



Data and Tools for Low Emission Cities Development in Asia

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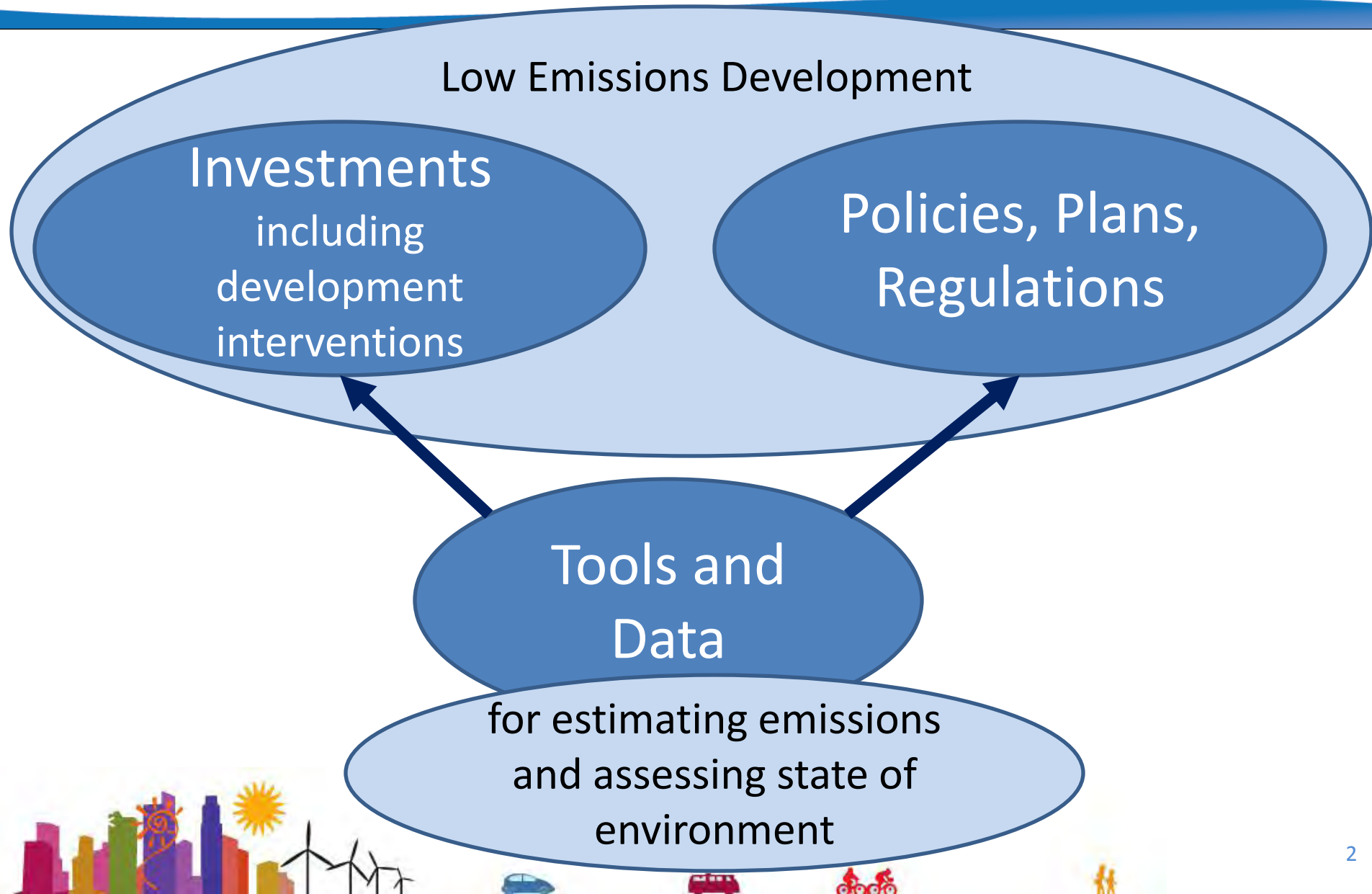
3rd High Level Seminar on Environmentally Sustainable Cities

