

# Overview of the sessions 8 and 9 with introduction to activities of the NIES AIM/Impact team in FY2017

Kiyoshi Takahashi

# Member list [FY2017]



**Dr. Yasuaki Hijioka**, Integrated impact assessment



**Dr. Naota Hanasaki**, Global impact assessment (Water resource)



**Dr. Masashi Okada**, Global/regional impact assessment (Agriculture)



**Dr. Kiyoshi Takahashi**, Global integrated impact assessment



**Dr. Julien Eric Stanislas Boulange**, Global impact assessment (Hydrology)



**Dr. Ronald Estoque**, Global-scale impact assessment (Agriculture)



**Dr. Satbyul Estella Kim**, National-scale impact assessment (Human health)



**Dr. Hiroshi Sao**, Global impact assessment (Economics)



**Dr. Xuanming Su**, Global IAM for adaptation analyses (Economics)



**Dr. Junya Takakura**, Global-scale impact assessment (Health, Economics)



**Dr. Kumiko Takata**, Regional impact assessment (Hydrology)



**Dr. Qian Zhou**, Global impact assessment (Economics)

• Collaborators:

- Ex-members: Dr. Yuji Masutomi, Dr. Huicheul Jung, Dr. Yonghee Shin, Dr. Takahiro Yamamoto, Dr. Yoshimitsu Masaki, Dr. Akemi Tanaka, Ms. Keiko Takahashi
- In NIES: Dr. Tomoko Hasegawa, Dr. Shinichiro Fujimori and others

# On-going and recently completed research projects

- **NIES Low-Carbon Research Program**
  - Climate change and global risk assessment  
[Takahashi, Hijioka, Hanasaki, Su, Sao; 2016.4-2021.3]
- **ERTDF-S10 (a.k.a. ICA-RUS) (funded by the MoE, Japan)**
  - Development of global climate risk management Strategies  
[Takahashi, Hanasaki, Hijioka, Masaki, Su, Tanaka; 2012.4-2017.3]
- **ERTDF-S14 (a.k.a. MiLAI) (funded by the MoE, Japan)**
  - Global mitigation and local adaptation to climate change  
[Hijioka, Hanasaki, Fujimori, Takahashi, Zhou, Takakura; 2015.6-2020.3]
- **NIES Integrated Research Program**
  - Integrated analyses of Environment-Economy-Society  
[Takahashi, Hijioka, Hanasaki, Su, Sao; 2016.4-2021.3]
- **ERTDF 2-1702 (funded by the MoE, Japan)**
  - Integrated analyses of climate policies for simultaneous realization of the Paris Agreement and the SDGs  
[Takahashi, Masui, Fujimori, Hasegawa, and others; 2016.4-2021.3]
- **SICAT (funded by MEXT, Japan)**
  - Social implementation of climate change adaptation technology in Japan  
[Hijioka, Takahashi; 2015.11-2020.3]
- **MoE project for supporting the development of state-level adaptation plans in Indonesia and in VietNam**
  - [Takahashi; 2015.9-]
- **A-PLAT & AP-PLAT (funded by MoE, Japan)**
  - Information platform for supporting and promoting adaptation planning and implementation in Japan and other Asian countries  
[Hijioka, Takahashi, Okada; 2016.8- ]

# ERTDF-S10 ICA-RUS (FY2012-16)

## Integrated Climate Assessment – Risks, Uncertainties and Society

### Objectives

- Proposing strategies for global climate risk management

### Features

- Analyses of different long-term climate targets (1.5°C · 2.0°C · 2.5°C)
- Consideration of risk trade off effects

