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## Building resilience to climate change: Addressing smallholder farmers’ food security concerns in Nepal

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### Abstract

Global climate change is a major threat to the sustainability of the agricultural sector. As a result of climate-related extreme events, food insecurity is steadily increasing worldwide. Food insecurity was higher among agricultural households (especially smallholder farmers) than among non-agricultural households. Smallholder farmers are particularly vulnerable to food insecurity due to their high dependence on agriculture for income and livelihoods. Nepal is a country characterised by smallholder agriculture, high poverty rates and high food insecurity. Food insecurity is a daily problem, especially for households living in remote areas of the country. Several climate change adaptation options are being adopted by some smallholder farmers to increase crop productivity, household income and food security. These adaptation options involve either staying in agriculture or abandoning it in order to improve the food security status of their households. The objective of this study was to examine the impact of climate change and adaptation strategies on the food security of smallholder households in Nepal. To achieve this, data was collected from 400 farming households in three agro-ecological zones of Nepal - Mountain, Hilly and Terai - in 2021. The study found that approximately 12% and 22% of farming households were classified as food insecure according to their food consumption score and reduced coping strategies index, respectively. Results from ordered logit models indicated that climate change, particularly drought, had a negative impact on food security, while adaptation strategies such as irrigation, agroforestry and temporary migration had a positive impact on food security. The study also found that factors such as education, access to markets, credit and information play a role in household food security. We recommend that any adaptation strategy to address food insecurity should be carefully designed to fit the socio-economic, climatic and institutional structures of each agro-ecological zone.

**Keywords:** Adaptation strategies, climate change, extreme weather events, food security, Nepal