



Climate change impact and adaptation assessment on food consumption utilizing a new scenario framework

Tomoko Hasegawa^{1*}, Shinichiro Fujimori¹, Shin Yonghee², Kiyoshi Takahashi¹, Toshihiko Masui¹ and Akemi Tanaka³

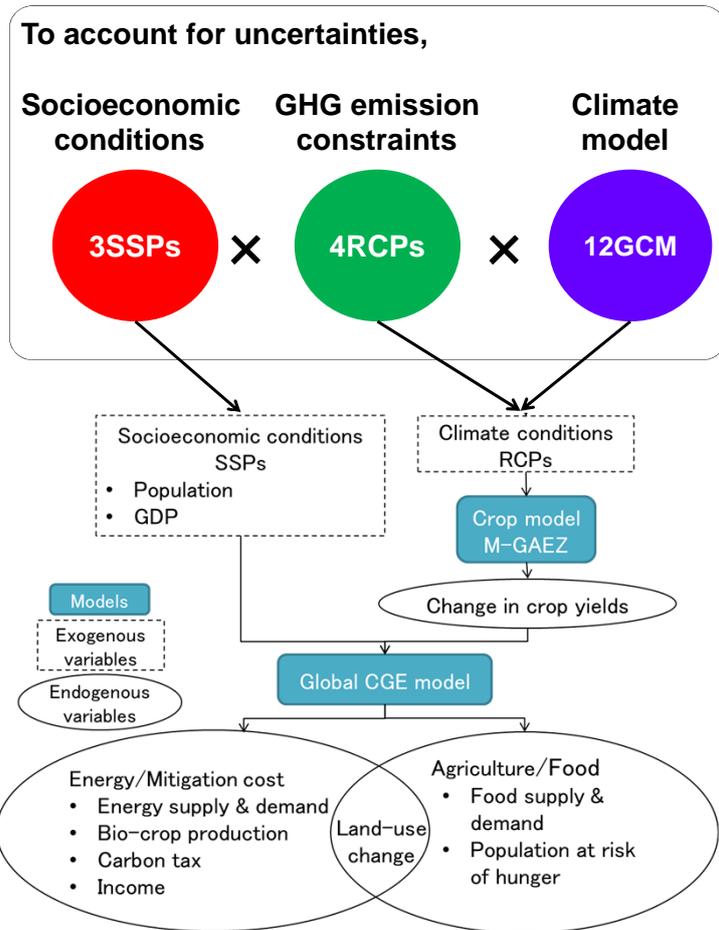
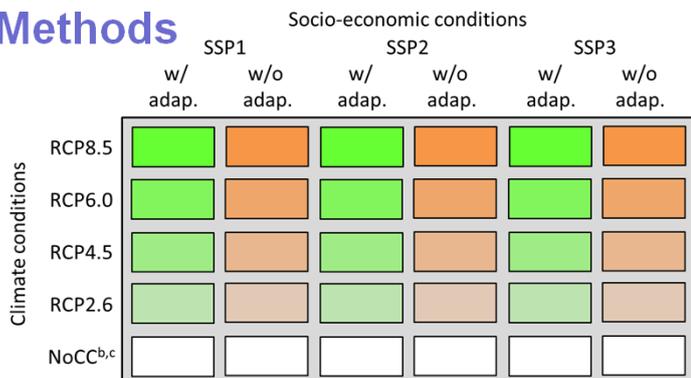
1) NIES, Japan, 2) APEC Climate Center, Republic of Korea, 3) Hokkaido University, Japan
*E-mail: hasegawa.tomoko@nies.go.jp