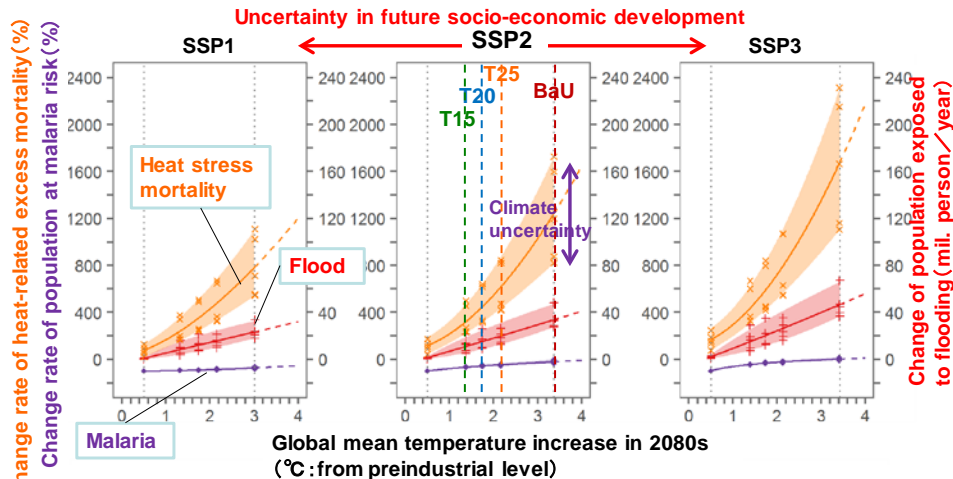
- Climate risks: While there is significant difference between BaU (+4°C) and the three 'strategies' (1.5, 2.0, 2.5°C), the difference among the three 'strategies' is smaller than the range of climate model uncertainty.

Steady progress toward one of the three targets and dealing with climate uncertainties are more important than the choice of a target from the three options.

- Mitigation: There is a significant difference in the mitigation cost among the three 'strategies'.

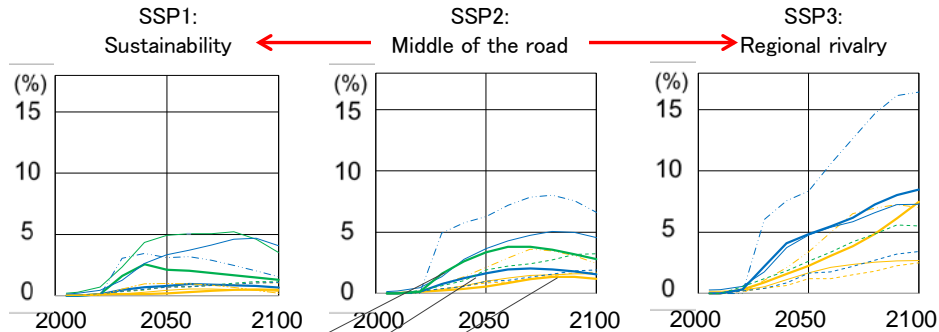
- Socio-economic development pathways also matter.
- Acceptability of high dependency on measures like BECCS and nuclear power needs careful discussion.

### Climate risks estimated by 'strategy' and SSP Heat stress mortality, Malaria risk, Flood exposed population



- For all the three indices, risk population increases as GMT increases.
- Clear difference between BaU and the three 'strategies' (1.5°C · 2.0°C · 2.5°C)
- Difference among the 'strategies' is smaller than the climate uncertainty.

### GDP loss for mitigation by SSP, 'strategy', and IAM (%)



- GDP loss will differ clearly among the three 'strategies' (1.5°C · 2°C · 2.5°C). For 1.5°C goal, there were even models with no solution.

- Strong dependency on socio-economic development assumption, with a larger economic loss for SSP3 (regional rivalry).