Siem Reap, Cambodia

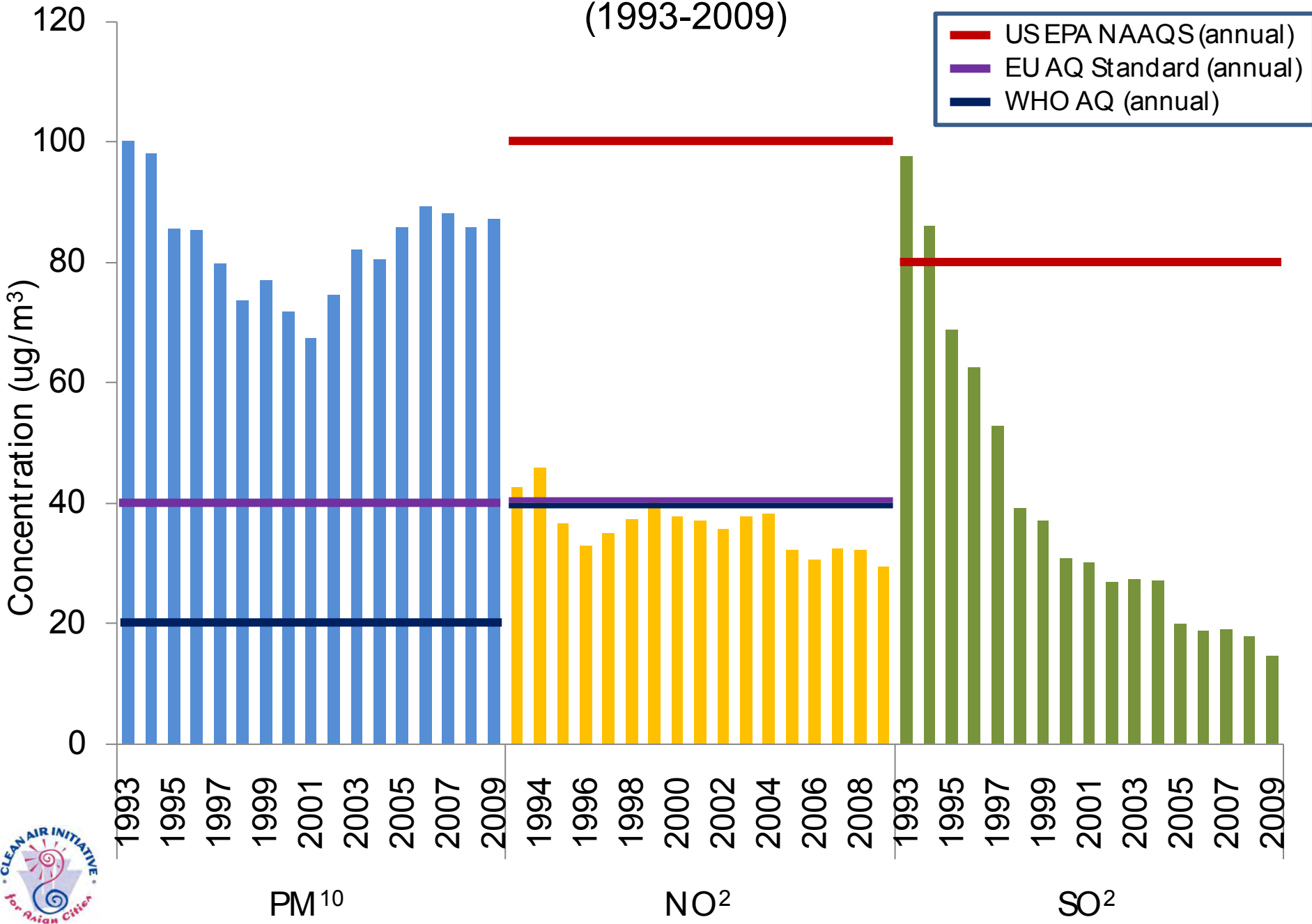
6-8 March 2012



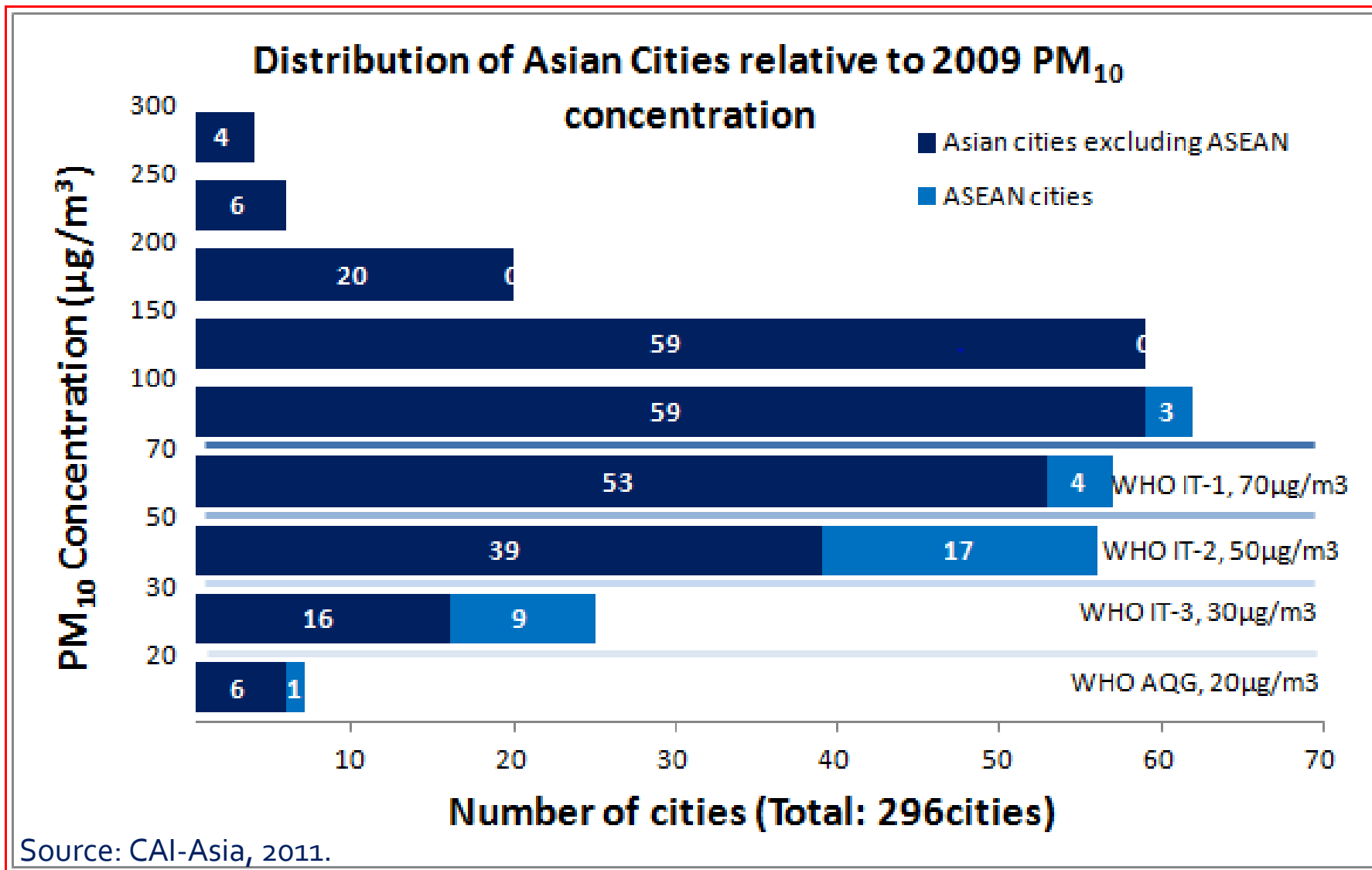
Why we need tools and data?



