

Workshop of IGES/APN Mega-City Project

"Policy Integration for Energy Related Issues in Asian Mega-Cities"

January 23-24, 2002 / Rihga Royal Hotel Kokura, Kitakyushu, Japan

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Symposium on Sustainable Urban Development in Asia

"Policy Integration & Industrial Transformation towards Sustainable Urban Energy Use for Cities in Asia"

January 25, 2002 / Rihga Royal Hotel Kokura, Kitakyushu, Japan



Organized by Institute for Global Environmental Strategies (IGES)

Co-sponsored by APN, START, UNEP-IETC and AEON

Supported by IHDP, IGBP, ESCAP, UNU/IAS,

Kitakyushu City and Ministry of the Environment

Message from the Sponsors



The Institute for **Global Environmental Strategies** (IGES), a non-profit organization located in Japan, was established in 1997. The policy-oriented and practical research activities at IGES serve the purpose of realizing global-scale sustainable development of the environment, especially in the Asia-Pacific region, through the development of environmental strategies and drafting of innovative policy recommendations. Currently, research at IGES has entered the 2nd Phase with concentration on projects in a variety of areas, i.e. Climate Policy, Forest Conservation, Environmental Education, Long-Term Perspective and Policy Integration, Business and the Environment, and Urban Environmental Management.

During the institute's 2nd Phase, the IGES **Urban Environmental Management (UE)** project has been conducting strategic research on "Policy Integration for Energy Related Issues in Asian Mega-Cities".

Under this three-year project, a sub-project entitled "The Budgets of GHGs, Urban Air Pollutants and their Future Emission Scenarios in Selected Mega-Cities in Asia" was launched in collaboration with researchers in China, Korea, India and Japan in April 2001. This international research initiative is mainly funded by the **Asia-Pacific Network for Global Change Research (APN)**, with assistance from the **Global Change SysTern for Analysis, Research and Training (START)**. 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 select mega-cities in Asia, and to present future scenarios for GHG emissions and carbon cycles of the cities to 2020, as well as to identify the drivers that cause such changes. The study will focus on sectors and activities of select mega-cities to identify effective countermeasures through the adoption of local operational policy instruments. Thus it will provide special consideration and detailed analysis of transportation, residential and commercial sectors, buildings, urban infrastructure, and lifestyles of residents. Key areas are household energy consumption for heating/cooling, cooking, and electrical appliances, among others; vehicular transportation, including gasoline and diesel driven cars; and urban infrastructure that govern the flow of energy and materials in cities. The study intends to account for both direct and embodied emissions, which is a new concept and requires formulation of suitable methodology. This study also aims to generate discussion on the role of cities in achieving sustainable and cleaner utilization of resource and energy. The workshop held on 23 and 24 January is the interim report session of this APN-funded research project for FY 2001 and is intended as a forum where all participants can gather together, present the output of their research and exchange views face-to-face.

COP 7 held in Marrakesh in November 2001 witnessed major progress towards the implementation of the Kyoto Protocol, a driving force for industrial countries, including Japan, to begin practical actions. In considering that cities are a major field for practical action, the potential contribution of cities in the use of more efficient energy is significant.

There are a number of cities undergoing rapid development in developing countries in Asia, which has, in turn, caused serious air pollution. Based on this situation, it is necessary to set a framework from a long-term perspective to develop an Asian vision for sustainable cities in view of energy related issues.


Cities in Asia are in need of policy-evaluation tools and successful cases from other cities. They also suffer from a lack of financial resources and indicators necessary to put policy evaluation tools into operation. The cities willing to participate in the Kitakyushu Initiative, in particular, are a typical example of these Asian cities and therefore considered ideal partners for joint research.

Following the adoption of the "Kitakyushu Initiative for a Clean Environment" at the Ministerial Conference on Environment and Development in Asia and the Pacific (MCED) organized by the Economic and Social Commission for Asia and the Pacific (ESCAP) in September 2000, preliminary activities to establish the "Kitakyushu Initiative Network" have begun. The IGES UE Project has been supporting this activity as part of its strategic research and has concluded the First Meeting of the Kitakyushu Initiative Network held in November 2001. A number of interested bodies and individuals working in Asian cities willing to participate in the initiative attended the meeting and have been invited to participate in this Joint Workshop as well.

