



Environment, Transport and Energy in Asia integration and institutional change

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Outline

- Introduction to CAI-Asia
- Urban transport in Asia
- The way ahead



Part 1: Introduction to CAI-Asia

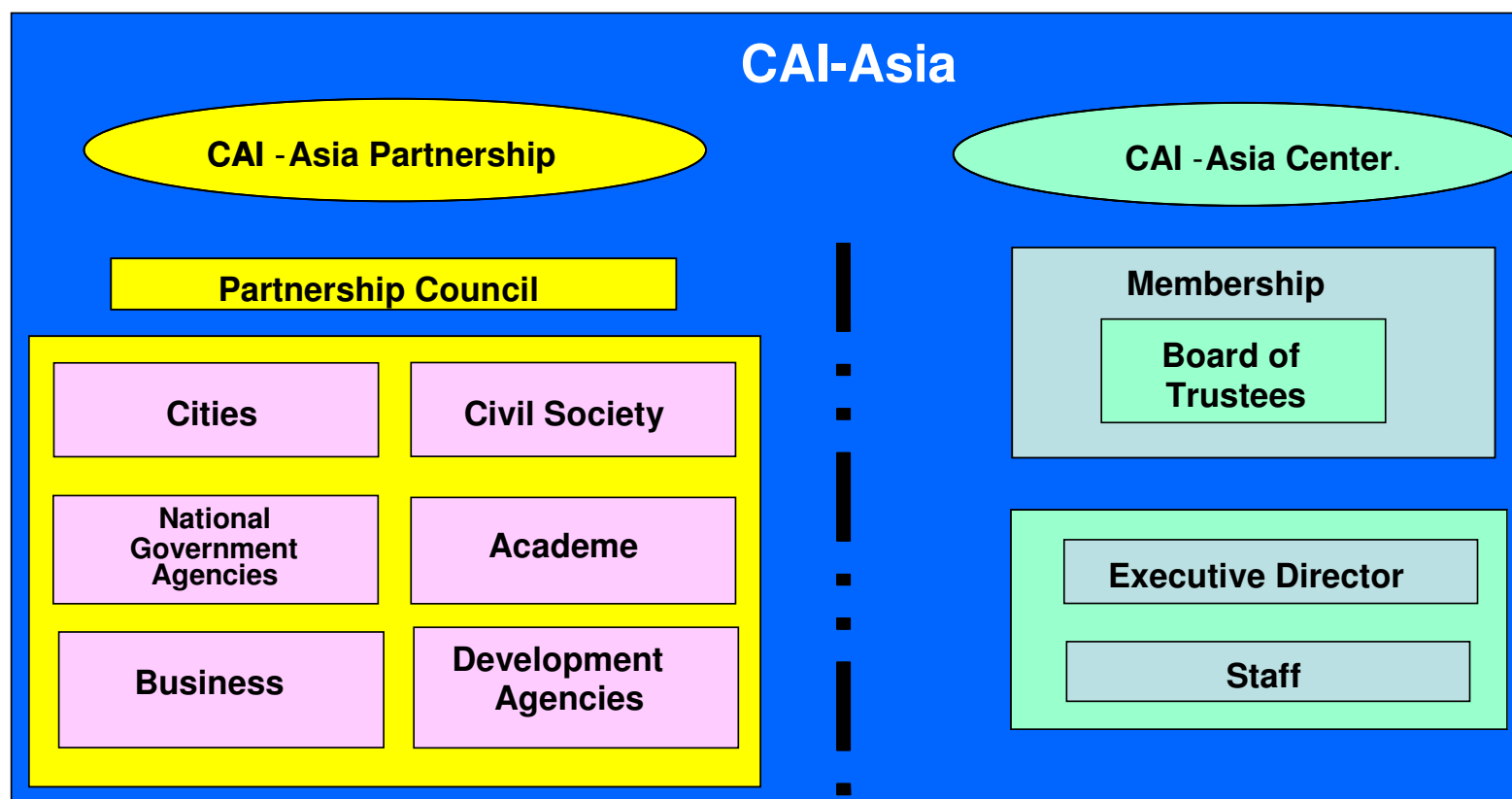
CAI-Asia Center

www.cleanairnet.org/caiasia



CAI-Asia Structure

- Established in 2001, CAI-Asia is widely acknowledged for its role as regional convener and information exchange facilitator on the subject of urban air quality in Asia.
- To ensure the sustainability of CAI-Asia, a new organizational structure was approved by the CAI-Asia General Assembly in December 2006.