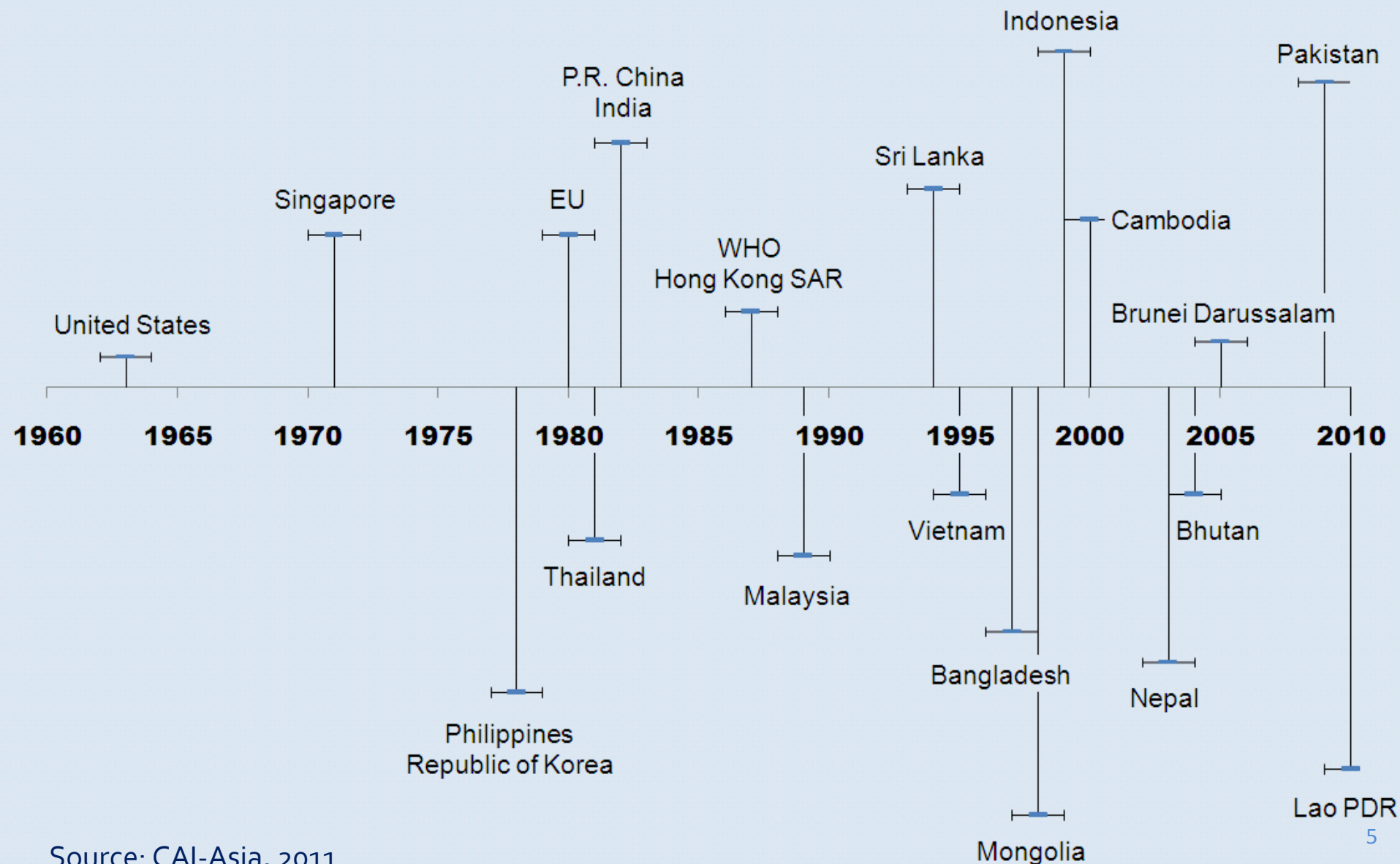
Average of Annual Average Ambient AQ in Selected Asian Cities (1993-2009)



