

# The impact of climate change on food security among farmers in a coastal area of Cambodia: a case study in Banteay Meas District, Kampot Province

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## Background and objectives

Widespread poverty in the coastal rural populations of many developing countries exacerbates the situation of those vulnerable to extreme short-term climate change impacts, such as coastal flooding and storm surges, as well as long-term impacts caused by sea-level rise, seawater intrusion, and erosion (Barbier, 2015; FAO, 2015).

The Cambodian government has tried to reduce food insecurity, poverty reduction, education, and sustainable socioeconomic development, which might not be reached in the global Millennium Development Goals (MDGs). However, there are many crucial challenges to moving forward in the development journey, including (1) rice, a priority sector to continue contributing to economic growth and ensuring food security. But, 27.65% of Cambodia's population is exposed to climate change (FAO et al., 2020). (2) A significant coastal area is vulnerable to climate-related hazards such as severe storms, and sea-level rise caused by coastal flooding and saltwater getting into farmland, which has a major negative impact on rice production and our food system (IUCN, 2013). Meanwhile, Cambodians have low adaptive capacity and traditional agricultural practices and need more diversification and irrigation efficiency (SCO, 2016).

## Aims and objectives

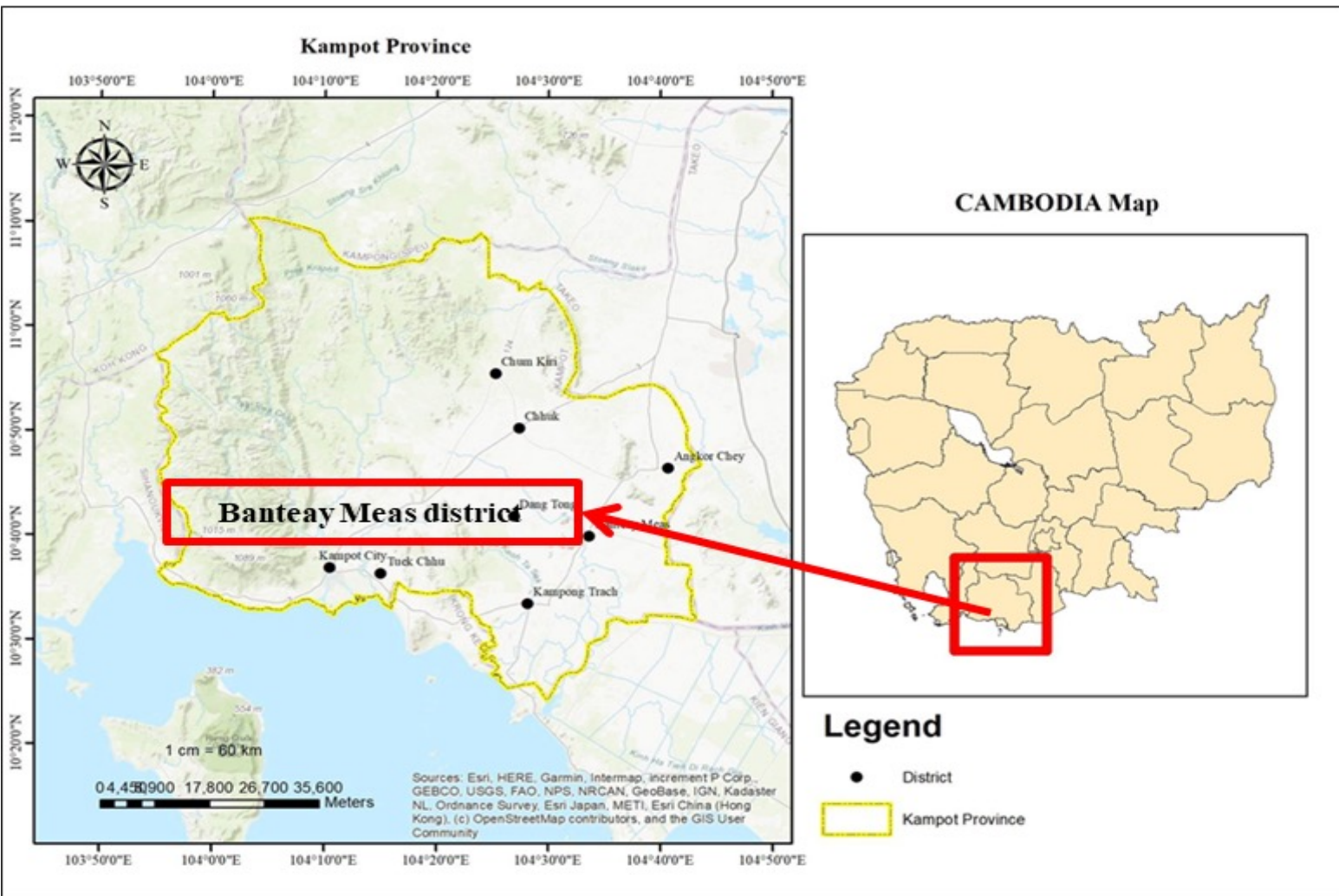
The research has three main specific objectives as follows:

- To gain insights and draw perceptions of rice farmers regarding the negative impacts of climate change on their food security;
- To assess types of food insecurity caused by climate change among rice farmers;
- To propose an appropriate mechanism supporting to build adaptive capacity in response to the negative impact of climate change

## Study Area and Research Methods

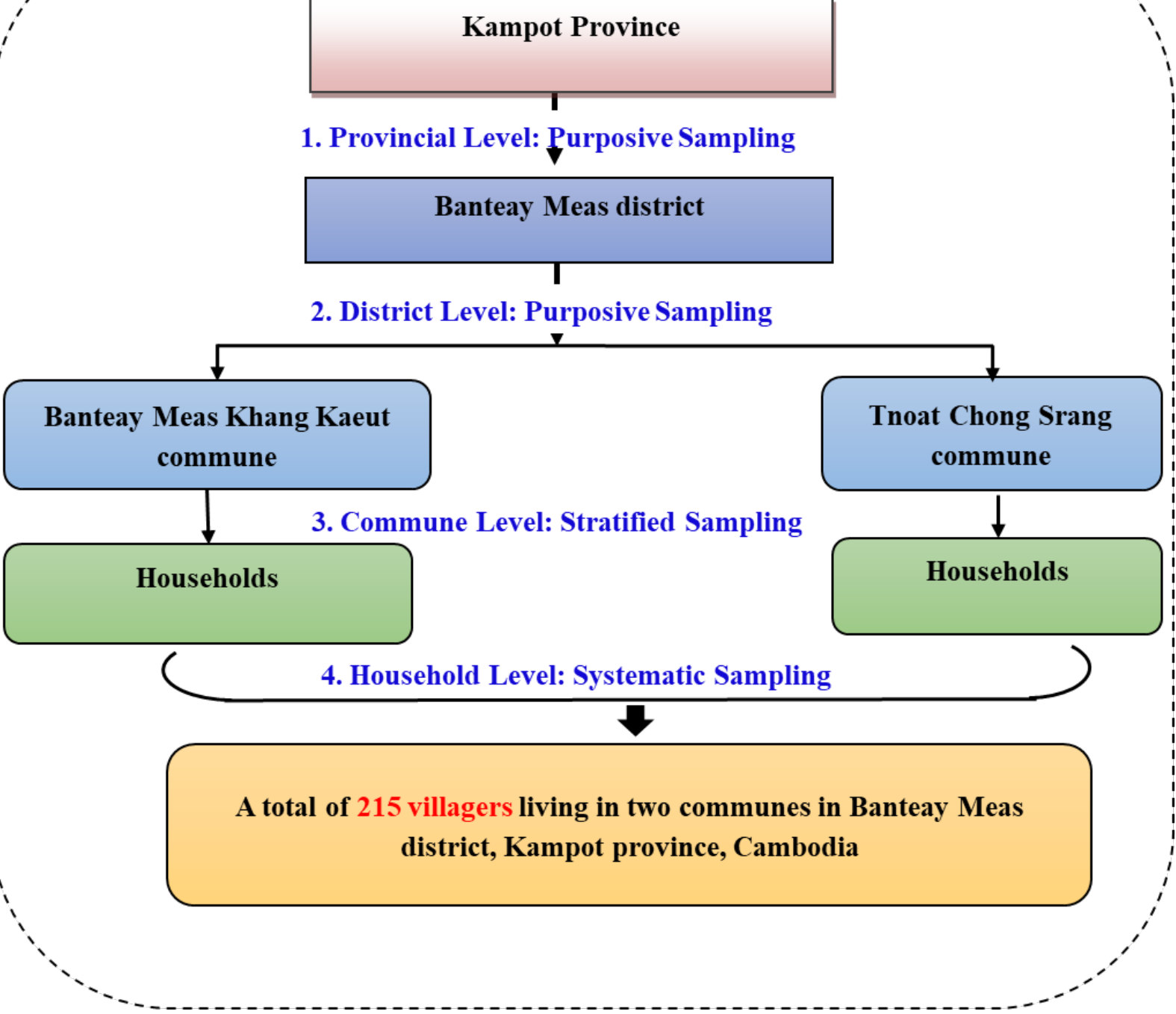
The explorative and descriptive types were employed to examine the research questions. The research design was utilized as the surveys focused on group discussion (FGD) for data collection and fieldwork.