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CAI-Asia Partnership Membership

CITIES

Dhaka, Bangladesh
Chittagong, Bangladesh
Phnom Penh, Cambodia
Chengdu, China
Chongqing, China
Hangzhou, China
Harbin, China
Guangzhou, China
Tianjin, China
Hyderabad, India
Mumbai, India
Pune, India
Jakarta, Indonesia
Surabaya, Indonesia
Yogyakarta, Indonesia
Ulaanbaatar, Mongolia
Kathmandu, Nepal
Lahore, Pakistan
Islamabad, Pakistan
MMDA, Philippines
Makati, Philippines
Naga, Philippines
Singapore NEA
Colombo, Sri Lanka
Bangkok, Thailand
Chang Mai, Thailand
Haiphong, Vietnam
Hanoi, Vietnam
Ho Chi Minh City, Vietnam

Government Agencies

- Andhra Pradesh Pollution Control Board
- Balochistan EPA, Pakistan
- Central Pollution Control Board, India
- Department of Energy, Philippines
- Department of Environment and Natural Resources (DENR), Philippines
- Department of Environment, Bangladesh
- Department of Forest, Ecology and Environment, India
- Department of Transportation and Communications, Philippines
- Dhaka Transport Coordination Board, Bangladesh
- Environmental Management Bureau (EMB), Philippines
- Environmental Management Bureau, Ministry of the Environment, Japan
- Environmental Protection Agency (EPA), Afghanistan

- Environmental Protection Department of Hong Kong SAR (EPD)
- Hydrocarbon Development Institute of Pakistan
- Ministry of Environment, Cambodia
- Ministry of Environment, Indonesia
- Ministry of Public Works and Transport, Cambodia
- Ministry of Road Transport and Highways, India
- Pakistan Environmental Protection Agency (Pak-EPA)
- Pollution Control Department (PCD), Thailand
- SUPARCO
- Sindh Environmental Protection Agency
- State Environmental Protection Administration (SEPA)
- Vietnam Register

**56 NGOs
and
Academic
Institutions
in the
Region**

DEVELOPMENT AGENCIES

Asian Development Bank
German Agency for Technical Cooperation (GTZ)
Government of Finland
Government of Japan
Government of Norway
Government of the Netherlands
Hewlett Foundation
IUCN - The World Conservation Union
Sida
The World Bank
USAID/USAEP
United States Environmental Protection Agency (EPA)

**FULL PRIVATE SECTOR Member
Shell**

**ASSOCIATE PRIVATE SECTOR
Member**

Asian Clean Fuels Association (ACFA)
Corning Incorporated



CAI-Asia Center Outputs 2007-2008

Organizational Development:

The CAI-Asia Center established as an independent legal entity (i.e., all administrative and financial procedures are functioning smoothly, ensuring its sustainability)

Knowledge Management:

The CAI-Asia Center is accepted as an authoritative, knowledge base on urban air quality in Asia

Capacity Building:

The CAI-Asia Center is able to contribute to the generation of adequate capacity for effective urban AQM in Asia

Networking and Policy Development:

The CAI-Asia Center is able to expand its role as convener of AQM-related policy forums

Investment and Implementation Facilitation:

The CAI-Asia Center has contributed to the identification of financing models for effective urban AQM in Asia and has assisted in raising funds for the development and implementation of AQM programs and projects



Existing and Planned CAI-Asia Local Networks



Existing Local Networks

- China
CAI-Asia China Project
- Indonesia
Mitra Emisi Bersih
- Nepal
Clean Air Network-Nepal
- Pakistan
Pakistan Clean Air Network
- Philippines
Partnership for Clean Air
- Sri Lanka
CleanAirSL
- Viet Nam
Vietnam Clean Air Partnership

Establish New Networks

2007-2008

- India
- Mongolia
- Thailand

2009-2010

- Bangladesh
- Bhutan

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Part 2: Urban Transport in Asia



Dhaka, Bangladesh



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The Asian transport context...

Hanoi, Viet Nam



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The Asian transport context... Manila, Philippines



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The Asian transport context... Beijing, PR China