The objectives of this event are as follows:

1. To develop and to discuss methods to accomplish a long-term vision for sustainable cities in Asia with regard to energy consumption over several decades, in collaboration with researchers and organizations engaged in promoting sustainable and cleaner energy use in cities.
2. To introduce the research activities of the IGES UE project in the development of an analytical tool for the assessment and evaluation of urban energy related policies to the officials of the cities interested in the Kitakyushu Initiative, as well as establish a cooperative relationship with them as potential collaborators.
3. To discuss with experts how energy related models and analytical tools can contribute to actual urban policy and planning, in addition to identification of the issues to be resolved.

We look forward to the active participation of all involved and to the success of this event.



Hidefumi Imura
Professor, Nagoya University
Project Leader, Urban Environmental Management Project
Institute for Global Environmental Strategies

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January 23, 2002

- 09:00 – 09:15 am: **Opening**
Hidefumi Imura (Nagoya Univ./IGES)
- 09:15 – 10:30 am: **Session (1): North Asia Study Group Report**
Chair: Hidefumi Imura (Nagoya Univ./IGES)
- 09:15-09:40 (1) Energy and Environmental Issues for Transportation Sector of North Asia Mega-cities
Kebin He (Tsinghua Univ.)
- 09:40-10:05 (2) Energy Demand Model of Residential and Commercial Sectors for Cities: A Case Study of Tokyo
Toru Matsumoto (The Univ. of Kitakyushu)
- 10:05-10:30 (3) Municipal Solid Waste Management in Tokyo and Seoul
*Eui-Young Yoon (Hyupsung Univ.)
 and Sunghan Jo (Korea Energy Economics Institute)*
- 10:30 – 10:50 am: **Coffee Break**
- 10:50 – 11:40 am: **Session (1): North Asia Study Group Report (continued)**
- 10:50-11:15 (4) Socioeconomic Framework Model for Cities in Asia
Tae Yong Jung (IGES)
- 11:15-11:40 (5) Comparative Study on Indirect Energy Use of North Asia Mega-cities
Hirofumi Nakayama (Kyushu Univ.)
- 11:40 – 13:00 pm: **Lunch**
- 13:00 – 14:40 pm: **Session (2): South Asia Study Group Report**
Chair: A. P. Mitra (National Physical Lab.)
- 13:00-13:20 (1) Introduction Comments: Methodology for Producing Inventory of GHGs and Other Pollutants
A. P. Mitra (National Physical Lab.)
- 13:20-13:40 (2) Inventory of GHGs and Other Urban Pollutants from Transport Sector in Delhi and Calcutta
Chhemedra Sharma (National Physical Lab.)
- 13:40-14:00 (3) Inventory of GHGs and Other Urban Pollutants from Energy Sector in Delhi and Calcutta
*Agnibha Dasgupta (Institute of Radiophysics and Electronics)
 and Chhemedra Sharma (National Physical Lab.)*
- 14:00-14:20 (4) Inventory of GHGs and Other Urban Pollutants from Agriculture and Waste Sectors in Delhi and Calcutta
Chhemedra Sharma and A. P. Mitra (National Physical Lab.)
- 14:20-14:40 (5) GHG Emissions from Metro Manila
May Ajero (Manila Observatory)
- 14:40 – 15:00 pm: **Coffee Break**
- 15:00 – 16:20 pm: **Future Scenario**
Chair: Kebin He (Tsinghua Univ.)
- 15:00-15:20 (1) Urban Energy Use in Asian Mega-cities: Is Tokyo a Desirable Model?
Shobakal Dhakal and Shinji Kaneko (IGES)
- 15:20-15:40 (2) Scale of Economy in Urban Energy Use
So-Won Yoon and Kosuke Araki (IGES)
- 15:40-16:00 (3) Analysis of Future Energy Supply and Demand and CO₂ Emission in Beijing
Zhihong Wei (Tsinghua Univ.)
- 16:00-16:20 (4) Energy Policy and CO₂ Emission: Shanghai Case Study
Changhong Chen (Shanghai Academy of Environmental Science)

