

International Symposium on

Urban Energy and Carbon Management: Challenges for Science and Policy

February 4, 2008, AIT Centre, Asian Institute of Technology, Pathumthani, Thailand

And

International Workshop on

Urban Energy and Carbon Modeling

February 5-6, 2008, AIT Centre, Asian Institute of Technology, Pathumthani, Thailand

Organizers

Global Carbon Project (GCP), www.globalcarbonproject.org

Asian Institute of Technology (AIT), www.ait.ac.th

National Institute for Environmental Studies (NIES), www.nies.go.jp



National Institute for Environmental Studies

Background

Urban development pathways chosen by cities determine global carbon emissions to a large extent. In 2005, the United Nations estimated that nearly half of the 6.5 billion world population lived in urban areas, mostly in cities, a substantial rise from the 29% who lived in urban areas in 1950 (UN, 2006)¹. Fossil fuels supply 80.3% of global commercial energy (IEA, 2006). In OECD countries, cities consume between 70 and 80% of fossil fuels nationally (OECD, 1995). In non-OECD countries the share could be higher because commercial energy is predominantly used in cities. Moreover, an additional 1.8 billion people will move to urban areas by 2030 (UN 2006). More urban populations living in developing countries (one billion additional people alone in Asia by 2030) means more consumption of energy than before and more carbon dioxide emissions, spurred on by economic growth and industrialization. The process of urbanization and the rise in per capita energy use to a certain level is an irreversible phenomenon; therefore, cities will play an increasingly greater role in carbon dioxide emissions than ever before. This provides us with a greater opportunity to reduce energy use and develop low carbon societies primarily through energy optimization and distribution efficiencies in dense settlements.

However, despite the importance of cities, they have not been a unit of analysis for energy and carbon emissions in past decades. That has started to change in recent years as climate change issues are becoming politically important on the global stage and as decentralization of environmental governance

¹ In reality, the share of the urban population is a function of definition of urban area that differs from country to country.

in developing countries is taking place. Past research, both modeling and policy analyses, followed a strictly sectoral approach in cities, lacked spatial concerns, and mainly addressed only buildings and urban transport sectors. It clearly lacked an integrated approach and ignored a system-wide-integration in cities. If integrated approach is lacked, many important components of urban systems will left behind which lead to non-optimal solution for cities.

In recent years, cities have gained prominence in climate change debates and a number of new initiatives from both research² and policy dimensions³ have been initiated. Given these divergent initiatives, there is a need to coordinate the global research community on urban energy and carbon modeling (in close consultation with urban adaptation to climate change) and develop a communication platform to discuss a multitude of issues associated with science, modeling and policy analyses in this area. To this end, the Urban and Regional Carbon Management (URCM) initiative of the Global Carbon Project (GCP) and the Energy Field of Study of the Asian Institute of Technology (AIT) have made a joint effort to contribute to these areas. This is especially important since the urban carbon agenda has started to enter into planning considerations in many cities in developed countries. In addition, many big-cities in developing countries are increasingly trying to understand the impacts of alternate urban development pathways.

Structure of the event

The proposed event would be divided into a symposium and a workshop. The **symposium** would focus on the policy issues and the science-policy interface between knowledge and actions in urban carbon management. The **Workshop** would be technical in nature and designed primarily for researchers to address urban energy and carbon modeling.

The goals of the **Symposium** are:

- To highlight the importance of urban energy and carbon in solving global carbon problems
- To present and discuss a state-of-art knowledge from the scientific perspective
- To share policy development trends in mega-cities in relation to energy and carbon management and critical research areas for which urban decision-makers are seeking guidance from science⁴
- To assess the scale of disconnect between science and the needs for decisions makers in urban energy and carbon management area and to explore how to bridge such disconnects.

The goals of the **Workshop** are:

- To develop an international urban energy and carbon modeling forum to create and share knowledge and expertise on modeling approaches, models, modelers, and their results
- To encourage the development of a comprehensive urban model that can assess alternate urban development pathways and urban practices in an integrated manner with urban energy and carbon as key (but not exclusive) components
- To encourage and conduct cross-city comparative case studies on urban carbon management
- To encourage to create and share urban scale data following a common template to increase compatibility and accessibility

² Some of the recent examples of science initiatives are: Tyndall Centre's Integrated Assessment Model and Framework for Cities, Urban Energy Transition Initiatives at Imperial Collage London, IIASA's Urbanization and Urban Portfolio of research, Tokyo Half Project of the University of Tokyo, Urban and Regional Carbon Management of the Global Carbon Project, and a number of other research programs in the US and Europe.

³ Some recent examples are: Renewed focus of various global, regional and national intercity- networks, climate campaigns of the International Council of Local Environmental Initiatives (ICLEI), and the Clinton Foundations' City Initiatives.

⁴ The symposium and workshop will be focusing on mega-cities.

This event is built upon the outcomes and achievements of the following past activities:

- International Conference on Carbon Management at Urban and Regional Levels: Connecting Development Decisions with Global Issues, 4-8 September 2006, Mexico City, Mexico (<http://www.gcp-urcm.org/A20060904/HomePage>).
- International Workshop on Urbanization, Development Pathways, and Carbon Implications, 28-30 March, 2007, Tsukuba, Japan (<http://www.gcp-urcm.org/Activities/A20070328>).
- Third Annual Workshop of the Asia Energy Environment Modeling Forum (AEEMF) on How to Model Low Carbon Economy in Asia, 30-31 May, 2007, Beijing, China (<http://www.gcp-urcm.org/Activities/A20070530>).
- Carbon Management in Cities: Gaps in Policy Discussions and Scientific Understanding, Official side-event at UNFCCC COP-13, December 6, 2007, Grand Hyatt Hotel, Bali.

About the Organizers

Global Carbon Project: The Global Carbon Project (GCP) was established in 2001 in recognition of the enormous scientific challenge and fundamentally critical nature of the carbon cycle for Earth sustainability under the auspice of Earth System Science Partnership (ESSP- www.essp.org) of four major international scientific programs on global environmental change research. The scientific goal of the project is to develop a complete picture of the global carbon cycle, including both its biophysical and human dimensions together with the interactions and feedbacks between them. The Global Carbon Project launched the Urban and Regional Carbon Management (URCM) Initiative in 2005 recognizing the importance of the area. URCM is a place based and policy-relevant scientific initiative aimed to support carbon management and sustainable urban development. For details of science agenda and the activities, please see www.globalcarbonproject.org and www.gcp-urcm.org.

Asian Institute of Technology: The Asian Institute of Technology (AIT) promotes technological change and sustainable development in the Asian-Pacific region through higher education, research and outreach. Established in Bangkok in 1959, AIT has become a leading regional postgraduate institution and is actively working with public and private sector partners throughout the region and with some of the top universities in the world. The Energy Field of Study at AIT has been very active in energy and climate change issues since last several decades and is a center of excellence in the region. For details, please see www.ait.ac.th and <http://www.serd.ait.ac.th/ep/ep.html>

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