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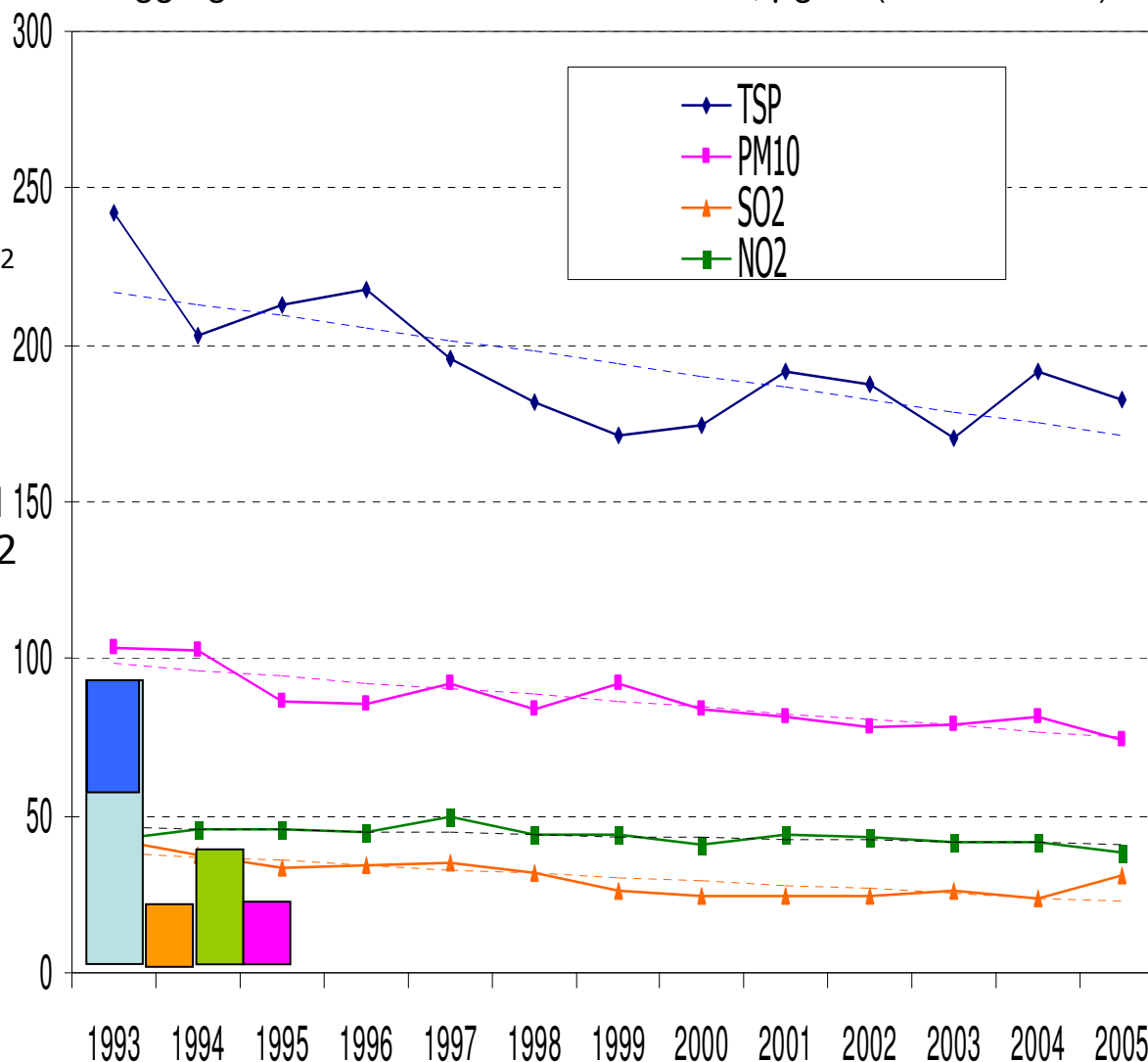


Status of Urban Air Quality in Asia

Aggregated Annual Ambient AQ Trends, $\mu\text{g}/\text{m}^3$ (1993 to 2005)