Map1: Kampot Province in Cambodia



Source: Author, 2020

Fig. 1 Sampling design and procedure



### 1. Secondary data

- Web database, journal articles, research reports, and official reports from the government.

### 2. Primary data

- Household survey
- Key informant interviews
- Participatory rural appraisal (PRA) and focus group discussions



Field data collection

### Data Analysis

- Quantitative Analysis:** Statistical Package for Social Science (SPSS)
- Qualitative Analysis;**
  - Content analysis:** Using the existing document, do a summary and analysis
  - Situation analysis:** find some problems that happened in the communities.

## Results and Discussions

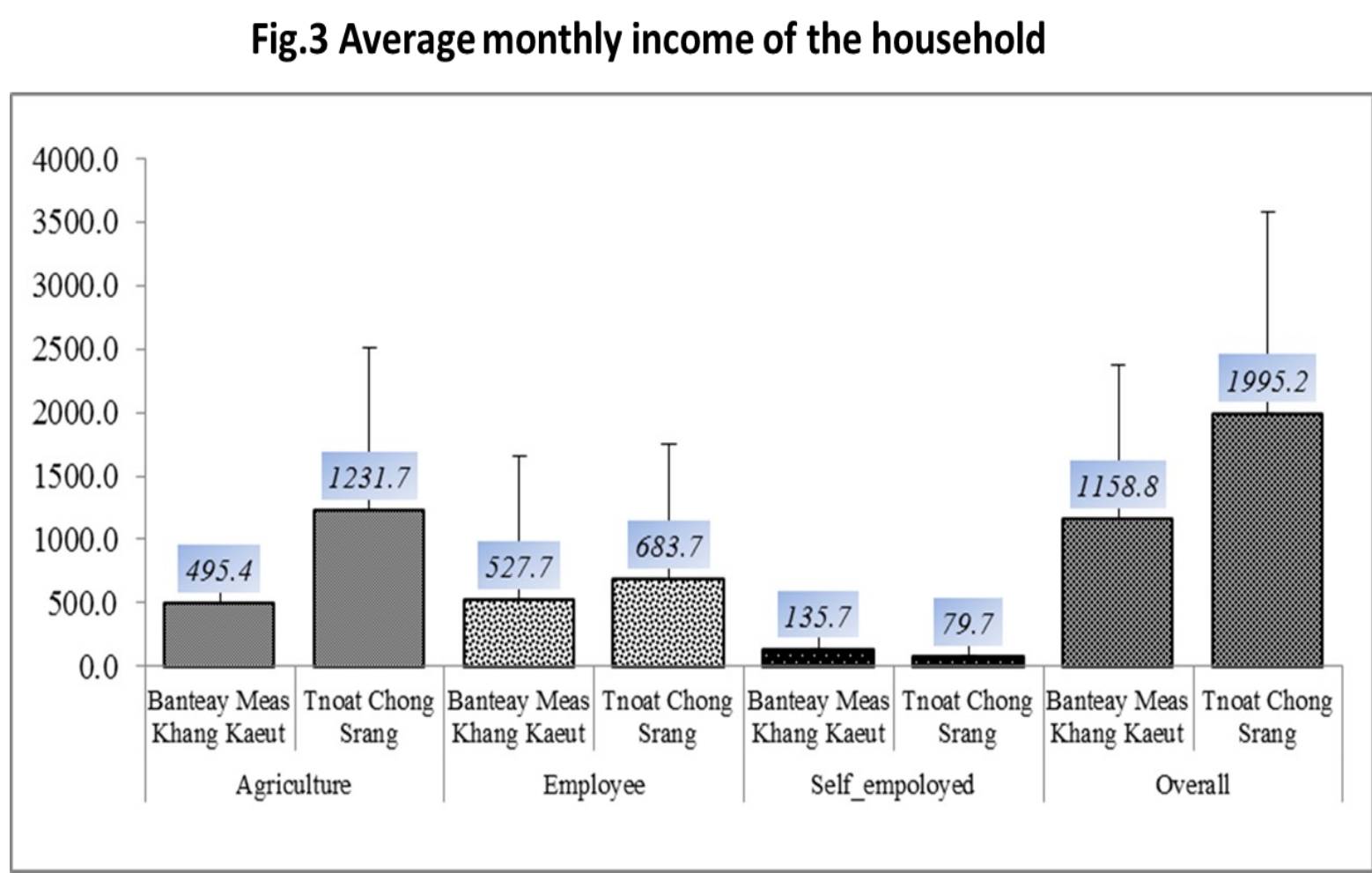
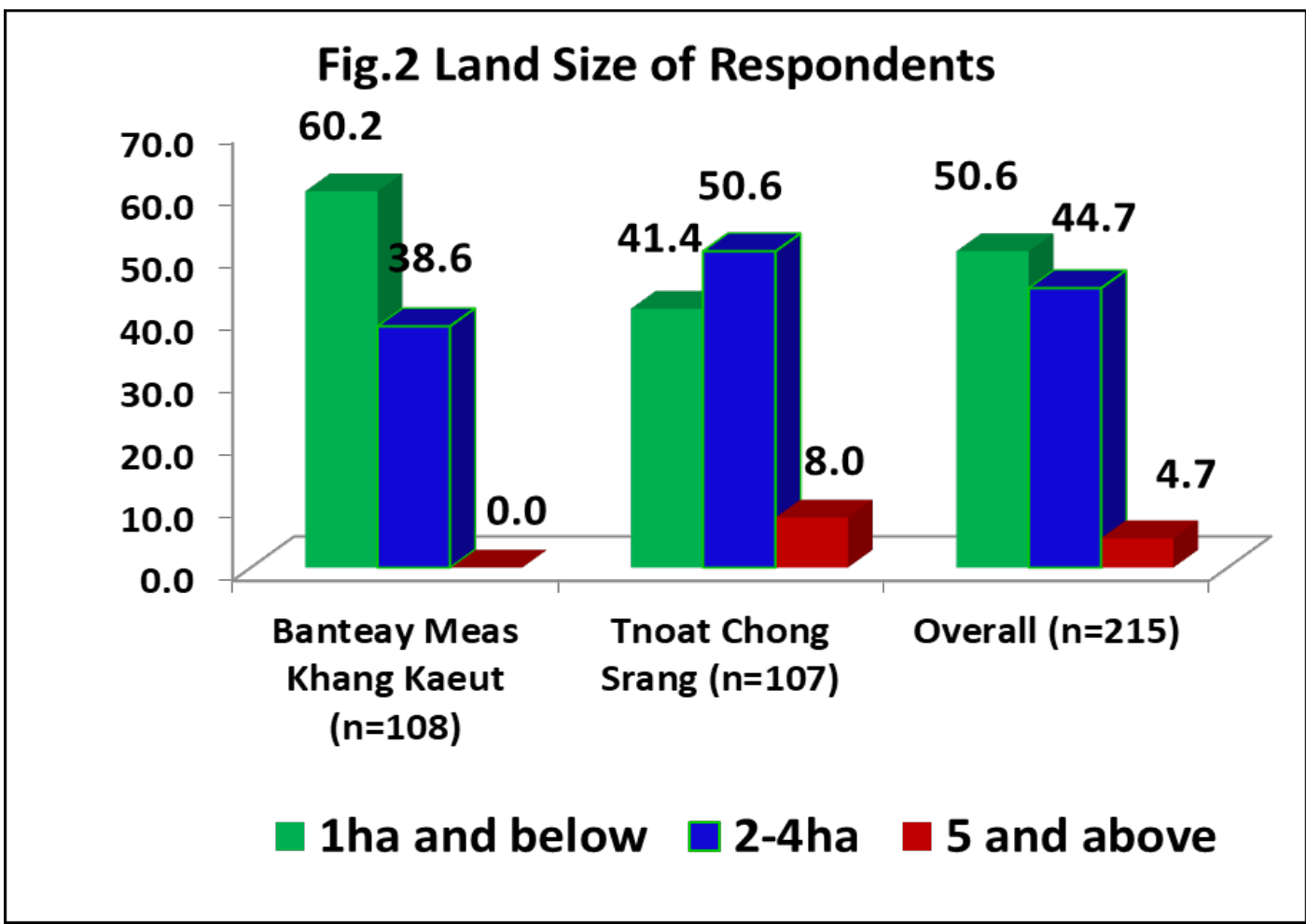
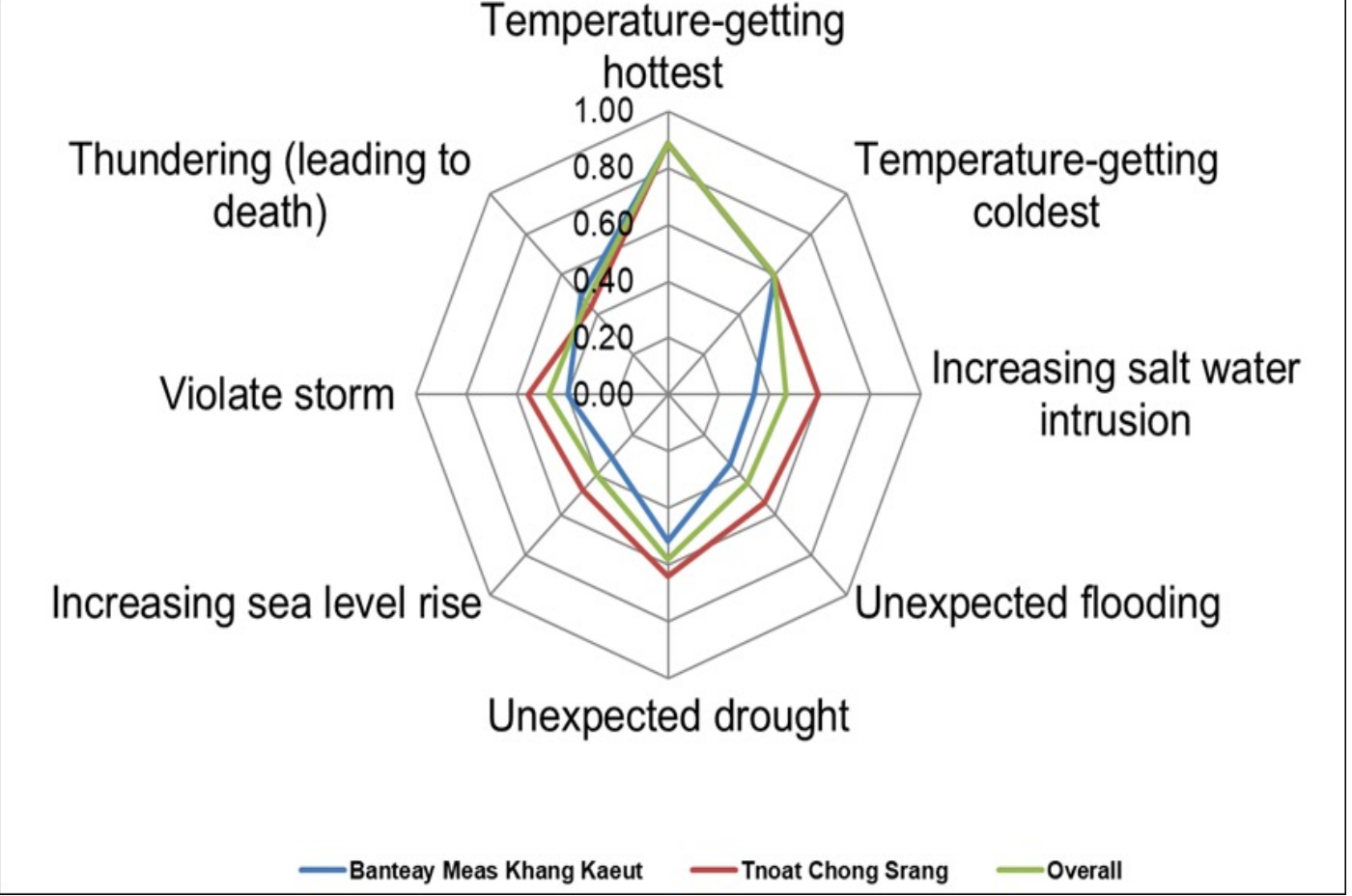


