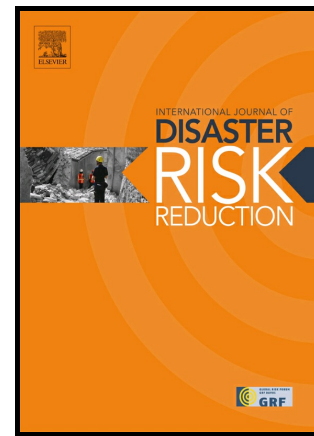


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Adaptation and resilience to climate change and variability in north-east Ghana

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Title page**Adaptation and resilience to climate change and variability in north-east Ghana**

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Abstract

North-east Ghana is characterised by frequent droughts and floods which adversely affect farming, the primary source of livelihood for majority of households in the region. Given the rapidly changing climate, these extreme events are expected to become more pervasive. This paper assesses the capacity of farm households to deal with climate-related risks. Using survey data from 409 farm households in three districts in north-east Ghana, this study specifically examines households' resilience to climate change and variability, and the determinants of the number and choice of adaptation measures adopted by households. Results from an indicator-based climate resilience assessment indicate that female-headed households and households located in Bongo district are less resilient to climate change and variability. The results also suggest that interventions aimed at building households' climate resilience should be mostly directed at raising household income, improving food security, and asset building. To enhance resilience to climate change and variability, households have mostly adopted a combination of autonomous adaptation measures, such as altering the timing of planting, use of drought tolerant and early maturing crop varieties, and switching to crops that are less sensitive to climate stress. Employing Poisson and multivariate probit regression models, it was found that increasing farmers' knowledge of climate change as well as building the capacity of extension agents to deliver information on climate change and appropriate adaptation measures are key to successful adaptation in the study region.

Keywords: Climate change and variability, Adaptation, Resilience, Farm households, North-east Ghana

1. Introduction

In the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5), there is a suggestion of an increase in extreme weather and climate events such as droughts, floods, cyclones and heat waves, which is having severe impacts on natural and human systems throughout the world (IPCC 2014). These extreme events, which may have adverse effects on water availability and supply, infrastructure, agricultural incomes and food security, are expected to disproportionately affect the world's poorest and vulnerable people who mostly live in rural areas (IPCC 2014).

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