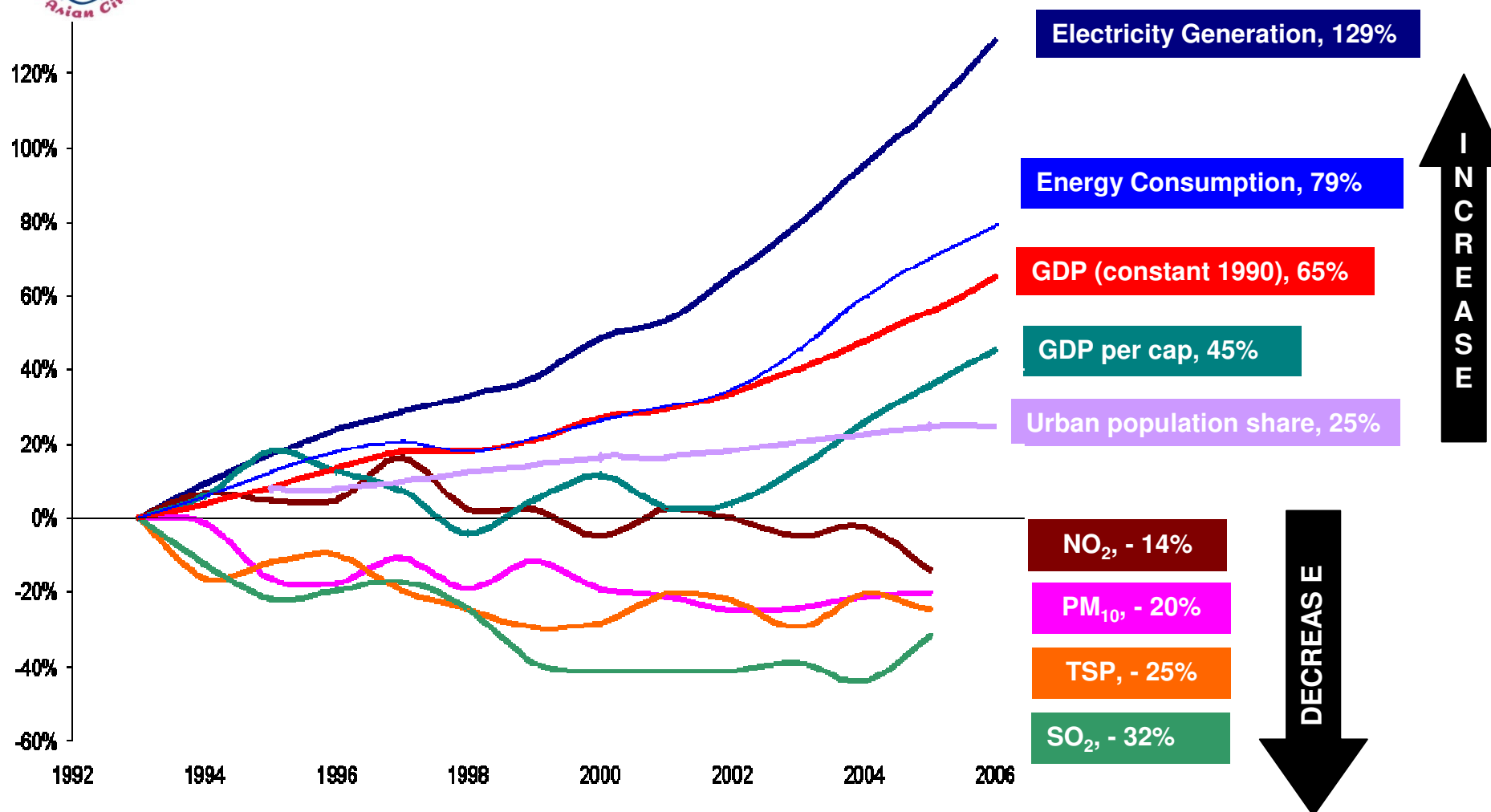
- Overall ambient air quality trend in Asia continues to improve despite increase in motorization and energy use
- Average ambient TSP, PM10 and SO_2 trends are improving
- Average ambient TSP and PM10, however, continue to exceed WHO and USEPA guidelines
- Ambient SO_2 in Asia exceeds revised (2005) WHO 2005 guidelines for SO_2
- NO_2 close to guidelines
- Insufficient information on O_3 for reliable trend analysis
- Very little monitoring of VOCs and Heavy Metals.

- WHO (1979) TSP guideline, $60\text{--}90\mu\text{g}/\text{m}^3$
- WHO (2005) SO_2 24-hour guideline, $20\mu\text{g}/\text{m}^3$
- WHO NO_2 guideline, $40\mu\text{g}/\text{m}^3$
- WHO (2005) PM10 guideline, $20\mu\text{g}/\text{m}^3$





Economic Growth and Air Pollution Trend: Asia



Sources:

BP Statistical Review of World Energy June 2007 - <http://www.bp.com/statisticalreview>

