

Adaptation strategies in consideration of social changes

Kiyoshi Takahashi, Shuichi Ashina, Minoru Fujii, Tomonori Ishigaki, Toshihiko Masui, Keisuke Matsuhashi, Takuya Togawa, Takahiro Kubo, Yasuaki Hijioka

National Institute for Environmental Studies (NIES), Tsukuba, Japan

Introduction

In Japan, the Climate Change Adaptation Act was adopted in June 2018 and enacted in December of the same year. For supporting climate adaptation policies under the act, in August 2018, National Institute for Environment Studies Japan launched a new flagship research program consisting of three research projects for monitoring, projecting, and discussing measures against climate impacts, respectively. Among them, the third project (hereafter called Adapt-PJ3) is named "Research project on adaptation strategies in consideration of social changes" and consists of varieties of studies related with adaptation decision making. Here, in the presentation, highlights of the project outputs are introduced.

Objectives

While impacts of anthropogenic climate change on physical and ecological systems are well studied from viewpoints of natural science, our understanding of impacts on human and socio-economic systems is relatively limited. Furthermore, for interlinking scientific knowledge of anticipated climate impacts and implementation of adaptations to them, studies on adaptation strategies need enhanced. The Adapt-PJ3 targets improvements of scientific understanding in the field from multiple dimensions.

Method

The Adapt-PJ3 consists of wide range of studies related with adaptation strategy analyses including: investigation of inhibitory factors against the perception of climate change risks and the implementation of adaptation measures; development of SSP-based national socio-economic scenarios to be used in impact and adaptation studies in Japan; development of a framework to assess climate change impacts and adaptation measures based on Quality of Life indices; analyses of cross-border effects of the climate impacts occurring outside Japan on Japanese economy and industries using a trade analyses model.

Findings

For the development of SSP-based national socio-economic scenarios, both narrative storylines of development pathways and quantitative demographic and land-use scenarios have been developed in accordance with each of the five global SSPs. User needs for further extension of the scenarios have been also investigated. For the analyses of cross-border effects of overseas impacts, we have conducted interviews of international companies headquartered in Japan and found their perception of climate risks has a bias toward heavy rain and flood.

Significance of the work for policy and practice

Under the Climate Change Adaptation Act, Japanese government is going to conduct comprehensive assessments of climate risks on major sectors periodically (every half-decade) and the national



adaptation plan will be updated based on the risk assessments that will also affect local adaptation plans. Through the contribution to the periodical climate risks assessments, we hope to contribute

to formulating effective adaptation strategies and promote the development of adaptation plans and the formulation of adaptation measures by local governments.