- 16:20 – 16:40 pm: **Coffee Break**
- 16:40 – 17:40 pm: **Future Scenario (continued)**
- 16:40-17:00 (5) Future Scenario of Emissions of GHGs and Other Urban Pollutants from Delhi
Chhemedra Sharma (National Physical Lab.)
- 17:00-17:20 (6) Future Scenario of Emissions of GHGs and Other Urban Pollutants from Calcutta
Agnibha Dasgupta (Institute of Radiophysics and Electronics)
- 17:20-17:40 (7) Future Scenario of Emissions of GHGs and Other Urban Pollutants from Metro Manila
May Ajero (Manila Observatory)
- 17:40 – 17:50 pm: **Closing Remarks**
- Hidefumi Imura (Nagoya Univ./IGES)**

January 24, 2002

- 09:30 – 10:30 am: **Presentation (1)**
- Chair: Tae Yong Jung (IGES)**
- 09:30-10:00 (1) Integrated Approach for Best Mix of Technologies of Reduction of Carbon Dioxide Emission - Tokyo Half Project (THP) -
Keisuke Hanaki (The Univ. of Tokyo)
- 10:00-10:30 (2) Compact City Research Project
Hideo Harasawa (NIES)
- 10:30 – 10:50 am: **Coffee Break**
- 10:50 – 12:20 pm: **Presentation (1) (continued)**
- 10:50-11:20 (3) Mitigating Environmental Emissions from the Transport System of Selected Asian Cities: Analyses of Technical Options
Ram M. Shrestha (AIT)
- 11:20-11:50 (4) Co-benefit Estimating Model
Go Hibino (Fuji Research Institute Corporation)
- 11:50-12:20 (5) Quantification in Local Government Emissions Strategies: An International Review of Methods, Results and Lessons Learned
Ralph Torrie (Torrie Smith Associates Inc.)
- 12:20 – 13:30 pm: **Lunch**
- 13:30 – 15:00 pm: **Presentation (2)**
- Chair: A.P. Mitra (National Physical Lab.)**
- 13:30-14:00 (1) Reinventing Cities for People and the Planet
Molly O'Meara Sheehan (Worldwatch Institute)
- 14:00-14:30 (2) Effects of Urbanization on Local Climates
Matthias Roth (National Univ. of Singapore)
- 14:30-15:00 (3) Counteractions for Urban Heat Island in Regional Autonomies in Japan
Toshiaki Ichinose (NIES)
- 15:00 – 15:20 pm: **Coffee Break**
- 15:20 – 17:10 pm: **Presentation (3)**
- Chair: Xuemei Bai (Yale Univ./IGES)**
- 15:20-15:50 (1) Climate Change and Water Resources in Asia Pacific Cities
Chris Cocklin (Monash Univ.) and Richard Berk (UCLA)
- 15:50-16:20 (2) The Millennium Ecosystem Assessment and Urban Ecosystem Research
Peter J. Marcotullio (UNU/IAS)
- 16:20-16:50 (3) Urbanisation and the Transition to Sustainability
Maarit Thiem (IHDP)
- 16:50-17:10 (4) An Introduction to the Asia Pacific Network for Global Change Research (APN)
Martin Rice (APN)
- 17:10 – 18:00 pm: **Discussion on Possible Future Study**
- Coordinator: Richard C. Rockwell**