UN DESA - <http://esa.un.org/unpp>

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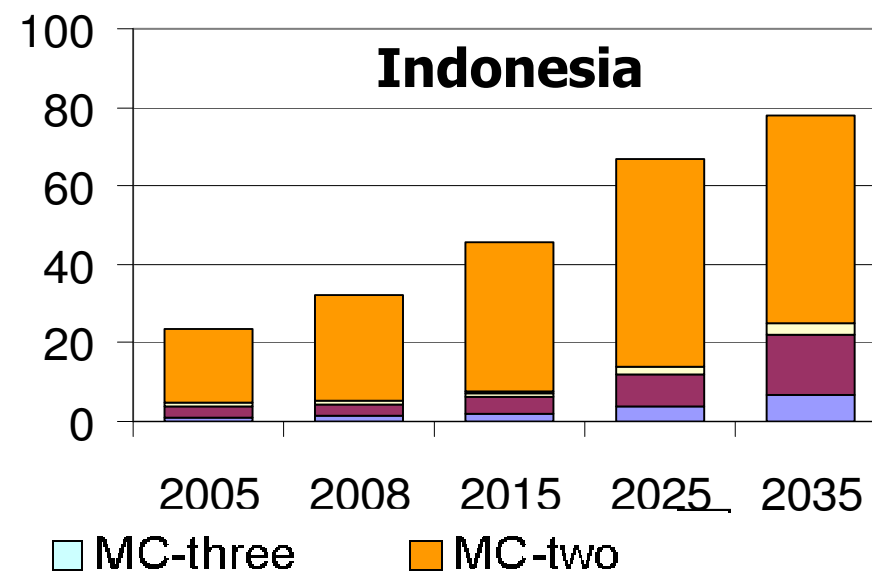
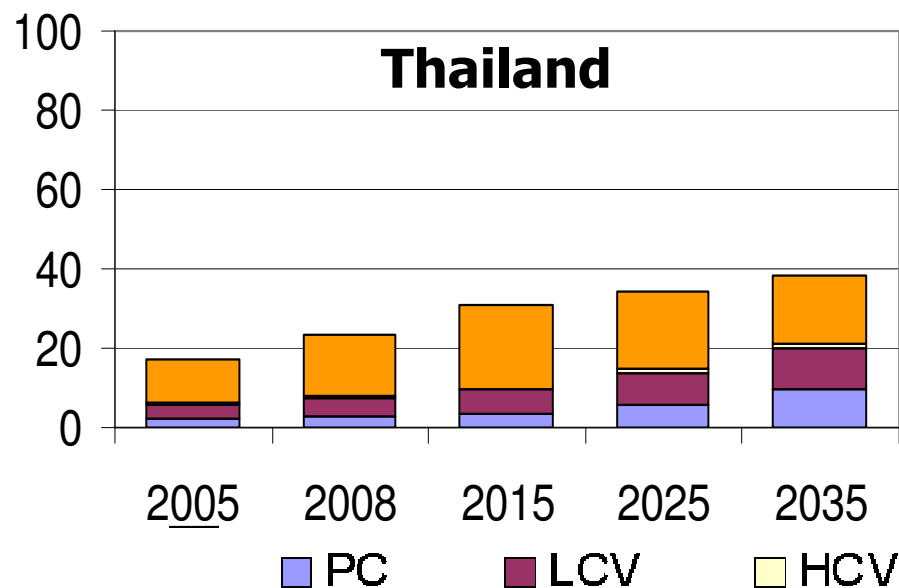
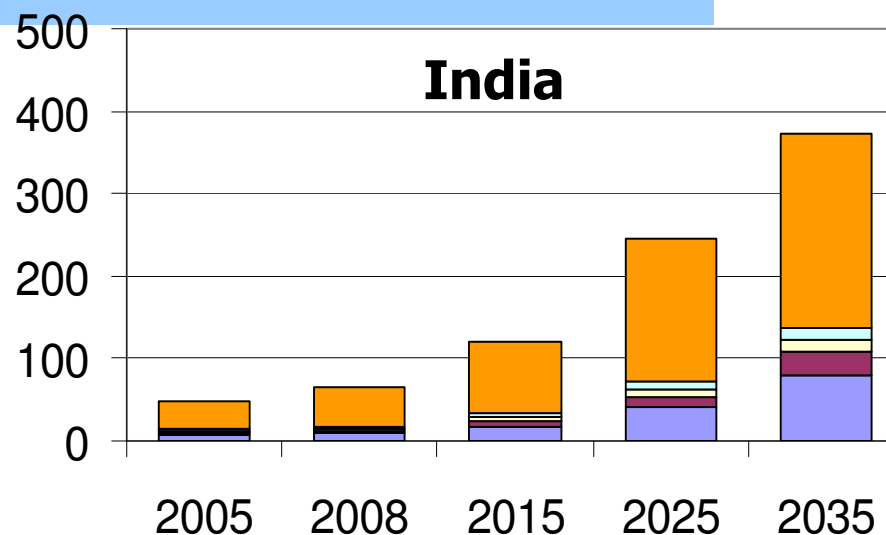
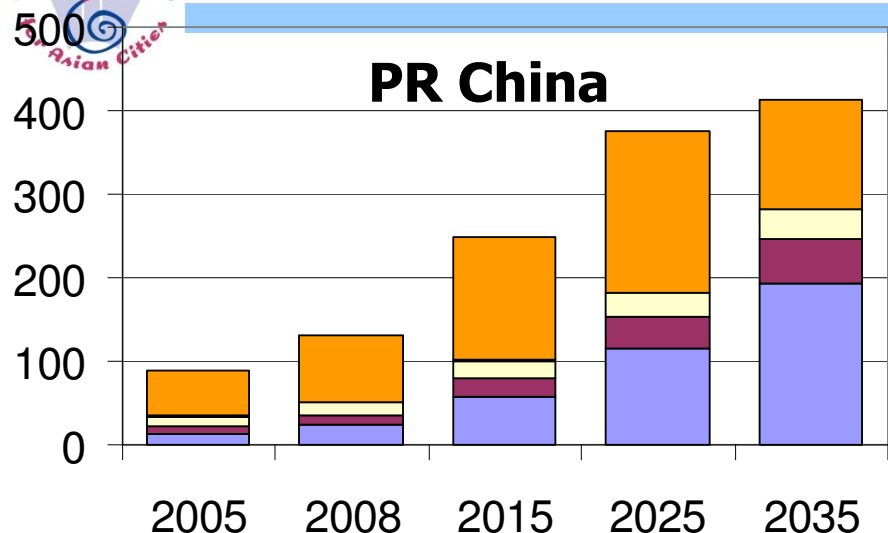
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Part 3: The way ahead



