, TERI

We would also like to gratefully acknowledge inputs from colleagues at TERI and at CAEP during the course of this project



环境与发展比较：中国与印度
Environment and Development: China and India

Project objectives

- The overall objective of the project – enhancing knowledge cooperation between the two countries
- The study had the following objectives:
 - To understand the environment and development nexus for both India and China
 - To draw commonalities, differences, and lessons that can be learnt from the India-China experiences in the context of environment and development



27.12.2010

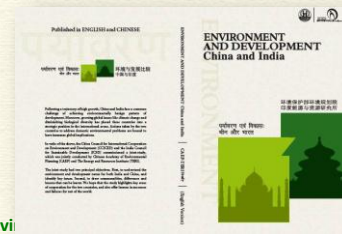
环境与发展比较：中国与印度
Environment and Development: China and India

Project activities

Deliberations and workshops for knowledge exchange

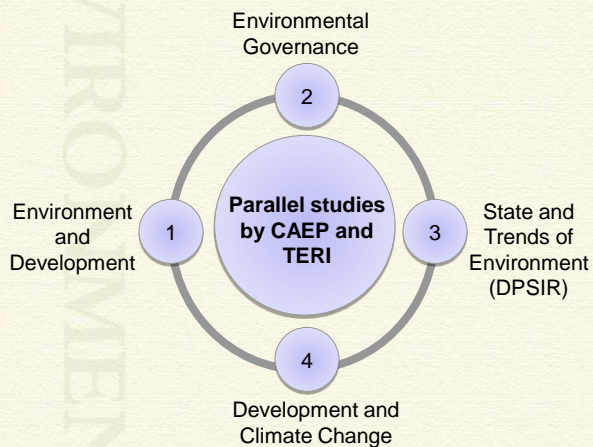


India-China report- published in Chinese and English



Structure of the study

Components of the study



- Structure of the Report
 - Part I: Synthesis: What is common? What is different?
 - Part II: China Report
 - Part III: India Report
- Period of study: around 1997-2007 *

