

Abstract of Doctoral Thesis

A Study on Realizing Efficient Consensus in MACHIDUKURI [Urban Planning] - Theory and Practice -

Doctoral Program in Integrated Science and Engineering
Graduate School of Science and Engineering
Ritsumeikan University

よしむら まさお

Name YOSHIMURA Masao

This paper investigates methods to realize efficient consensus in MACHIDUKURI.

First, the focus is on Japan's declining population and changes in the government's fiscal condition, as well as the need for MACHIDUKURI schemes that leverage management resources owned by private sector, and whether doing so would present issues in resolving conflicts of interest.

Next, issues in MACHIDUKURI based on the "broken windows theory" and the social changes that are expected to take place in Japan are identified. Using game theory, a framework is set for resolving these issues, and a game that considers disasters, the environment, and large-scale urban development is formulated.

Then, with a focus on areas that were affected by the 3.11-Earthquake, a geographic-information-system is used to investigate the relationship between topography, geographical names, the spatial composition of shrines and temples, and patterns of damage from the tsunami in order to understand MACHIDUKURI that aims to prevent damage from tsunamis caused by earthquakes.

After that, the focus is on mobility management as a MACHIDUKURI method that seeks to improve the environment of local communities. Taking the social experiment conducted in Kashiwa city as an example, this project shows that the participants in that experiment changed their behaviors and took eco-friendly actions depending on how the information was presented.

Next, the characteristics of Public-Private-Partnerships for MACHIDUKURI are examined through a case study in order to identify the requirements for efficient consensus in MACHIDUKURI involving many participants with overlapping conflicts of interest.

Finally, based on the knowledge gained from the social experiment and the case study reviewed earlier, a management system to promote the efficient execution of MACHIDUKURI involving many participants, as well as a supporting information system, is proposed.