Vehicle Growth Forecast in Asian Countries (in Millions of Vehicles)

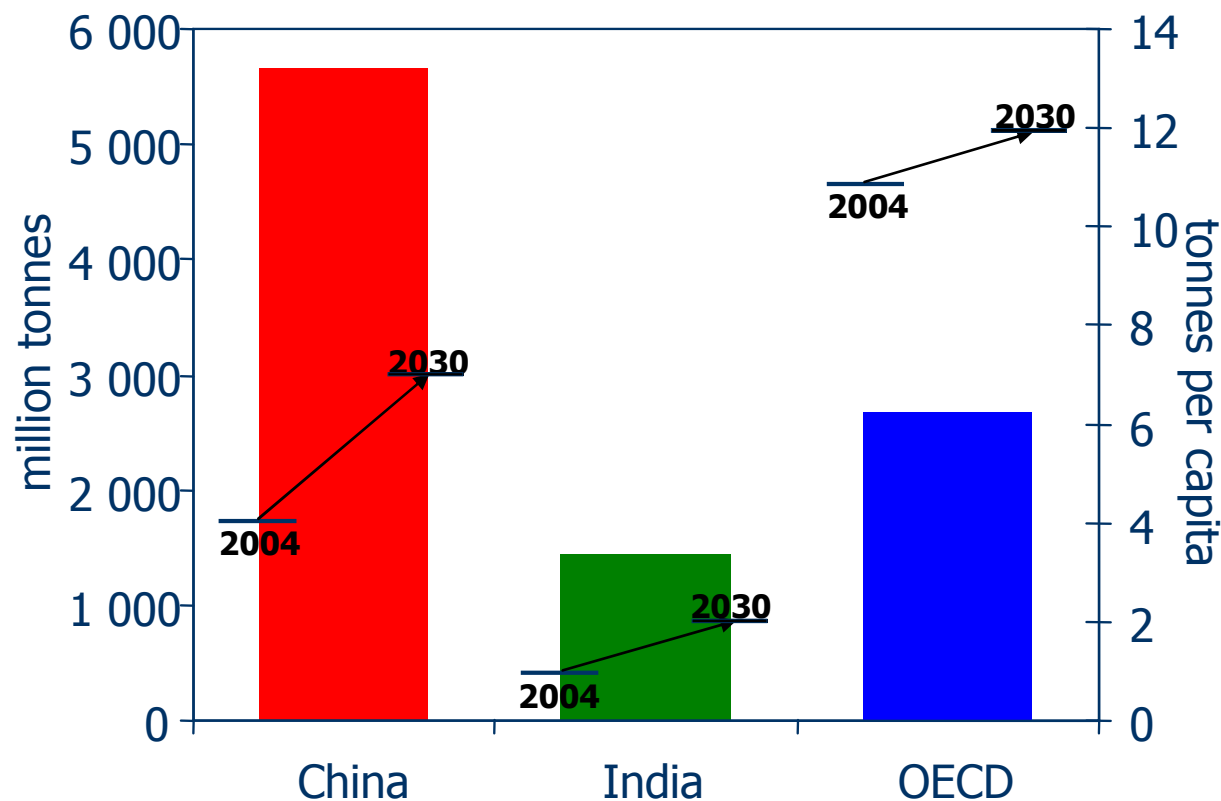


Note: Vehicle Population Projection from Segment 1, Etc.



