

**The Budgets of GHGs, Urban Air Pollutants and their Future  
Emission Scenarios in Selected Mega-Cities in Asia  
(APN 2001-18)**

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## **APN Funding**

Year 1 (2001/2002): US \$70,000

## **Participants from the following countries were funded**

China, India, Japan, Philippines, Republic of Korea

## **Introduction/Background**

Cities in Asia will become increasingly vulnerable to environmental degradation and ecological disasters, facing population growth, expansion of industrial activities and rapid urbanisation. Thus urban managers and policy makers in this region are in need of tools to evaluate the effectiveness of various measures in quantitative terms when formulating regional action plans for prevention of global warming.

In response to this practical need for developing policy evaluation tools, this project aims to study the dynamics of industrial transformation taking place in Asian cities and analyse its environmental implications with special regard to energy consumption and GHG emissions. It collects GHG budget data of seven mega-cities in Asia (Beijing, Calcutta, Delhi, Metro Manila, Shanghai, Seoul and Tokyo), and to present future scenarios of GHG emissions and the carbon cycle of cities up until 2020, identifying the drivers that will cause change. The study will focus on sectors and activities for which cities can manage to implement effective countermeasures by adopting locally operated policy instruments.

## **Outline of activities conducted**

### *A. East Asia Group*

#### *Activity 1:*

Field Survey and Data Collection in Beijing, 6-11 June 2001 (funded by IGES).

#### *Activity 2:*

Field Survey in Shanghai, 12-13 June 2001.

#### *Activity 3:*

1<sup>st</sup> Project Workshop in Shanghai, 14-15 June 2001.

#### *Activity 4:*

2<sup>nd</sup> Project Workshop in Seoul, 4-5 September 2001 (funded by IGES).

## *B. South & Southeast Asia Group*

### *Activity 1:*

Data relating to demographic profiles, socio-economic parameters, vehicle population, consumption of energy & agriculture products, generation of waste for the cities of Calcutta, Delhi and Metro Manila have been collected. This work has been presented at:

- I. IGBP Open Science Conference in Amsterdam, 10-13 July 2001,
- II. 2001 SASCOM meeting in Kathmandu, and
- III. START SSC meeting in Washington, 15-17 Oct 2001.

## *C. East Asia and South & Southeast Asia Group Joint Activities*

### *Activity 1:*

3<sup>rd</sup> Project Workshop on “Policy Integration for Energy Related Issues in Asian Mega-Cities” in Kita-Kyushu, 23-24 January 2002

### *Activity 2:*

Symposium on Sustainable Urban Development in Asia “Policy Integration & Industrial Transformation Towards Sustainable Urban Energy Use for Cities in Asia” in Kita-Kyushu, 25 January 2002 (funded by IGES)

## **Outcomes/Products**

1. Summary project report and workshop proceedings.
2. Database on urban indicators for Beijing, Calcutta, Delhi, Metro Manila, Shanghai, Seoul, and Tokyo.
3. Preliminary inventories of greenhouse gases and short-lived gases for Calcutta, Delhi and Metro Manila for direct emissions in different sectors.
4. Calculation of embodied emissions and future projection of emissions of various gases in Calcutta and Delhi.

## **Future directions/Follow-up work**

1. Inter-comparison of information among seven cities to identify the drivers of change.
2. Forecast future GHG emissions within the seven cities, based on the five sectoral case studies. (If project expansion is considered).
3. Integration of models developed from studies of five sectors.
4. Assessment of the effectiveness of different kinds of urban environmental policies and analyse several policy scenarios.
5. Expansion of the project to include other mega-cities, mid-sized cities and cities outside Asia is being considered.

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