* Depending on data availability

环境与发展比较：中国与印度
Environment and Development: China and India



Environment and Development

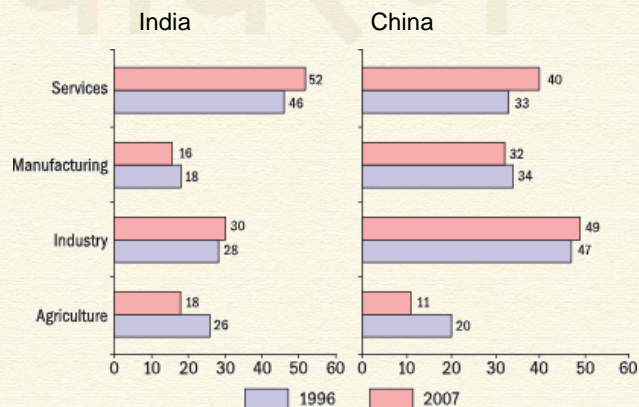
CAEP-TERI study



环境与发展比较：中国与印度
Environment and Development: China and India

China and India: Economic growth

- GDP growth rate
India: 7.8%
China: 10.3%



Changing composition of GDP

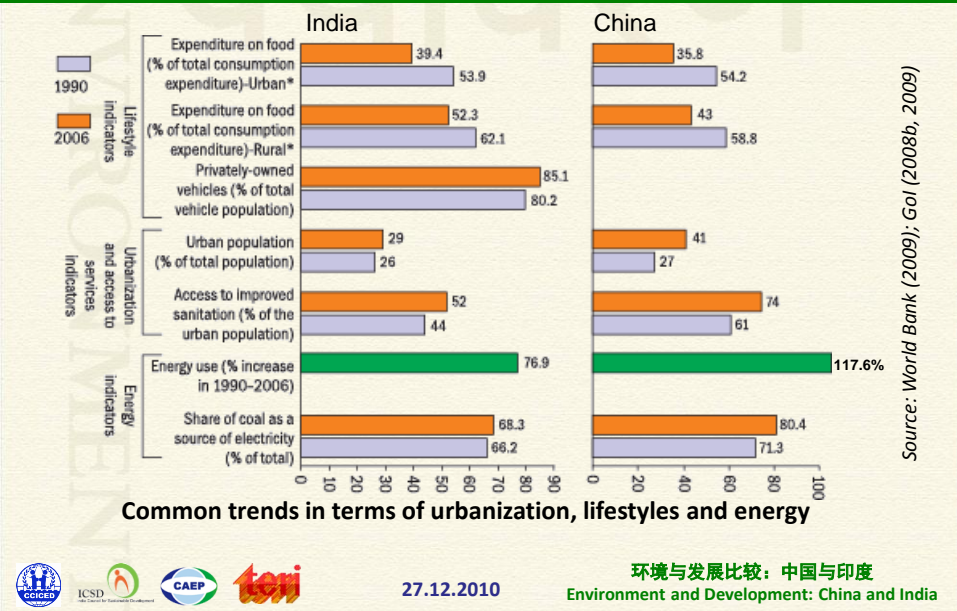
Source: World Bank, WDI



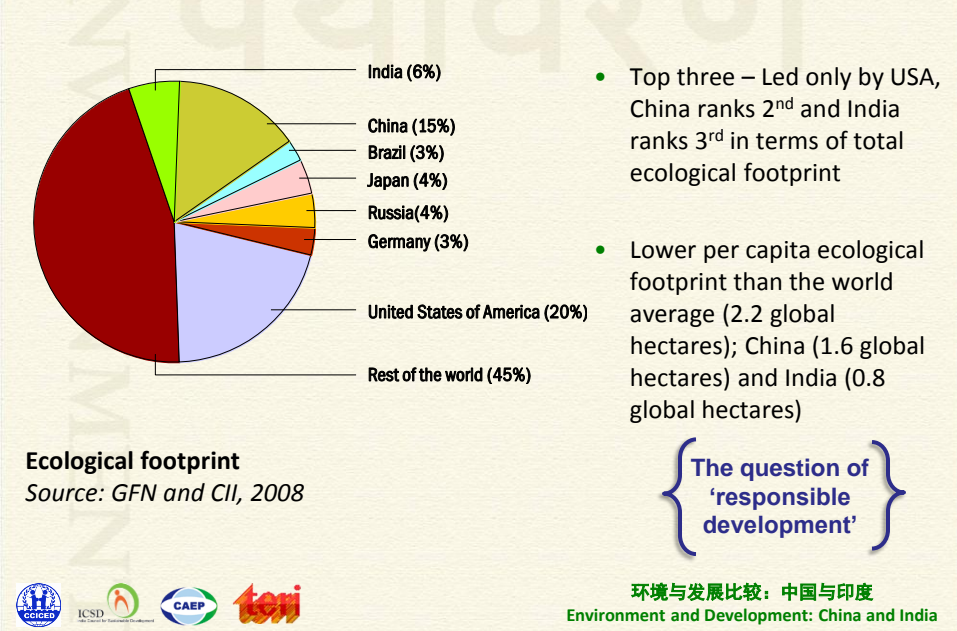
27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Key drivers: urbanization, lifestyles and energy



Ecological footprint: China and India



Environment: Why a development imperative?

- Various studies estimate economic costs linked to environmental degradation (*see detailed reports*)
 - China: 1.8% to 3.05% of GDP
 - India: 3.5% to 7.5% of GDP
- Population reliant on agriculture for livelihood
 - China: ~ 39%
 - India: ~ 56%
- Both countries enormously coal dependent in terms of total energy by source (*EIA statistics*)
 - China: 70%
 - India: 55%
- Increasing political pressures in context of global environmental debates



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Environmental governance (1)

China

India

Commonalities

- | | |
|---|---|
| <ul style="list-style-type: none"> – Environmental protection: Article 26 of the constitution – Apex body: Ministry of Environment Protection (MEP) – Environment Protection Law (1979) – Environment policies have been mainstreamed in national plane since 1980s (post – Stockholm) – Extensive environmental governance regime: Laws, regulations and policies; compliance lack and enforcement weaknesses | <ul style="list-style-type: none"> – Environmental protection: Directive principle of the state policy – Apex body: Ministry of Environment and Forests (MoEF) – Environment Protection Act (1986) – National Environment Policy of 2006 – Extensive environmental governance regime: Laws, regulations and policies; compliance lack and enforcement weaknesses |
|---|---|