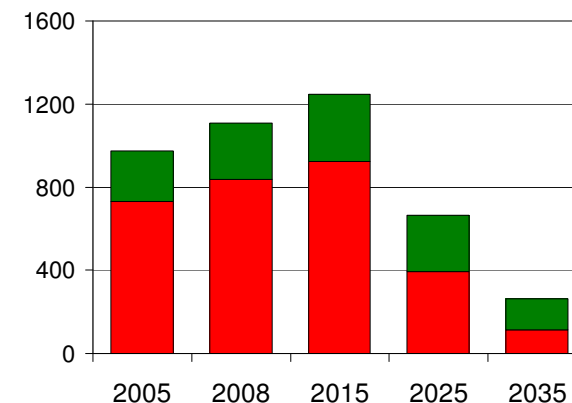
The Challenge ahead

CO₂ Emissions Growth 2004–2030

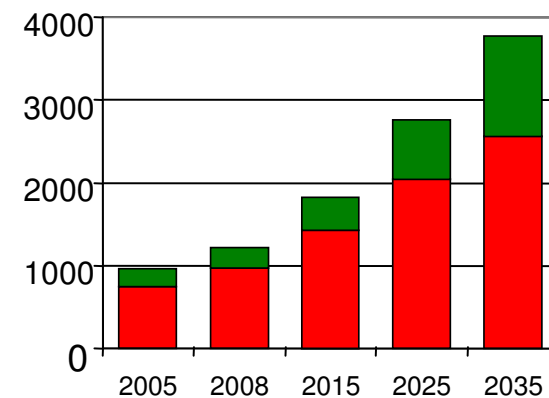


Source: IEA, 2007 - World Energy Outlook 2006

Thousand Tons of PM₁₀



Million Tons of CO₂



China, P.R. India



Electric bikes in PR China

- Electric bikes in China increased from only 40,000 units in 1998 to 10 million in 2005, and have started its export to other Asian countries
- Zero roadside emissions, electricity comes from dirty coal, serious problems with lead acid batteries
- Beijing 2006: allowed the use of electric motorcycles in city center
- Shanghai 2006: ban electric motorbikes that go faster than 20 km per hour
- Guangzhou 2007: total ban on all motorcycles





2-Stroke Gasoline Rickshaws



- Several Asian cities experience a big problem with emissions from 2-stroke gasoline 3-wheelers

- Regulators were not able/willing to address the issue, people's complaints combined with judiciary action has resulted in the complete/partial ban of 2-stroke three-wheelers in several Asian cities:
 - In **Delhi, India**: total ban of 2-stroke gasoline rickshaws; now uses 4-stroke CNG rickshaws
 - In **Kathmandu, Nepal**, a similar ban has been effected and prohibits the operations of such vehicles in the valley
 - **Dhaka, Bangladesh** no longer allows the operations of 2-stroke rickshaws in the city
 - In **Lahore, Pakistan**, a start has been made in banning 2-stroke rickshaws
 - In **San Fernando City, La Union, Philippines**, 2-stroke gasoline tricycles have been banned in favor of 4-stroke gasoline tricycles
 - **Karachi, Pakistan** is considering to ban its 2-stroke gasoline rickshaws
 - **Vigan City, Philippines** is considering to ban its 2-stroke gasoline tricycles to give way to 4-stroke gasoline tricycles and direct-injection retrofitted 2-stroke tricycles, similar to what **Puerto Princesa City** did to its tricycles.



Seoul – Asia's big dig

Big changes are also possible in Asia...



Former Hyundai executive, now mayor of Seoul, took the lead in transforming the Cheonggyecheon **6-lane highway into a **riverscape**.**



BRT in Asia

- The rapid increase of interest in BRT in Asia shows that change is possible in the manner that urban transport is being perceived, and planned.
- The success of BRT is due to extensive marketing by a growing number of groups; capacity building; the availability of Bogota and Curitiba as champions; and the emerging awareness of the shortcomings of traditional systems and approaches.
- Different groups are able to project various positive messages on BRT: road safety, energy efficiency, congestion reduction, modern image, air quality improvement
- Bandwagon effect



India's Urban Transportation Policy

- The 2006 Indian NUTP vision is to “recognize that people occupy center-stage in our (Indian) cities and all plans would be for their common benefit and well being”
- *THAT IS...* Invest more on transport systems that encourage greater use of public transportation and non-motorized modes instead of personal motor vehicles
- The Indian national urban transport policy is catching attention because it is
 - Redefining institutional relationships, and
 - Showing how the principles outlined in the policy will be executed *will include a financial mechanism* – something that is rare for transport or environment policies in Asia

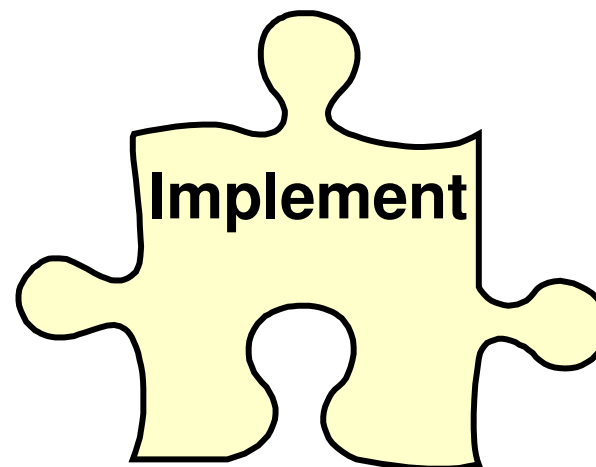
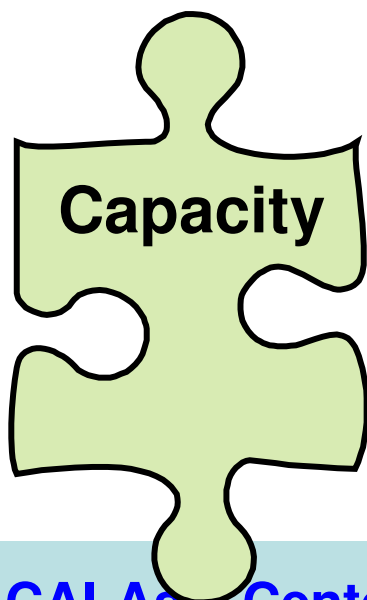
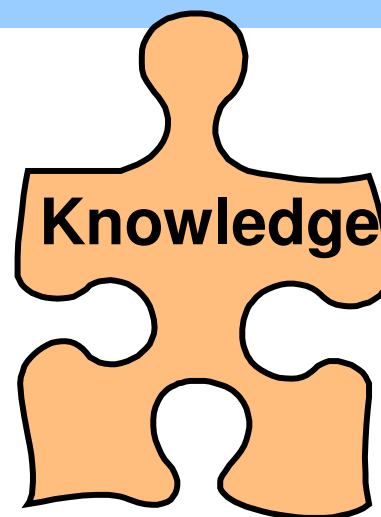
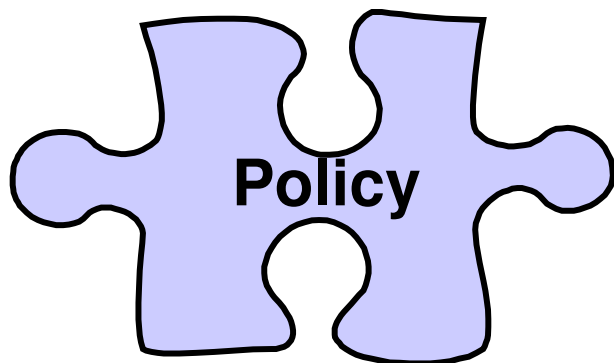