Distribution of Asian Cities relative to 2009 PM₁₀ Levels

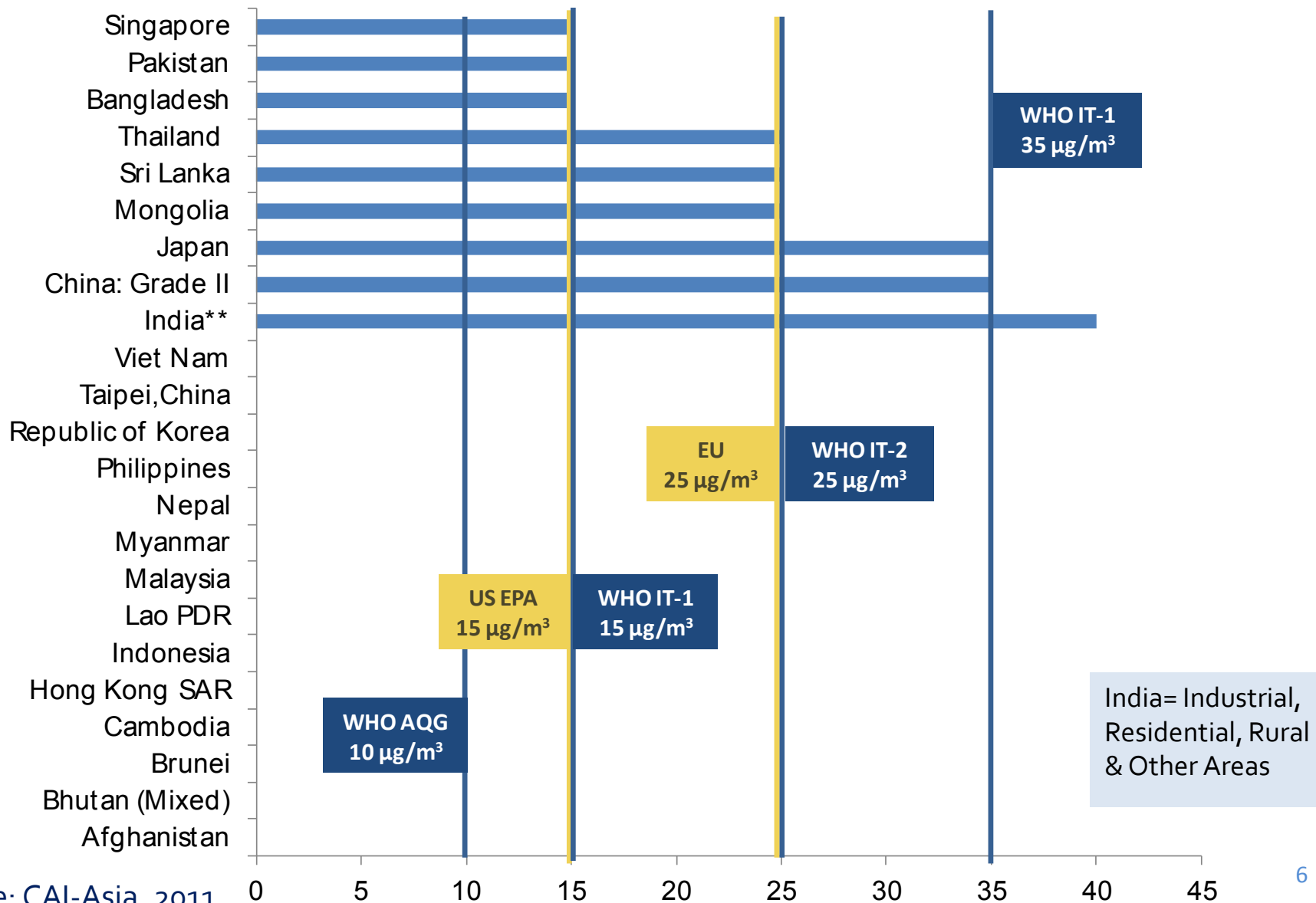


Timeline on Establishment of First Set of Ambient AQ Standards

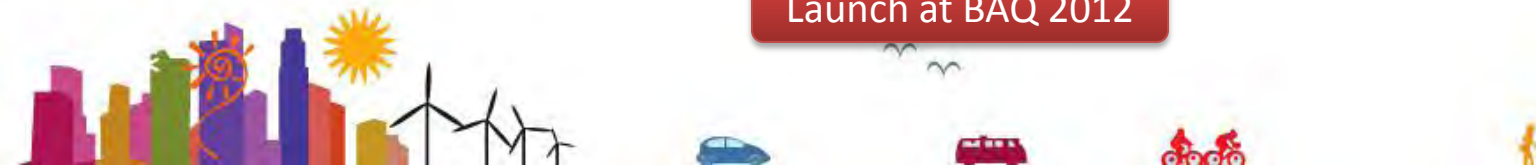


Source: CAI-Asia, 2011.

Annual Average PM_{2.5} Standards (µg/m³)



Improving Air Quality Monitoring Systems in Asian Cities



Low Emission Cities Project

Development and application of the
**Rapid Assessment of City
Emissions (RACE) Tool** in
selected Asian cities covering:

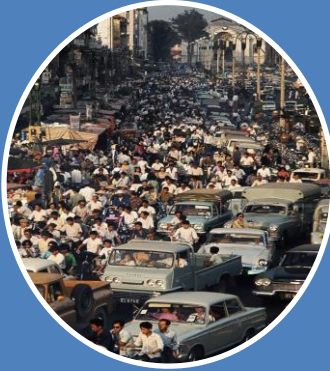
- ✓ Energy use in industrial, commercial, residential buildings and transport
- ✓ Land use and transport integration



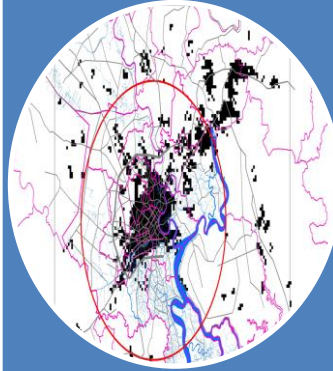
Land Use Factors Affecting Transportation



Diversity
of land
use



Density of
population



Design of
city



Distance
to transit



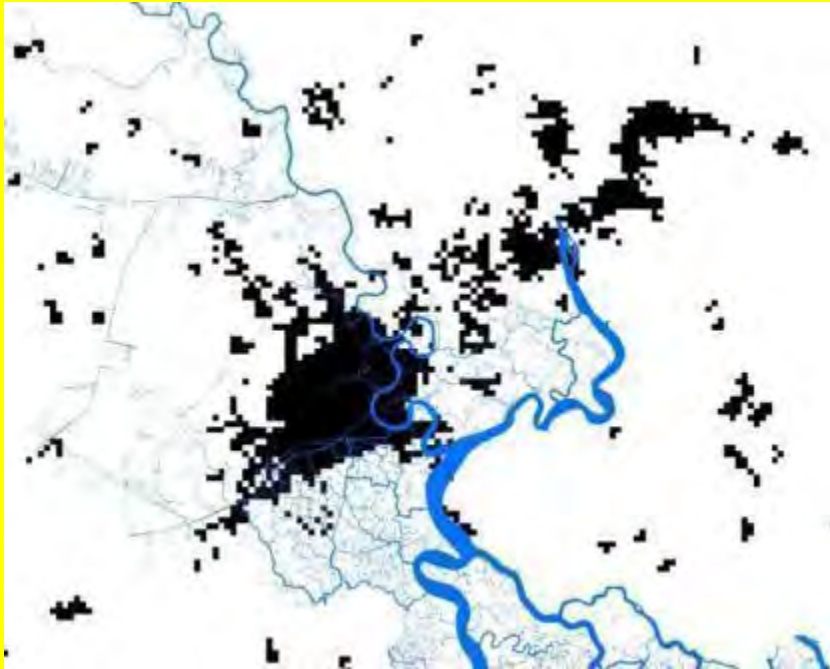
Destination
access (to
employment
centers)