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January 25, 2002

- 09:00 – 09:10 am: **Opening Address**
Akio Morishima (IGES)
- 09:10 – 09:50 am: **Inaugural Session**
- 09:10-09:15 (1) Ministry of the Environment of Japan
Yuji Kimura (MOE)
- 09:15-09:25 (2) IHDP
Jill Jaeger (IHDP)
- 09:25-09:35 (3) APN
Ryutaro Yatsu (APN)
- 09:35-09:45 (4) START
Richard C. Rockwell (Connecticut Univ.)
- 09:45-09:50 (5) SASCOM (New Initiative)
A. P. Mitra (National Physical Lab.)
- 09:50 – 10:50 am: **Activity Report Session (1): IGES/APN Mega-City Project and ESCAP Kitakyushu Initiative Network**
Chair: Richard C. Rockwell (Connecticut Univ.)
- 09:50-10:10 (1) Studies on Tokyo, Seoul, Beijing and Shanghai
Hidefumi Imura (Nagoya Univ./IGES)
- 10:10-10:30 (2) Studies on Delhi, Calcutta and Manila
A. P. Mitra (National Physical Lab.)
- 10:30-10:50 (3) Progress and Future Plans of the Promotion of the Kitakyushu Initiative
Masakazu Ichimura (ESCAP)
- 10:50 – 11:05 am: **Coffee Break**
- 11:05 – 11:35 am: **Discussion**
- 11:35 – 12:15 pm: **Activity Report Session (2): Local Practices and Needs**
Chair: Masakazu Ichimura (ESCAP)
- 11:35-11:55 (1) Chongqing City: Renovation of an Old Industrial City
Guo Yi Jun (Chongqing City, China)
- 11:55-12:15 (2) Guangzhou City: New Geography of Urban Energy Use in the Globalization
Lu Zeng Rong (Guangzhou City, China)
- 12:15 – 13:30 pm: **Lunch**
- 13:30 – 14:10 pm: **Activity Report Session (2): Local Practices and Needs (continued)**
- 13:30-13:50 (3) Ho Chi Minh City: Recent Experience of Urban Energy Consumption after "Doi-Moi" Policy
Do Tuong Tri (Ho Chi Minh City, Vietnam)

13:50-14:10

(4) Kitakyushu City: Towards an Eco-Town from a Smoke-stacked City

Hiroki Masashi (Kitakyushu City, Japan)

14:10 – 14:40 pm:

Discussion

14:40 – 15:40 pm:

Activity Report Session (3): Experiences of International Cooperation

Chair: Hidefumi Imura (Nagoya Univ./IGES)

14:40-15:00

(1) Experiences of the Cities for Climate Projection (CCP) Campaign

James Yienger (ICLEI)

15:00-15:20

(2) The IEA SHC Solar City Program: Technologies for the Future of Our Cities

Peter Droege (IEA SHC TASK 30)

15:20-15:40

(3) Environmental Management Systems for Cities: EMS Train-the-Trainers Kit

Steve Halls (UNEP-IETC)

15:40 – 16:00 pm:

Coffee Break

16:00 – 16:30 pm:

Discussion

16:30 – 17:45 pm:

Open Discussion: Policy Integration & Industrial Transformation towards Sustainable Urban Energy Use for Cities in Asia

Coordinator: Akio Morishima (IGES)

Panelists:

Jill Jaeger (IHDP)

Richard C. Rockwell (Connecticut Univ.)

Keisuke Hanaki (The Univ. of Tokyo)

Hideo Harasawa (NIES)

Peter J. Marcotullio (UNU/IAS)

Ram M. Shrestha (AIT)

Peter Droege (IEA SHC TASK 30)

17:45 – 18:00 pm:

Closing Remarks

Hidefumi Imura (Nagoya Univ./IGES)



Sponsors

- **IGES** (Institute for **G**lobal **E**nvironmental **S**trategies), Hayama, Japan
- **APN** (The **A**sia-**P**acific **N**etwork for Global Change Research), Kobe, Japan
- **START** (Global Change **S**ys**T**em for **A**nalysis, **R**esearch and **T**raining), Washington D. C., USA
- **UNEP-IETC** (United **N**ations **E**nvironmental **P**rogram/**I**nternational **E**nvironmental **T**echnology **C**enter), Osaka, Japan
- **ÆON** (ÆON Environment Foundation), Chiba, Japan

Supporting Organizations

- **IHDP** (International **H**uman **D**imension **P**rogramme), Bonn, Germany
- **IGBP** (International **G**eosphere-**B**iosphere **P**rogramme), Stockholm, Sweden
- **UN ESCAP** (United **N**ations **E**conomic and **S**ocial **C**ommission for **A**sia and the **P**acific), Bangkok, Thailand
- **UNU/IAS** (United **N**ations **U**niversity/**I**nstitute of **A**dvanced **S**tudies), Tokyo, Japan
 - **Kitakyushu City Government**, Japan
 - **Ministry of the Environment**, Japan

Conference Locale



Rihga Royal Hotel Kokura

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For Additional Information

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