The Regional Dimension ...

- Efforts toward more efficient integration of transport, energy and environment policies at the local and national levels are supported by a regional approach
- The Sustainable Urban Mobility in Asia (SUMA) program represents CAI-Asia's most comprehensive effort to influence transport policies and investments for the sector that contributes the most to urban air pollution in most Asian cities
- SUMA is knowledge management, capacity building, policy development, networking, and local action (pre-feasibility studies and pilot projects)
- CAI-Asia partners with I-CE, GTZ-SUTP, WRI-EMBARQ, ITDP, and UNCRD for program implementation.
- SUMA has the potential to grow into a dedicated SUT regional network for Asia

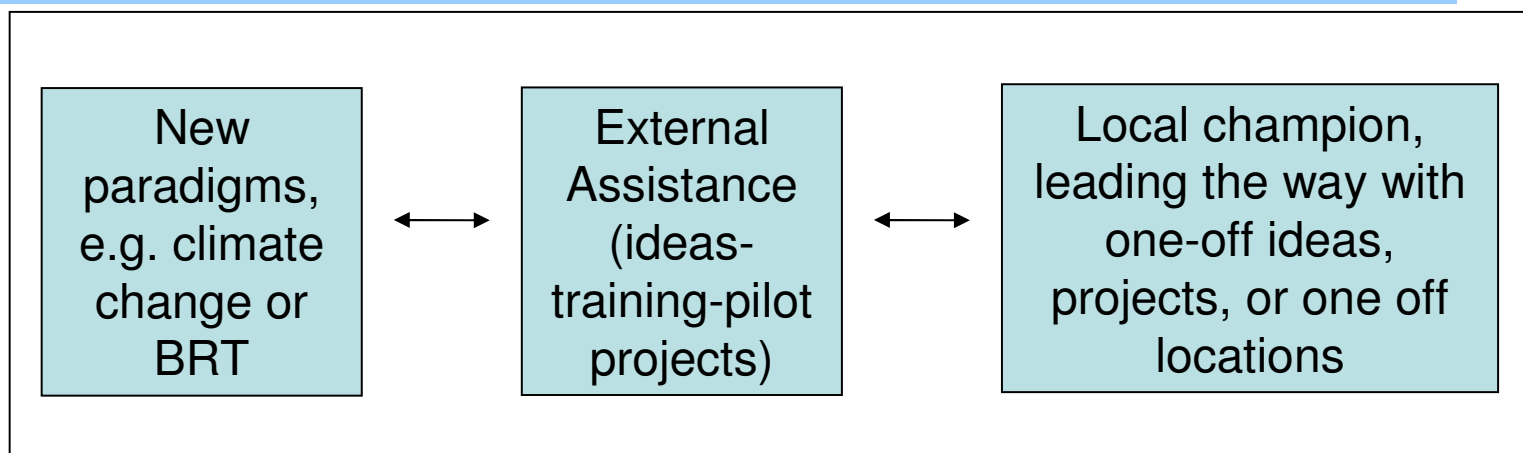


Integrated approach





How can change happen?



Create parallel structures:

- Special delivery vehicles with high level of effectiveness
- Duplication of organizational mandates and possibly organizational confusion

Impact: quick(er) but how structural?

Long March Through the Institutions:

- Change culture
- Change mission, mandates, policies
- Change planning and budgeting
- Change organizational linkages

Impact: slow(er) but more far reaching and comprehensive?



For more information, please contact

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