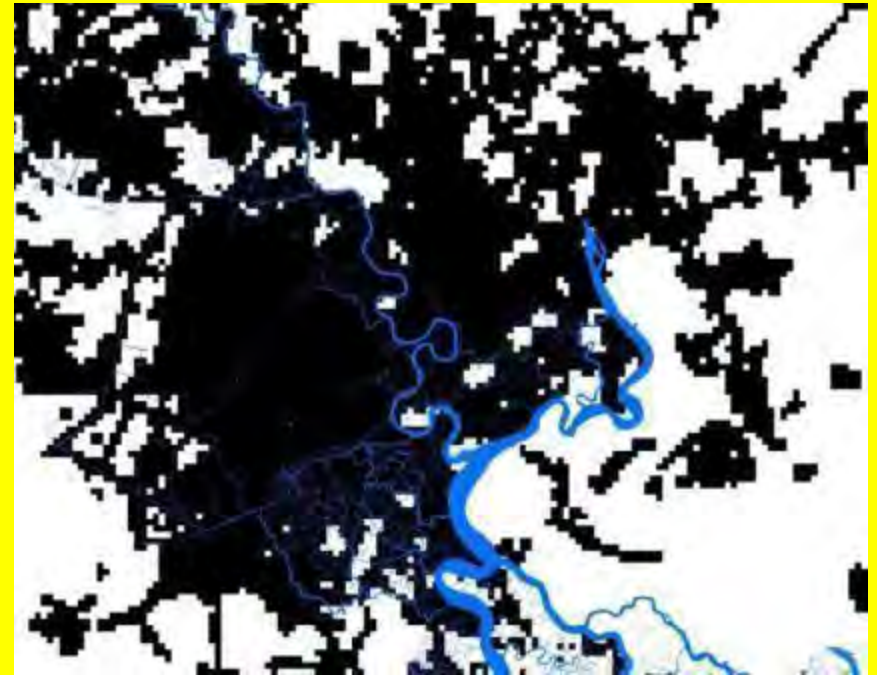
Ho Chi Minh City



Ho Chi Minh City: Rapid urban growth

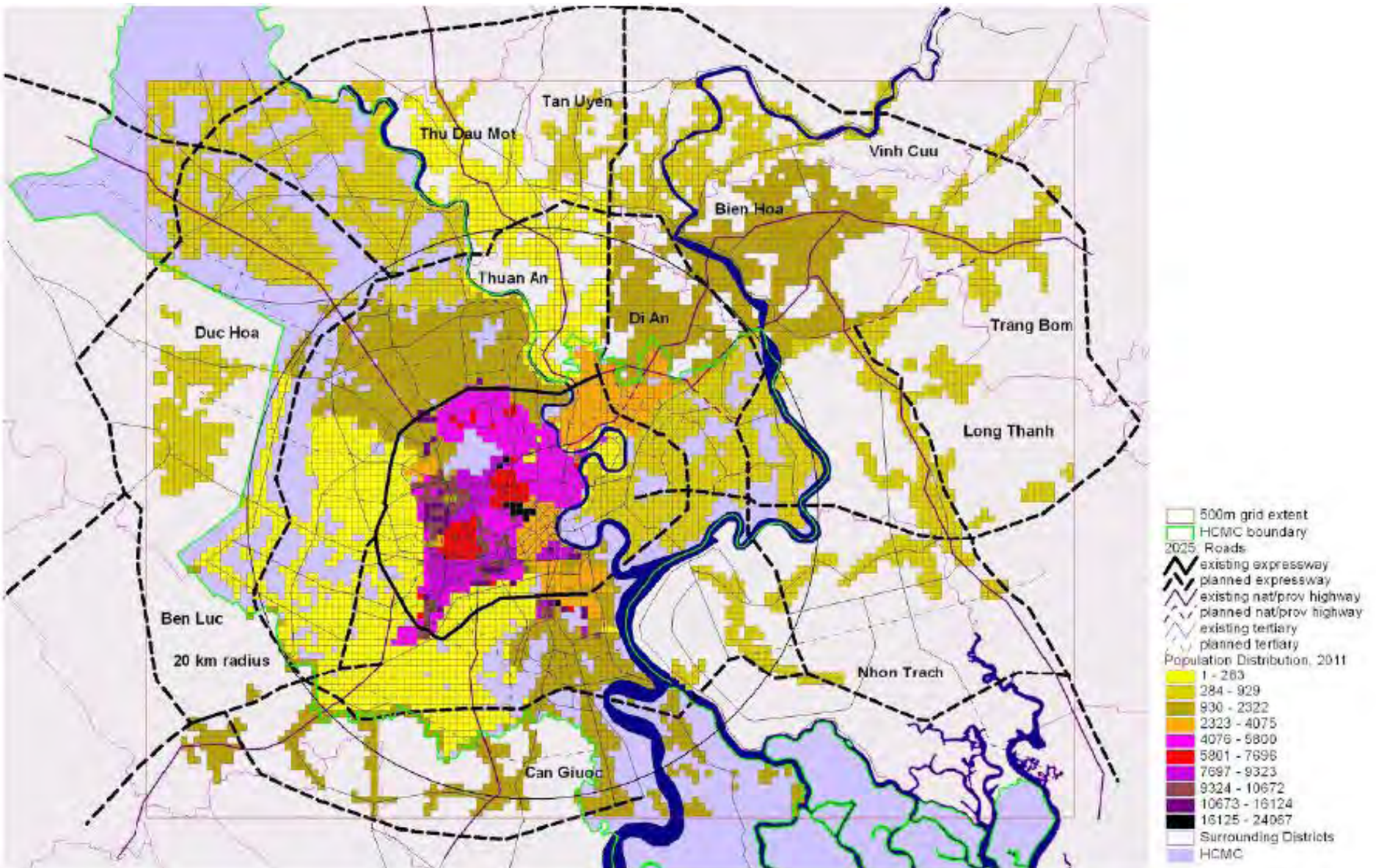


2000

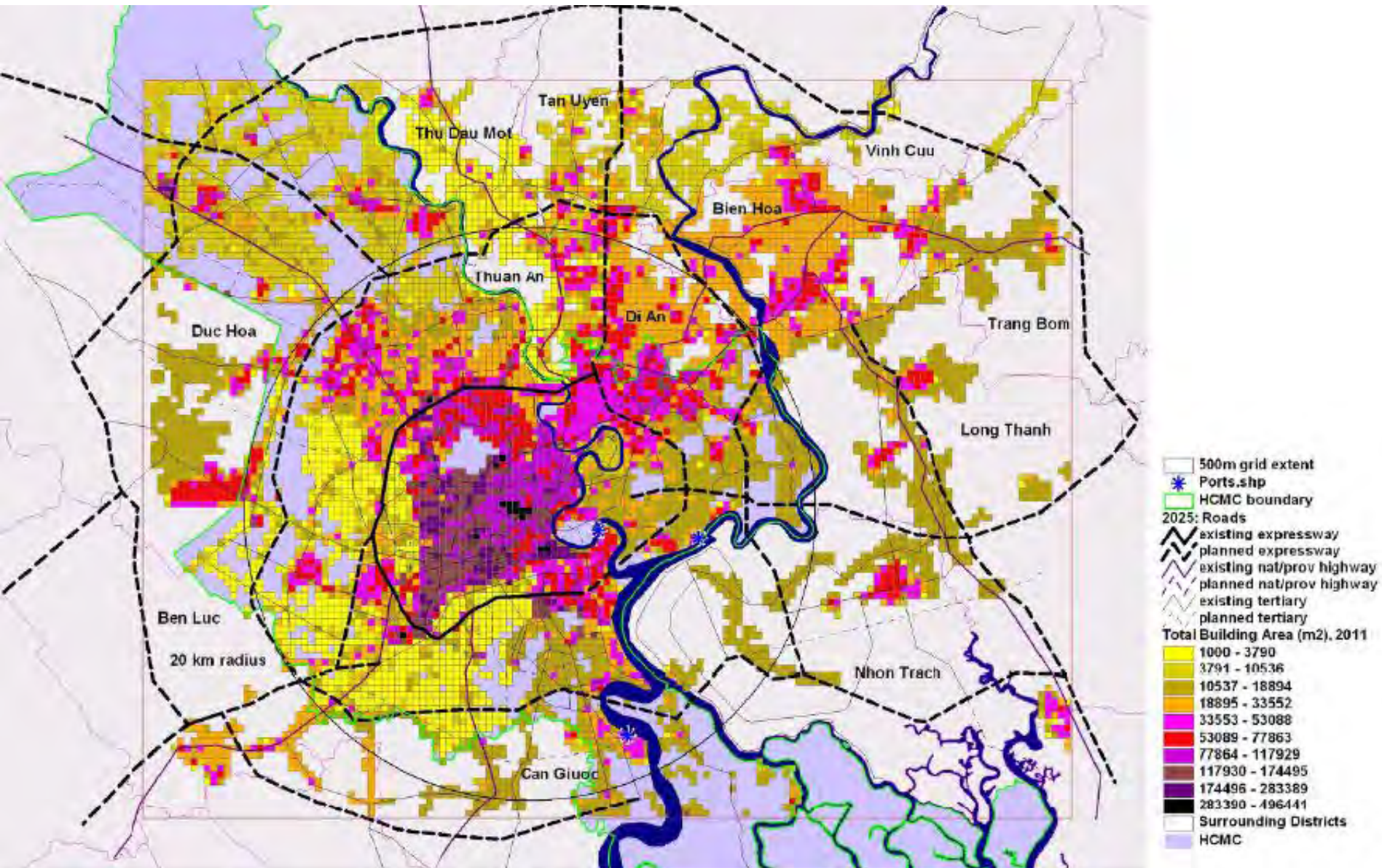


2011

Baseline 2010: Population Distribution

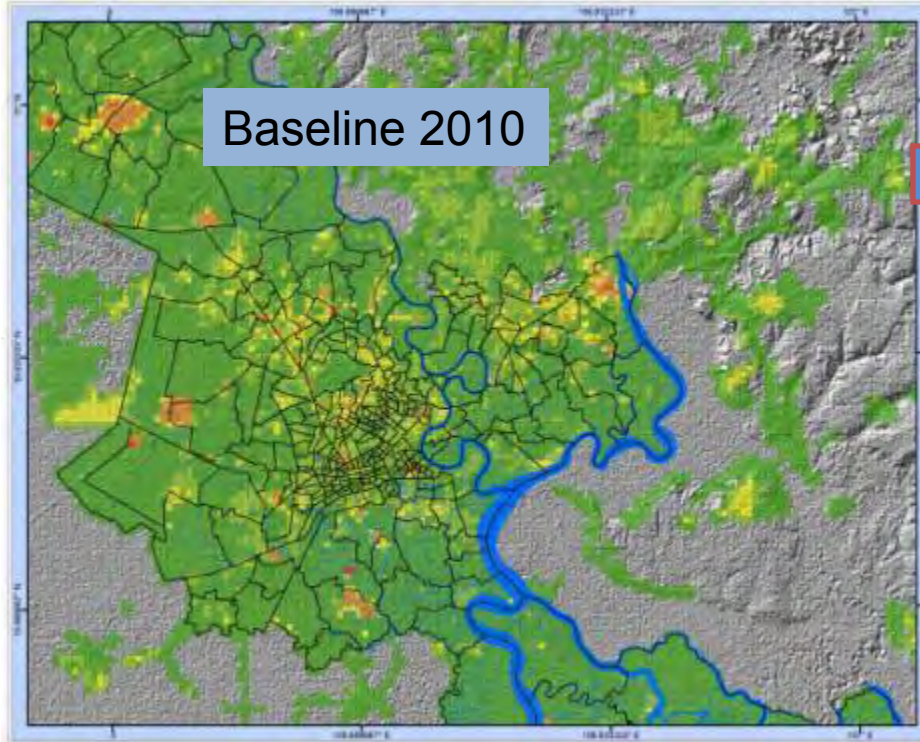


Baseline 2010: Total Building Area (m²)