IAM for mitigation analyses

— AIM/CGE — 1.5°Cgoal

— EMEDA — 2°Cgoal

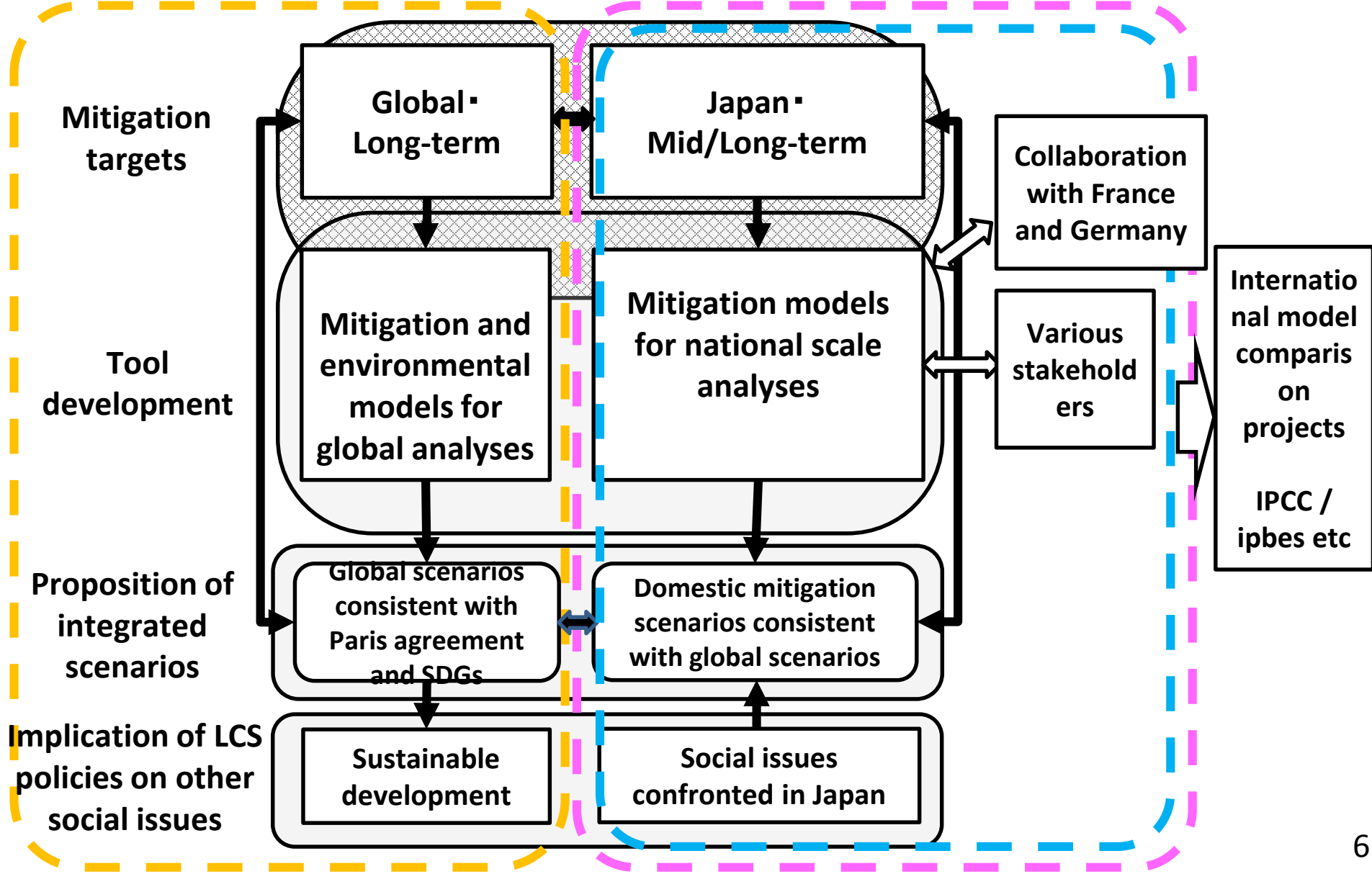
— GRAPE — 2.5°Cgoal

— MARIA

# ERTDF 2-1702 Framework of “Integrated Analyses of Climate Policies for Simultaneous Realization of the Paris Agreement and the SDGs”

Theme1: Global climate policy analyses

Theme2-3: Japanese mitigation policy analyses



# Presentations in Sessions 8 and 9

## Session 8

Global  
impacts

- On the sustainability and effects of irrigation for massive production of bioenergy crops [Dr. Hanasaki]
- (Mitigation, landuse and SDGs: From the viewpoints of hunger risk and biodiversity conservation [Dr. Hasegawa])
- Introduction to outputs from S-14-5 [Dr. Zhou]
- Economic analyses of climate impacts on labor productivity and adaptation against the impact [Dr. Takakura]

– [lunch break]

## Session 9

Adaptation

- Introduction to adaptation policy in Japan - A-PLAT and AP-PLAT – [Dr. Hijioka]
- Impact and adaptation assessment on rice production in Indonesia [Prof. Masutomi]
- Analyses of adaptation measures in agricultural sector [Dr. Okada]

Impacts  
in Korea

- Modeling the integrated impact of climate change on the spatial planning for the ecosystem conservation [Mr. Mo and Prof. Lee]
- Introduction to the recent vulnerability assessments in Korea: local governments and public organizations [Dr. Jung]