1. Abstract

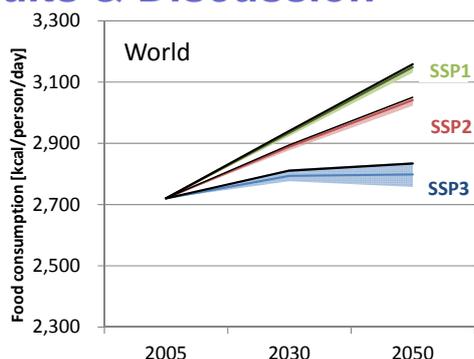
We assessed the contributions of socioeconomic and climate conditions to the impacts of climate change on food consumption and risk of hunger through changes in crop yields by using a new scenario framework. Here, we found that;

- 1) Socioeconomic conditions had a greater impact than climate conditions for risk of hunger at least throughout 2050, but climate change was projected to have notable impacts, even in the strong emission mitigation scenarios.
- 2) The impact on hunger risk varied across regions because levels of food consumption and climate change impacts varied by region.
- 3) The adaptation measures (Change in crop variety & planting dates) are expected to lower the risk of hunger resulting from climate change.

2. Methods

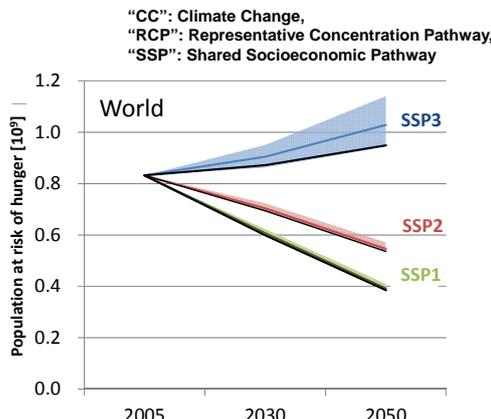


3. Results & Discussion

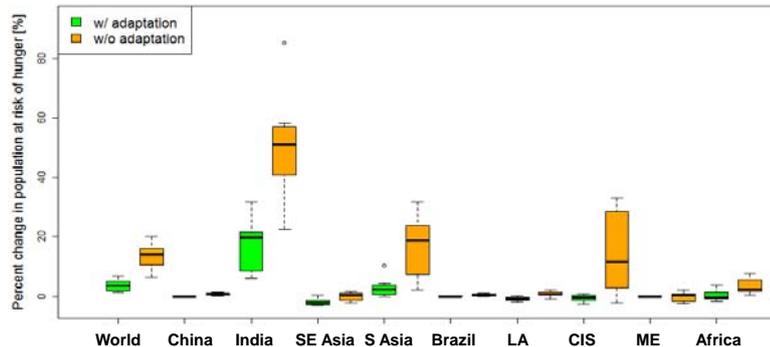
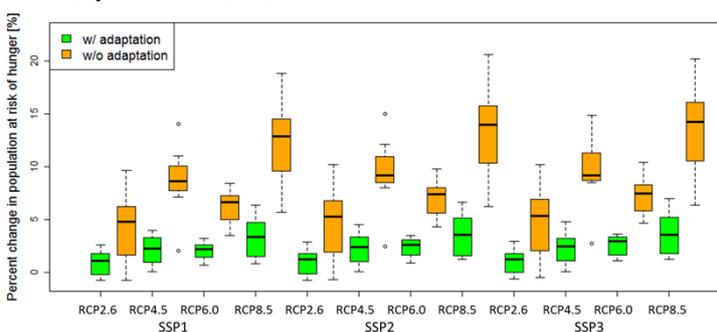


Per-capita food consumption under the 3 SSPs & 4 RCPs.

Black lines show numbers of people at risk of hunger for the NoCC cases; Colored lines show the median numbers for the cases with climate change; Shaded areas show the range of uncertainty for 4 RCPs & 12 GCMs.



Global population at risk of hunger under the 3 SSPs & 4RCPs.



Percent changes in regional populations at risk of hunger resulting from climate change in the case with and without adaptation in 2050 under SSP3-RCP8.5. Boxes and dotted lines show the uncertainty range across the 8 GCMs.

Population at risk of hunger under 3 SSPs & 4 RCPs with/without adaptation. Boxes and dotted lines show the uncertainty range across the 8 GCMs.