

# Climate Change Simulation and Regional Adaptation Policy

## Project Leader

Seigo NASU, Dr. Eng.

Professor, Economics and Management

Graduate School, Entrepreneur Engineering Management Course

Director, Research Center for Social Management Systems

## 1. Objective

### This project is aimed at:

Climate change is a global phenomenon which can be analyzed and predicted with the evolved Climate Change Model; however, adaptation is a local issue which is influenced by factors including regional geography, social and economic structure. Our research group has already developed an integrated climate change prediction model by integrating methodologies including metrology, hydrology and Input-Output Table. Our next achievement is going to be an integrated and practical system for adaptation policy making for local governments. Though we have already developed a prototype system, we have yet to apply the system to various local government works to improve the system practically. We have also developed a new type of regression analysis to evaluate the impact of provided information and discussion on structural change in citizen perception. Another expected achievement is the improvement of this system by deploying it for their regional public management in developing countries.

## 2. Project Outline

### To that end, the project will consist of the following phases:

This project will create management adaptation systems for local governments in Japan and for developing countries. We will carry out on-site experimentation for policy agreement and computational systems for simulation of climate change, and develop regression analysis for these activities to gain an understanding of public perceptions.

(a) Restructure the integrated simulation system for practical use in Japan and in developing countries.

Apply an integrated climate change prediction model for local governments in Japan, and restructure the system for developing countries. Then, compare the results across countries to investigate the applicability and the influence of cultural and natural circumstances.

(b) Successful river basin management system

Based on the evaluation of our integrated climate change prediction model, we will start discussion with local governments and regional citizens in Japan and in developing countries for adaptation policy agreement, which is mostly related to water resource issues. We will investigate practical and successful procedure of adaptation policy agreement at Japan and at developing countries.

(c) Evolving the regression analysis to evaluate structural change in citizen perception

Regression analysis to investigate structural change in citizen perception is a new field which helps us to understand the influence of information and discussion on citizens. With this understanding, we will be able to design appropriate agreement procedures and appropriate information for distribution to citizens.

We will investigate the performance of the methodology and application to real issues.

### **3. Expected Performance**

**In this project, the successful candidate would be expected to:**

- (a) Be able to understand and integrate knowledge from various fields from engineering to economics, psychology.
- (b) Create inter-disciplinary and trans-disciplinary simulation models and do the required programming.
- (c) Have enthusiasm to learn Japanese, and English conversation

### **4. Required Skills and Knowledge**

**The successful candidate for this project will have the following knowledge and skills:**

- (a) Basic knowledge of civil engineering, especially hydrology and water resource management.
- (b) Computational programming knowledge and skill.
- (c) Basic psychological knowledge.
- (d) Experience in water resource management research.

### **References**

Development of Decision Making System for Water Resource Policy under Climate Change in Shikoku Area. ("Research Program on Climate Change Adaptation (RECCA)," Ministry of Education, Culture, Sports, Science and Technology)

[http://www.mext-isacc.jp/eng/staticpages/index.php/report\\_nasu\\_e](http://www.mext-isacc.jp/eng/staticpages/index.php/report_nasu_e)

Published Papers [Principal Researcher: Seigo Nasu]

[http://www.mext-isacc.jp/eng/staticpages/index.php/papers\\_nasu\\_e](http://www.mext-isacc.jp/eng/staticpages/index.php/papers_nasu_e)

**See our admission guidelines:**

<https://www.kochi-tech.ac.jp/english/admission/ssp/guideline.html>

### **Contact**

E-mail: [nasu.seigo@kochi-tech.ac.jp](mailto:nasu.seigo@kochi-tech.ac.jp)