

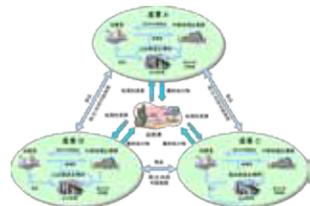
Eco-Friendly City Laboratory

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Laboratory URL	http://www.pm.ace.tut.ac.jp
Key words	Eco-friendly city, low carbon society, environmental economics, spatial (urban and regional) economics

This laboratory is mainly studying three topics. The first is economic evaluation of eco-friendly city. In this study, computable general equilibrium models are applied. This research targets Toyohashi city and Aichi prefecture. The second topic is realization of a low carbon society in Aichi prefecture. Empirical and theoretical researches are on going based on the optimal economic growth theory and computable general equilibrium models. The final one is the study of urban and regional economics particularly emphasizing the new economic geography. This research is also applied to economic evaluation of a great earthquake in Aichi prefecture. Other subjects related to the regional environment and economy are actively being studied by staffs of our laboratory.

Theme 1 ► Economic evaluation of eco-friendly cities

Eco-friendly cities seek to minimize the burden placed on the environment and maximize amenities. In our laboratory, research into eco-friendly cities and regions centered in the recycling of waste is already underway for Hokkaido, Aichi Prefecture and Obihiro City. New possible formats for cities are also being researched due to the spread of electric vehicles. We use a computable general equilibrium model. This model is already widely used in the discipline of civil engineering plans, and is easy for architects and civil engineers to use. We also have a full range of computer programs and a variety of data sets on hand.

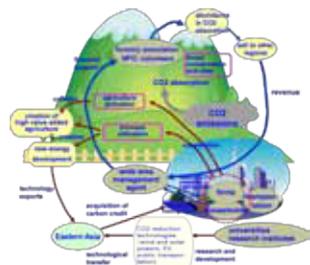


A Model of Eco-friendly Society

Theme 2 ► Realization of a low-carbon society

The realization of a low-carbon society is the principle environmental issue that we face today. Our laboratory has been running carbon tax and emission trading simulations for more than 10 years. We have also measured what kind of effects these will have on the national economy. Our results have been published in the Infrastructure Planning Review (1999). The method we use is a dynamic computable general equilibrium model.

This adds a time axis to the method from Theme 1 and uses it to predict the future. We are intending to expand the range of this research going forward, including across Aichi Prefecture, the San-en Nanshin region and Toyohashi City and so on.



Creation of Eco-friendly Society Using the Carbon Cycle

Theme 3 ► Spatial economic modeling with reference to the environment

“Spatial economics” may be an unfamiliar term; it refers to economics that include the concepts of distance as with a city or region. Once the concept of distance is involved, it becomes much harder to reach a conclusion. However, only with its inclusion can actual cities and regions be researched. We are currently constructing spatial economic models that relate to Aichi Prefecture, the western part of Shizuoka Prefecture and the southern part of Nagano Prefecture. This research considers not only economics but also individuals and site locations of companies. In terms of environmental load we consider a wide range of elements, including CO₂, NO_x, SO_x, airborne dust, total nitrogen and total phosphorus, seeking to create a comprehensive environment evaluation model. This research was selected for the Grants-in-Aid for Scientific Research program (A).



Intercity Benefit Incidence of San-En-Nanshin Expressway