

## Research on Socio-Technology System Planning for Biomass Utilization

(FY2008-2010)

Principal Investigator : **Yuji NAKA**, Tokyo Institute of Technology

<Hc-085>

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The process for promoting biomass utilization is a wicked policy problem that need to rely on a collaborative strategies between various disciplines i.e., social, cultural and technological, etc. In this research, we are trying to build a Technological Information Infrastructure (TII) that will help in the socio-technology system development. This new socio-technology system will be used in building plans for various biomass utilization processes and provide different products based on the TII. The socio-technology system will enable policy makers

to make robust decisions through investigating the different life cycles of various biomass utilization processes from resource collection to final disposal from various stakeholders' view-points such as the environmental and economical impacts of Aomori Prefecture. Therefore, a large number of conversion processes and transportation UPs (Unit processes) are included in the socio-technology system to cover possible utilization configurations for a single or multiple inputs.

## Study on the Strategic Urban Planning and Assessment of Low-Carbon Cities

(FY2008-2010)

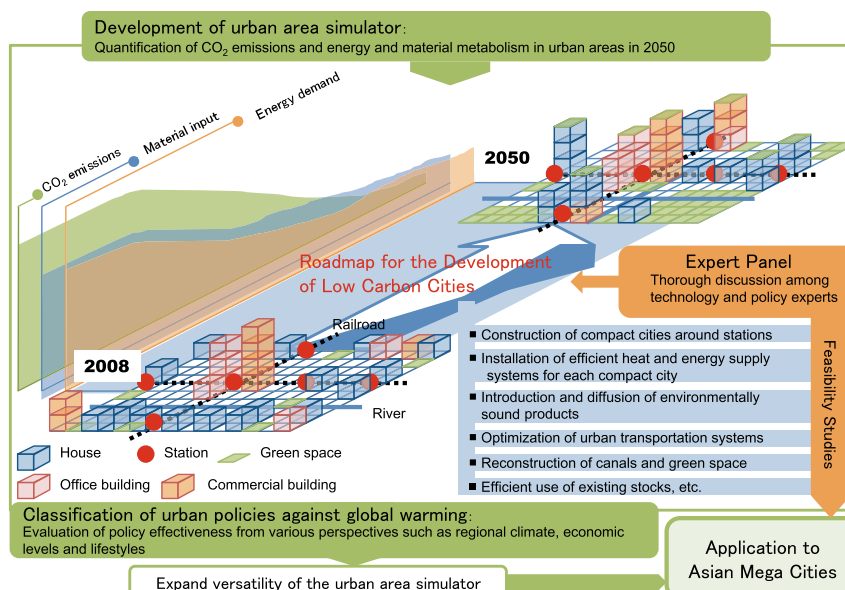
Principal Investigator : **Hidefumi IMURA**, Nagoya University

<Hc-086>

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There is an enormous and urgent challenge to deal with the climate change crisis. The key to tackling this challenge is in Asian cities, which has been recently experiencing rapid urbanization. Taking into account the substantial period of time and costs to restructure a once-built city of low efficiency and

importance of assessing overall efficiency of the whole urban systems, this study aims to develop methods to analyze impacts of policies and measures for a low carbon city and applies them to actual cities in Japan and Asia.



## Assessment and Verification of CO<sub>2</sub> Emissions Reduction by Introducing Environmental Policies into Infrastructure Development

(FY2008-2010)

Principal Investigator : **Takafumi NOGUCHI**, The University of Tokyo

<Hc-087>

The University of Tokyo, Tokyo University of Science, Kagawa University, Hiroshima University, The National Institute for Land and Infrastructure Management

The CO<sub>2</sub> emission from construction industry, which has regional characteristics, is estimated over 10% of the domestic total. Political strategies considering those characteristics are required to reduce CO<sub>2</sub> emission in construction industry. This research project is aiming at developing a system which can

accurately simulate activities of construction industry and estimate environmental impact. The efficiency of political strategies is evaluated using the simulation system, and the optimum strategies for each region will be finally proposed.

## Research on Simulation towards the Low Carbon Model City

(FY2008-2010)

Principal Investigator : **Ben NAKAMURA**, Architectural Institute of Japan

<Hc-088>

Architectural Institute of Japan, The University of Tokyo, Nihon University, Tokyo Institute of Technology

This research project aims at realizing appropriate urban environments for an era of reduced CO<sub>2</sub> emissions and shrinking population by creating distinctive and concrete spatial images and a road map for the year 2050. Five characteristic cities are selected as the Low Carbon Model City. Two of five representative municipalities were selected for simulation as Model Cities for a low carbon society.

Detailed studies of CO<sub>2</sub> emissions and potential reduction methods are conducted with citizen participation. A collation of the respective results is expected to make available green technologies that can be adapted by other municipalities, and to set new trends in societal goals and urban development policies in Japan.

## A Study on Climate Change Policy Options Scenarios in China and International Comparison

(FY2008-2010)

Principal Investigator : **Yutaka TONOOKA**, Saitama University

<Hc-089>

Saitama University, The University of Kitakyushu, Tohoku University

In this study, we analyze climate change options and policies in China from a wide interdisciplinary viewpoint based on the detailed data analysis on energy matrix by province and emission models of greenhouse gases, precursors and several air pollutants including Black Carbons. Examination of emissions scenarios toward the world in 2030 is based on such information as regional population,

socioeconomic state, technologies, social capitals, transportation and logistics, international relations, human dimensions in urban and rural areas. Regional relations between coastal and inland areas, and urban and rural areas are also analyzed in this study. Climate change policies are evaluated with co-benefit elements, including air pollution control, productivity of resources and so on.

## Study on Major Countries' Decision Making Concerning International Negotiation on Future Institution on Climate Change beyond 2012

(FY2009-2011)

Principal Investigator : **Yasuko KAMEYAMA**, National Institute for Environmental Studies (NIES) <H-091>

NIES, Ryukoku University, The University of Tokyo, Sophia University, University of Hyogo, Tokyo Institute of Technology, Institute for Global Environmental Strategies, Seinan Gakuin University, Hokkaido University, Waseda University

A new round of negotiation has started since 2008 to achieve an agreement on international institution for beyond 2012, which is to be agreed by COP15 in December 2009. The objective of this study is to analyze domestic decision making concerning climate change negotiation in the U.S., the EU, emerging economies such as China and India, and Russia, and to see how various domestic policies and politics affect countries' positions on climate change at international negotiation.

## Ecosystem Services Assessment of *Satoyama*, *Satochi*, and *Satoumi* to Identify New Commons for Nature-Harmonious Society

(FY2009-2011)

Principal Investigator : **Masataka WATANABE**, United Nations University (UNU) <H-092>

UNU, National Institute for Environmental Studies, Yokohama National University, The University of Tokyo, Research Institute for Humanity and Nature

The study aims to assess the drivers of changes in the ecosystem services from *satoyama*, *satochi*, *satoumi* in Japan, and their impacts on human well-being by applying the MA framework and to demonstrate how much degree of human interventions should optimize ecosystem services without losing biodiversity. It will develop national scenarios by qualitatively typifying local societies and using key quantitative data to define a role of *satoyama*, *satochi*, and *satoumi* as a new common so as to propose policy options towards the ideal society. The results are expected to contribute to building sustainable society in Japan and beyond by integrating low-carbon, recycling, and nature-harmonious societies.