Differences

- | | |
|--|--|
| <ul style="list-style-type: none"> – China is a socialist state – Resources governed as state, union and concurrent list | <ul style="list-style-type: none"> – India a sovereign socialist secular democratic republic – Resources governed at all levels: provincial, city and county level |
|--|--|



环境与发展比较：中国与印度
Environment and Development: China and India

Environmental governance (2)

- Enhancing participatory approaches in the two countries
- So far limited use of economic and fiscal instruments to incentivize sustainable production and consumption

Cooperation regarding building a 'global' as well as 'bilateral' institutional architecture for environmental governance – around three key Rio conventions?



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Environmental issues: Commonalities and differences

- Air
- Water
- Forests
- Biodiversity and traditional knowledge
- Solid waste
- Land

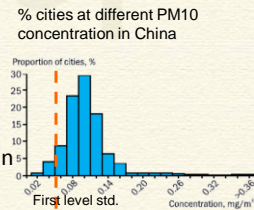


环境与发展比较：中国与印度
Environment and Development: China and India

Air

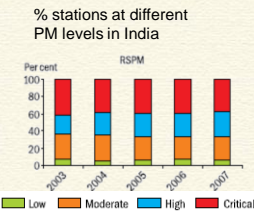
- Commonalities

- Extensive legislations and standards in place
- Big cities of China and India among the world's most polluted
- Similar causal factors for air pollution – coal based power, rapid economic growth, vehicular growth, bio-mass burning
- Health impacts: 400,000 deaths in India and 390,000 deaths in China due to usage of solid fuel; respiratory disorders



- Differences

- China pay more attention to quantity control of atmospheric pollutants in comparison to air quality control in India
- China has an extensive monitoring network and detailed data collection, availability and collation; China also monitors additional pollutants such as acid rain
- India has launched indoor air pollution control programmes (e.g; National Programme on Improved Cookstoves)
- China has pilot tested economic instruments such as Sulphur dioxide (SO₂) trading policy



27.12.2010

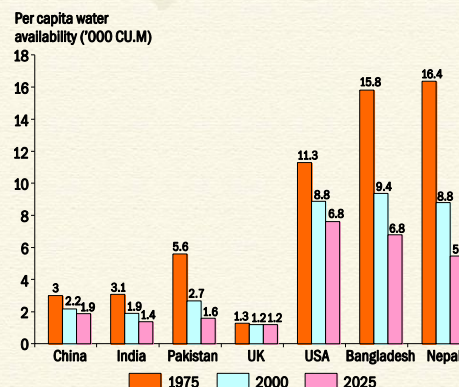
环境与发展比较：中国与印度
Environment and Development: China and India

Water

- Commonalities

- Declining per capita water availability
- Deteriorating water quality e.g; increase in BOD
- Causal factors: agricultural, industrial and domestic discharges; competing demands in different sectors
- Low wastewater treatment efficiency
- Limited use of economic instruments such as water pricing and pollution discharge cess, and water rights policies

Declining per capita water availability



Source: <http://www.cwc.nic.in/>

- Differences

- Access to potable water and sanitation facilities is still a key concern in India in both rural and urban areas



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Forests

- Commonalities
 - Forest cover in both countries is similar – China (18%) and India (21%)
 - Forest resources largely controlled by government in the two countries
 - Degradation is a key issue especially in terms of quality of resources and land conversion
 - Demand and supply gap resulting in unsustainable exploitation
 - Forest fires a common phenomenon
- Differences
 - Ownership and management: participatory approaches followed in India with increased participation of communities; e.g. 28% forest area under JFM
 - Shifting (agricultural) cultivation a key threat to forest resources in India; illegal conversion of forestland (for development purpose) a greater cause of concern in China



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Biodiversity and traditional knowledge