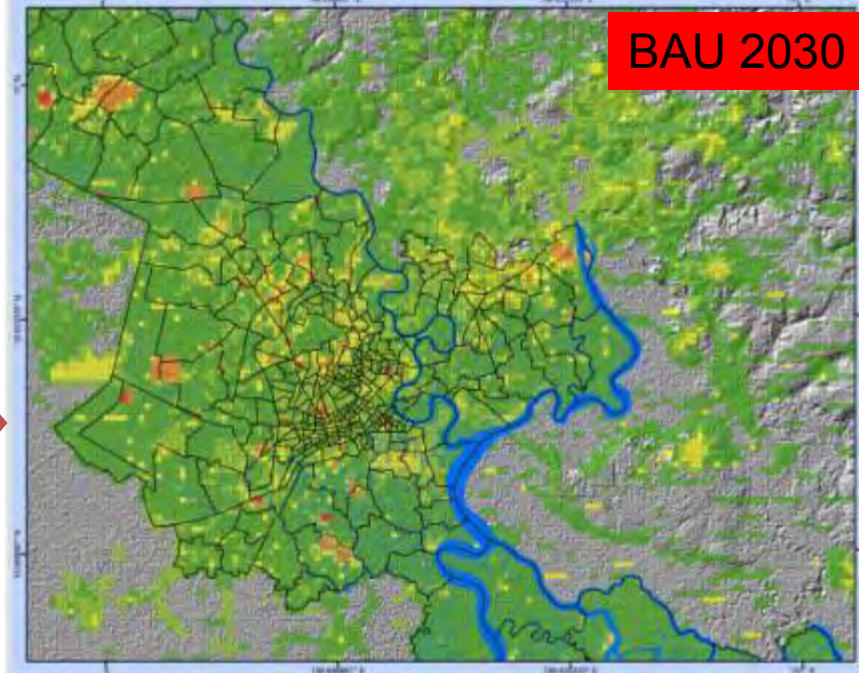


Scenarios for TRANSPORT

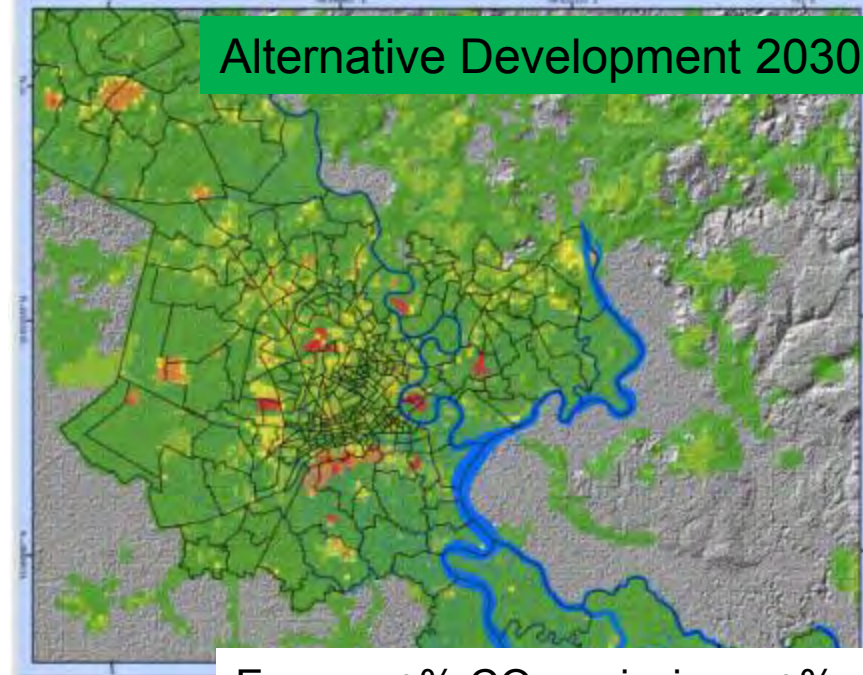
Baseline 2010



BAU 2030



Alternative Development 2030



Energy transport: 1.3 million TOE
Electricity: 15 million MWh
CO₂ emissions transport: 4.3 million tons
CO₂ emissions electricity: 6.1 million tons