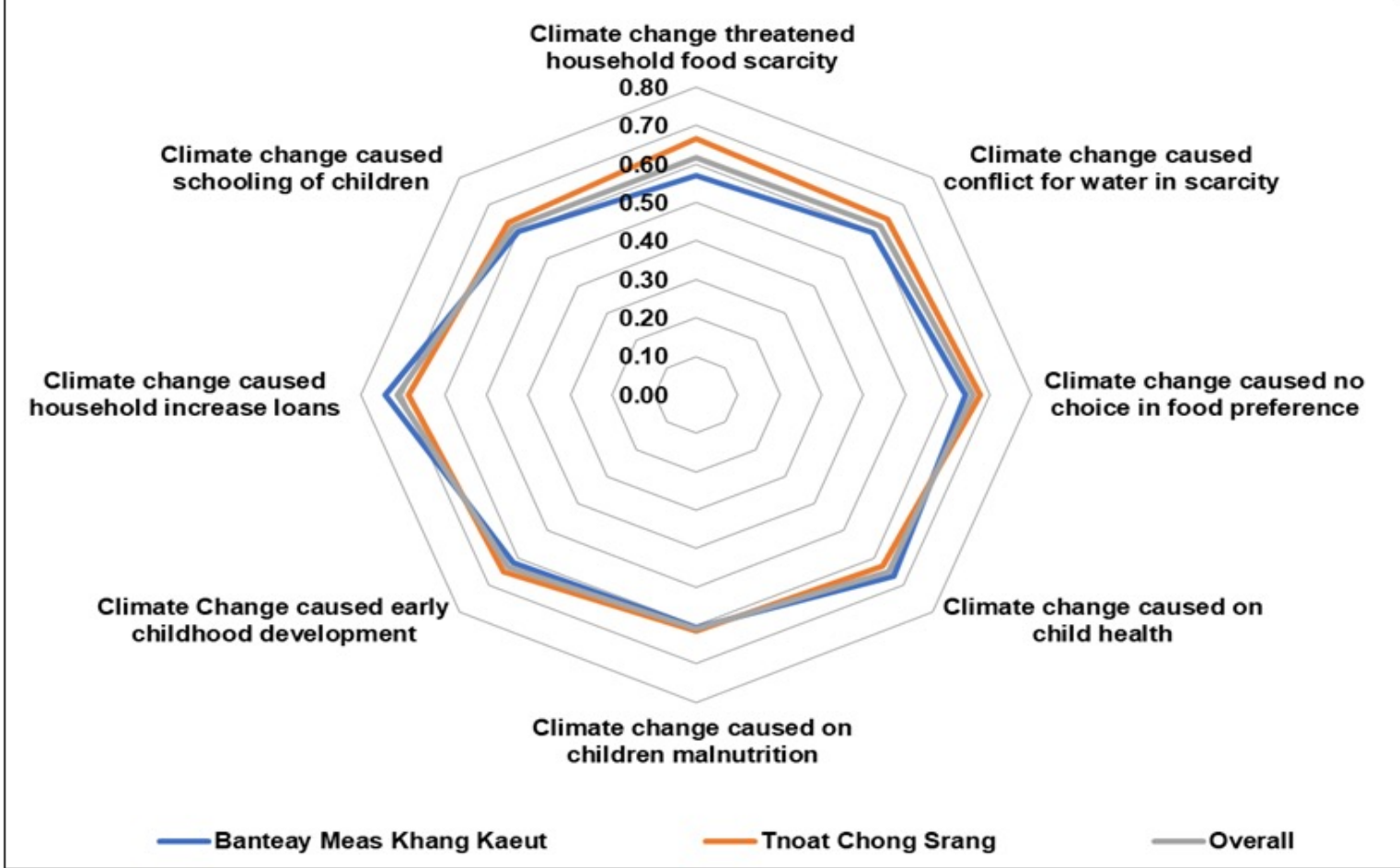
Fig. 4 Rice farmers received the negative impact of climate change



