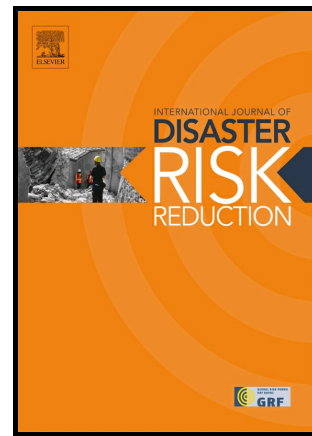


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Key factors affecting the flood vulnerability and adaptation of the shrimp farming sector in Thailand

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Abstract

Increasing climate variability, particularly flooding, severely impacts shrimp production yields and global seafood supply. Effective reduction of the impacts of flood vulnerability depends on level and readiness of the adaptive capacity. This study investigated key factors affecting the adaptive capacity of shrimp farmers in Thailand. This case study focused on the largest shrimp farming areas at a provincial level. Data collection was carried out using questionnaires and person-to-person interviews. Approximately 100 shrimp farmers who had experienced previous flood events were interviewed to help classify the impact scales of key factors on adaptation. Five socio-economic characteristics (education level, farming experience, income level, farm size, and supplemental occupations) are important factors in making the decision to apply adaptive alternatives. Currently, the main adaptive practices employed by shrimp farmers in the study area are placing nets around ponds and constructing dykes to enclose shrimp ponds. However, poverty and limited access to financial resources are the major constraints affecting the adaptive capacity to combat future flooding events. For farmers whose farms are located in vulnerable areas and who have limited financial resource, an implementation of non-structural techniques, such as changing crop patterns and altering harvest seasons, should be promoted.

Keyword: Adaptation; Vulnerability; Flood; GIS; Shrimp Farm; Thailand

1 Introduction

Thailand is one of the main aquaculture food suppliers, especially concerning shrimp products, which are exported to the USA and European countries (FAO 2010). Shrimp yield, however, has declined and is threatened by natural hazards and future climate change (Cruz et al. 2007). Among all of the natural hazards that occur in Thailand, floods are probably the most devastating, which occurs frequently especially in the monsoon season during June-September (Aon Benfield 2011; Limjirakan et al. 2009; Salam 2000). The severity of floods can cause total damage to shrimp farms because of massive escape of shrimps during flooding events (Muralidhar et al. 2010). However, there have been no studies addressing the future impact of flood events on shrimp farming in Thailand and the associated losses, though Thailand plays an important role in the global food supply. Shrimp farms in Chachoengsao province, as an example, have been severely impacted by flash flooding every year since 2011. This province encompasses the largest areas of inland shrimp farming, with the greatest number of shrimp farms in Thailand (Fisheries Information Technology Center 2011). Shrimp farms located in Chachoengsao province of Thailand were selected as a study area because this province is proven to be prone to flooding. In this context, adverse declines in the regional food supply in South Asia, which is one of four areas of possible dangerous climate change, are of particular concern (Hare et al. 2011).

Vulnerability management generally aims to reduce society's vulnerability to natural disasters and unavoidable consequences of climate change by taking several types of actions (Füssel

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