Energy: +% CO₂ emissions: +%

Scenarios for ENERGY USE

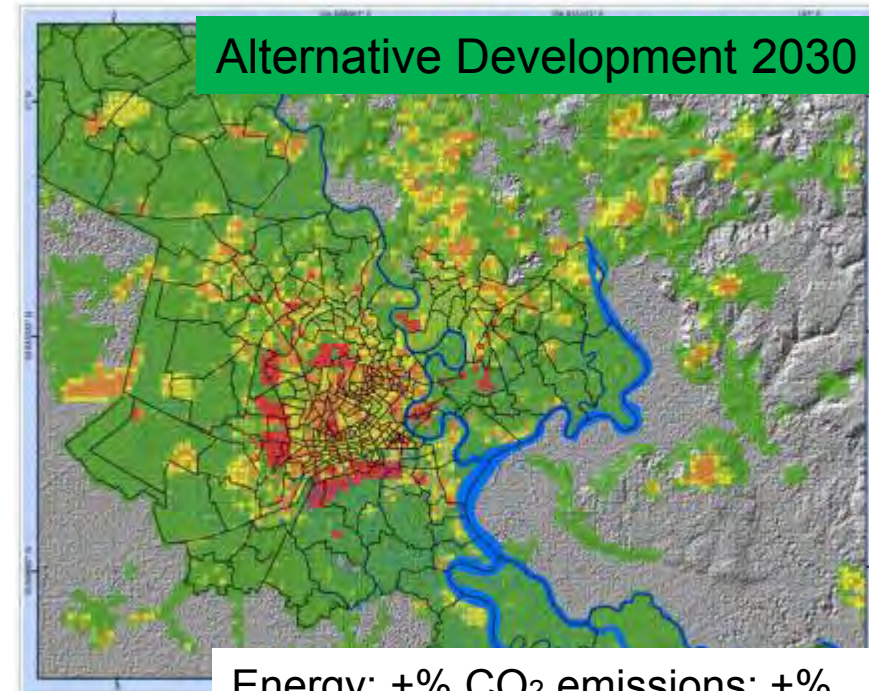
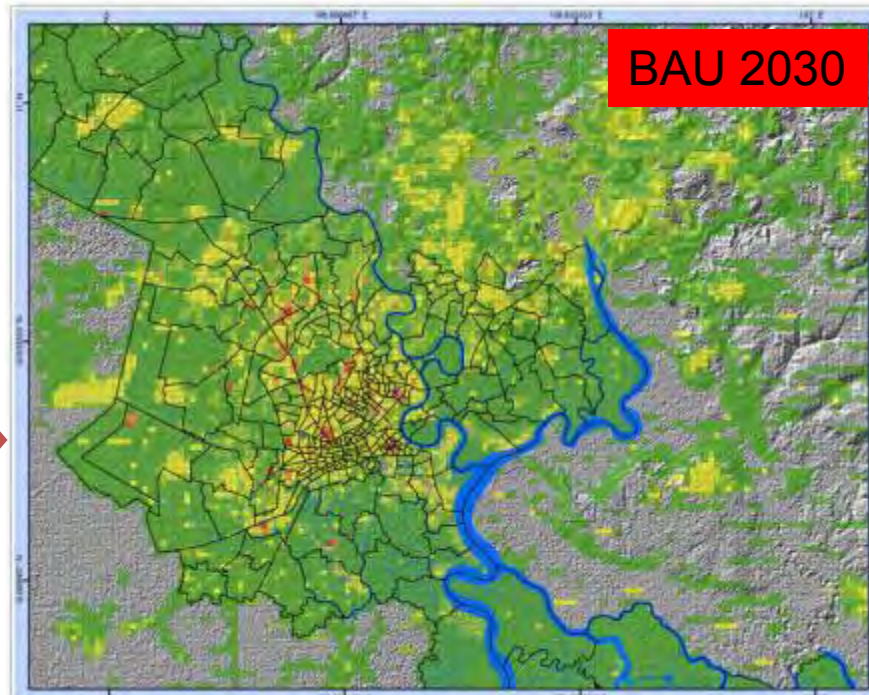
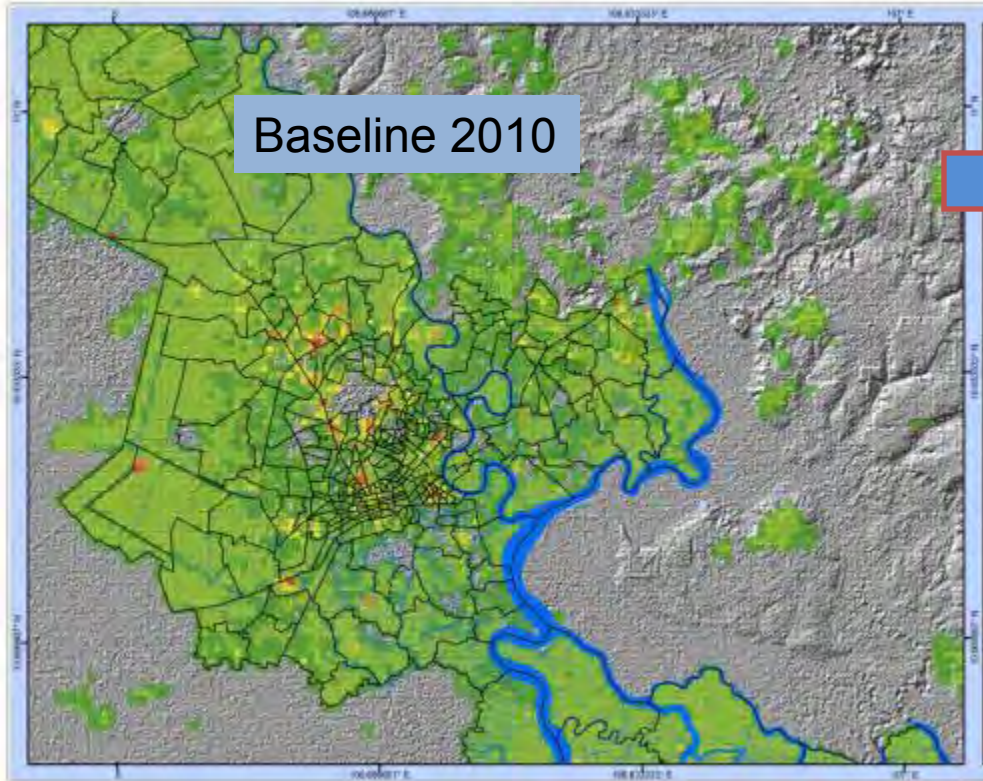
Baseline 2010

