

Developing Integrated Methods for the Evaluation of Forest Ecosystem Services in order to Contribute to "Satoyama Initiatives"

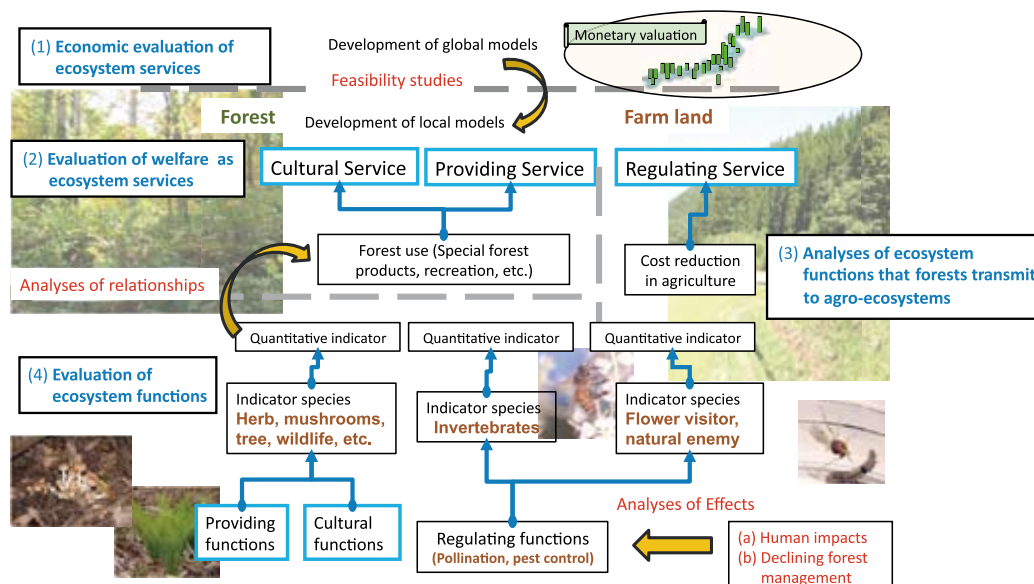
(FY2008-2010)

Principal Investigator : **Ken SUGIMURA**, Forestry and Forest Products Research Institute (FFPRI) <H-081>

FFPRI, University of Tsukuba, Kobe University

Various ecosystem services, such as provision of food and other resources, pest control, pollination, scenic beauty, have been rapidly degraded along with the decline of biodiversity. We study methodologies to evaluate forest landscapes quantitatively in terms of potential and present status of these services, and anthropogenic effects on these services.

Then, we develop integrated evaluation methods in terms of economic scale and attempt to find appropriate management options for the sustainable effective utilization of these services. We have revealed a great variety in the quality and quantity of these services among different regions, forest types and human effects.



Biofuel Use Strategies for Sustainable Development

(FY2008-2010)

Principal Investigator : **Kazuhiko TAKEUCHI**, The University of Tokyo

<Hc-082>

The University of Tokyo, Osaka University, National Agricultural Research Center, United Nations University, Institute for Global Environmental Strategies

Although increased use of biofuels is expected to have advantageous effects such as CO₂ emissions reduction, it becomes the target of criticism because it has some adverse impacts on environment as well as food supply. Therefore comprehensive analyses and assessments are required to achieve sustainable societies by means of appropriate use of biofuels. The principal goal of the research is to analyze problems and propose national, regional, and global

strategies including policy options for biofuel use, with the focus on the Asia-Pacific region, through the approach of Sustainability Science. The preliminary research results shows that current US biofuels policy has negative effects such as soaring price of grain. This interdisciplinary research is expected to contribute to international forums in considering sound use of biofuels.

Scenarios and Policies Proposal for Energy Saving in Residential/Non-Residential Buildings toward Creating a Low-Carbon Society (FY2008-2010)

Principal Investigator : **Shuzo MURAKAMI**, Building Research Institute

<Hc-083>

Building Research Institute, Tokyo University of Science, Osaka University, Tohoku University, Keio University

There have been many studies for reducing energy consumption of residential and commercial buildings. However, the trend of energy consumption is still increasing. The objective of this study is to find the ways for drastic reduction of energy consumption in residential and non-residential buildings from a middle-to long-term perspective. As a research tool, the forecasting model for energy con-

sumption in the overall Japanese residential and non-residential buildings is developed. The datasets for the model are also organized based on the updated information. In addition, the investigations about energy consumption in Japanese various places are carried out to predict the future energy consumption with high accuracy.

Eco Design of Low Carbon Society Based on Regional Partnership between Urban and Rural Areas (FY2008-2010)

Principal Investigator : **Yasushi UMEDA**, Osaka University

<Hc-084>

Osaka University, Hokkaido University, Ritsumeikan University

This study will indicate paths toward regional low carbonization by conceptualizing "systematic partnership between urban and rural areas" that creates regional circulation of energy and resources (e.g., biomass). By investigating and planning various pilot models in Japan and China, this study is developing three models; namely, technological innovation and development of low carbon agriculture in rural areas (industrial conjunction model), design of circulation of energy and resources through urban

rural coalition (special conjunction model), and political proposal for deploying technology and knowledge in Japan to low carbon pilot projects in China (international co-benefit model). These models and proposal of multi-beneficial scenarios, which realize low carbonization, pollution prevention, and industrial development in China under the cooperation of Japan, will contribute to the environmental policies of Japan toward construction of the low carbon society.