- Commonalities
 - High proportion of endemic species in the two countries
 - Anthropogenic activities have posed a threat to biodiversity in the two countries
 - Traditional knowledge not only used in the field of medicine but also used to produce improved crop varieties
 - Scope for cooperation to commercialize TK based products
- Differences
 - Current laws and regulations in China lack comprehensive legislation for biodiversity protection
 - India has additional legislative provisions for implementing Access and Benefit Sharing (ABS) under the Biological Diversity Act of 2001 and Biological Diversity rules of 2004 that are aligned with the provisions under CBD



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Solid waste

- Commonalities
 - Growing industrialization and urbanization resulting into increasing industrial and municipal solid wastes (MSW) – 960 MTPA industrial waste and 57 MTPA MSW in India; 1.76 BTPA industrial waste and 148 MTPA MSW in China
 - No segregation of waste at source leading to reduced efficiency of treatment facilities; rising levels of waste mismatched by inefficient collection, processing and disposal
 - Pollution of land and water resources due to open disposal
 - Rapid increase in e-waste generation
- Differences
 - Increase in waste generation much higher in China (15-16% as against 1.5% in India)
 - China has a better database for monitoring waste generation
 - India launched the National Urban Renewal Mission to improve efficiency in urban infrastructure including waste management in 63 cities



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Land

- Commonalities
 - Deteriorating quality of land: 1.75% of global degraded land is in India and 7.6% of global degraded land is in China (GLADA)
 - China ranked first and India ranked second in terms of rural population affected by land degradation (*ibid*)
 - Similar causal factors: natural, population and economic pressures resulting in unsustainable land utilization and management
 - Devolution of power and ambiguity in institutional functions and responsibilities of the different relevant departments
- Differences
 - Land reforms have been more successful in addressing the issue of distributive justice in China than in India
 - India has followed participatory approaches to address land issues through large scale programmes like the National Rural Employment Guarantee Scheme and Joint Forest Management
 - Policies in China focus more on addressing desertification while in India its more focused towards the watershed approach



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Climate change: Common but differential

- High dependence of livelihoods on climate sensitive sources; e.g. large population dependent on agriculture – (56 % India & 39% in China)
- Large coastline and coastal population (India: 7500 km & China: 18000 km)
- “Differences” lie in the scale of impacts and response capacities (both adaptation and mitigation) drawn from their trajectories of development
 - China: economic structure (China’s National Climate Change programme)
 - India: infrastructure constraints especially for adaptation
- Sectoral Impacts: agriculture , water and coastal zones
- Both countries among largest emitter of GHG emissions – 20% of global CO₂ emissions (IEA 2006) – however, per capita emissions low as compared to developed countries
- High reliance on coal for power generation; Energy security would be a major challenge and improvement in energy efficiency is key for both the countries



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Climate change: Responses

- India’s National Action Plan on Climate Change
- China’s National Climate Change Programme
- Post-Copenhagen pledges – reduction in carbon dioxide emission intensity (per unit of GDP) by 2020 as compared to 2005 levels through domestic mitigation actions (China by 40-45% & India by 20-25%)
- Plenty of scope for bilateral cooperation regarding climate change adaptation and mitigation post Cancun
- Also the two countries being a part of alliances such as the BRIC and BASIC can cooperate on technology and adaptation issues



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Prospects for future bilateral knowledge cooperation (1)

- Environmental Governance and Rio+ 20 themes
 - Green Economy
 - Institutional Architecture/ Environmental governance
- Production Consumption Systems
 - Lifestyles, rising middle class and urbanization
 - Food security
- Joint research in air quality modeling for better management of regional and urban air quality and accrue co-benefits of GHG reduction
- Biodiversity protection and TK including ABS and commercialization of TK derivatives



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India

Prospects for future bilateral knowledge cooperation (2)

- Governance mechanisms for regional water security
- Cooperation regarding critical ecosystems (e.g; ecologically sensitive areas)
- Developing efficient fire detection and management
- Policies to jointly address climate change
- Joint research on waste processing technologies and waste reduction and recycling mechanisms
- Energy efficiency (relating to PAT mechanisms) and scope for business partnership



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India



■ 花絮——封面的故事
Story of the cover



27.12.2010

环境与发展比较：中国与印度
Environment and Development: China and India