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Energy: +% CO₂ emissions: +%



Calculating Emissions from Transport



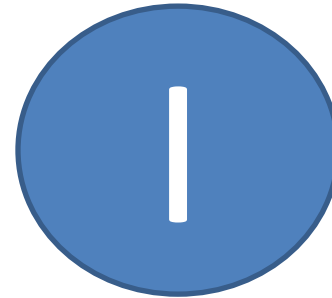
Activity

TRIPS
km



Structure

TRANSPORT
mode



Intensity

FUEL +
ELECTRICITY use



Fuel

EMISSION
FACTORS

CO₂
PM
NO_x

Calculating Emissions from Buildings

A

Activity

FLOOR AREA
m²



S

Structure

BUILDING
type



I

Intensity

ELECTRICITY +
FUEL
use



F

Fuel

EMISSION
FACTORS

CO₂
PM
NO_x

HCMC Scenario Results

2030 reductions potential under alternative scenario

– Transport

- 27% CO₂ emissions
- 44% PM emissions
- 54% NO_x emissions

• Indirect emissions reductions from grid electricity use

- 12% CO₂ emissions
- 16% PM emissions
- 11% NO_x emissions
- 13% CO emissions
- 10% SO_x emissions

	Baseline2010	BAU2030	Alternative2030
Total CO₂ (tons)	4,385,100	9,788,747	7,156,105
Total PM (tons)	11,645	10,989	6,148
Total NO_x (tons)	23,210	48,219	22,019

What investments are needed?

For **low emission urban development**, investments must be directed towards helping cities address the root cause of transport and land use problems rather than their symptoms

Encourage mixed land-use development to reduce motorized trips and trip lengths

Increase investments in public transport systems

Improve non-motorized transport infrastructure (e.g., biking paths, pedestrian sidewalks)

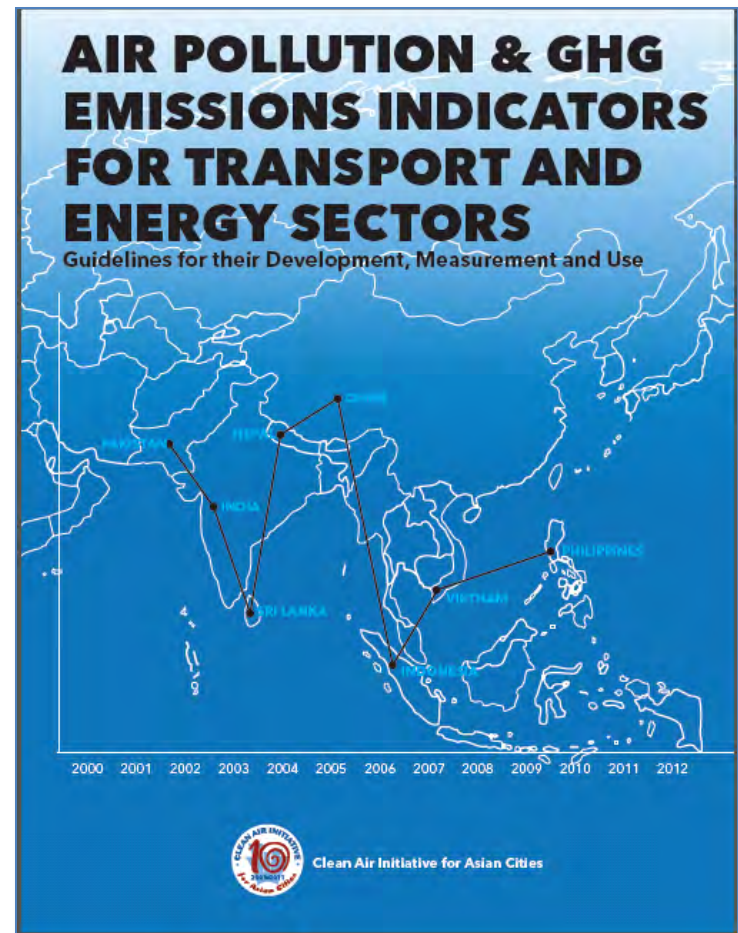
Invest and/or prioritize cleaner energy sources

Encourage energy-efficient buildings



Guidelines on Transport and Energy Data

- Introduction
- AP/GHG Indicators and input parameters selection
 - 24 transport indicators
 - 21 energy indicators
- Guidelines for Generation, interpretation and analysis of indicators
- Annexes
 - Indicator initiatives of international organizations
 - Default values for transport and energy input parameters



Summary



- **Air pollution is still a major problem** in cities in ASEAN region
- **Low emissions development** beyond low carbon
- **Integrating land use and transportation planning** is essential in achieving low emissions development
- **Open data and tools (calculation and guidelines)** are important to ensure sustainability of city efforts and scaling up through knowledge sharing



Better Air Quality Conference 2012



GROWING CITIES, HEALTHY CITIES



For more information



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CAI-Asia Country Networks

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CORNING

231 CAI-Asia Partnership Members

- 45 Cities
- 19 Environment ministries
- 13 Other Government agencies
- 17 Development agencies and foundations
- 66 NGOs
- 37 Academic and research institutes
- 32 Private sector companies

Donors in 2011

Asian Development Bank • ClimateWorks Foundation • Energy Foundation
• Fredskorpset Norway • Fu Tak lam Foundation • German International
Cooperation (GIZ) • Guangdong Government • Institute for Global
Environmental Strategies (IGES) • Institute for Transport Policy Studies •
Institute for Transportation and Development Policy • International Union for
Conservation of Nature • Korea Transport Institute • MAHA • Philippine
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Development (UNCRD) • United Nations Environment Program Partnership
for Clean Fuels and Vehicles (UNEP PCFV) • Veolia • World Bank