Farmers expressed suffering from changing temperatures caused by droughts, floods, storm surges, and increasing saltwater intrusion, especially farmers who live in the Tnoat Chong Srang are strongly affected by these phenomena in their farming.

Overall, the average monthly income of the villagers (1,575 thousand riels) was not significantly lower or higher than the rural poverty lines. This implies that the average monthly income of the villagers was neither lower nor higher than the rural poverty line (1,637 thousand riels/HH/month).

Fig. 5 Local perception regarding climate change



## Discussions

Previous studies have shown that 42.2% of Cambodian farmers have experienced food shortages more than ten days after natural disasters. This has required them to seek support from others (Sok et al., 2014). This study found that 57.2% of respondents have experienced a food shortage in the past 10 years. The experiences have developed an understanding of managing water shortages for agricultural production, turning climate hazards into agrarian opportunities. These approaches significantly contribute to sustainable development in the face of climate change impacts.

## Conclusion and Recommendation

### Conclusion

This study has revealed that these communities demonstrate that concern about these climate impacts is related to differences in perceptions about other impacts, such as saltwater intrusion, unexpected flooding, violent storms, and thunder. These differences can be recognized to experiences with a decline in agricultural production, level of access to irrigation infrastructure, and longer-term environmental changes. Rice farmers received the negative impact of climate change caused by floods, droughts, saltwater intrusion, and storms. Farmers had a moderate degree of adaptive capacity to climate change. Rice farmers experience different types of food insecurity.

### Recommendation

All key stakeholders from the national to local level need to consider contributing towards the enhanced resilience of rural communities and economies; the advancement of sustainable agriculture for farm households based on crop insurance, crop futures trading, and income stabilisation programs; the development of irrigation infrastructure; social safety nets and community-based projects; the selection of appropriate careers by villagers; and, clear differentiation between chronic and transitory food insecurity by policymakers, planners and practitioners.

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