

**The Budgets of GHGs, Urban Air Pollutants and their Future
Emission Scenarios in Selected Mega-Cities in Asia
(APN 2002-04)**

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APN funding

US\$ 50,000 (US\$36,000: East Asia (Imura) Group; US\$14,000: South and Southeast Asia (Mitra) Group)

Participating countries

Participants from the following countries were funded: India, Japan, P. R. China, Philippines, and Republic of Korea.

Introduction and background

This is the continuation of the APN funded project (APN 2001-18). The project was launched in April 2001, and was led by Prof. H. Imura and Dr. A. P. Mitra. The project focuses on the dynamics of industrial transformation taking place in Asian cities and analysis of the environmental implications, particularly with regard to energy consumption and GHG emissions. The study aims to collect GHG budget data of selected mega-cities in Asia, to present future scenarios for GHG emissions and carbon cycles of the cities to 2020, and to identify the drivers that cause such changes. The study focuses on sectors and activities of selected mega-cities to identify areas for potentially effective countermeasures through the adoption of locally operational policy instruments. Thus, the research will provide special consideration and detailed analysis of transportation, residential and commercial sectors, buildings, urban infrastructure, and lifestyles of residents. This study also aims to generate discussion on the role of cities in achieving sustainable and cleaner utilization of resources and energy.

Outline of activities conducted

A. East Asian Group:

- 4th Project Workshop (5-6 July 2002, Tsinghua University, Beijing, China);
- Data Collection and Processing (20-23 August 2002, Hanyang University, Seoul, Republic of Korea). (Solely self-funded by IGES);
- 5th Project Workshop (2-3 December 2002, Institute for Global Environmental Strategies, Hayama, Japan); and
- “International Workshop on Policy Integration towards Sustainable Urban Energy Use for Cities in Asia” (4-5 February 2003, East-West Center, Honolulu, USA).

B. South and Southeast Asian Group:

- Project Meeting at Calcutta University, Calcutta, 2 February 2002;
- Project Meeting at Jadavapu University, Calcutta, 3 January 2003;
- Data collection from Calcutta, Delhi and Manila to consolidate existing data;
- Data validation exercise undertaken by checking with the primary data references;

- Refinement of the inventory of GHG and other urban air pollutants and their future projections; and
- Socio-economic scenarios are being developed for Calcutta and Delhi.

C. East Asia - South and Southeast Asia Group Joint Activity:

- “International Workshop on Policy Integration towards Sustainable Urban Energy Use for Cities in Asia” (4-5 February 2003, East-West Center, Honolulu, USA).

Outcomes and products

- Summary of the project report and proceedings of the workshop;
- Updated data-base on urban indicators for Beijing, Shanghai, Seoul, and Tokyo;
- Newly developed model for estimating future energy consumption and GHG emissions in Beijing, Seoul and Tokyo; and
- Future projection of energy consumption and GHG emissions in Beijing, Seoul and Tokyo.

Future directions and follow-up work

- Fine-tuning of the projection data for basic variables and further elaboration of the future scenarios for each city;
- Improve the accuracy of the models and the future GHG emissions for each city with greater accuracy;
- Propose effective integration of the available policy options to mitigate energy consumption and GHG emissions in each city; and
- Expansion of the project to include other mega-cities, mid-sized cities and also cities outside the Asian region through collaboration with the Inter American Institute (IAI).