

CLIMATE CHANGE IMPACTS, VULNERABILITY AND RESILIENCE: A CASE STUDY OF THE RICE FARMING HOUSEHOLDS IN THE ANURADHAPURA DISTRICT, SRI LANKA

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Climate change and variability pose a severe threat to smallholder rice production in the dry zone of Sri Lanka. It has serious economic, social, and environmental consequences for the agricultural community. Comprehensive and location-specific knowledge about the three aspects of climate change; impacts, vulnerabilities, and resilience can increase farm households' actions toward addressing climate change. Prior studies on climate change focused on individual aspects at a time and used objective methodologies. However, households' self-assessments of these aspects are essential for adaptation strategies to be effective. Therefore, the study examined perceived impacts, vulnerabilities, and resilience of rice farming households in highly climate-vulnerable rice production regions of Anuradhapura district. A multi-stage proportionate random sampling technique was used to collect primary data from 250 smallholder farming households cultivating rice under rain-fed conditions and seasonal village tanks. Farmers' perceptions were assessed on a Likert scale. Data were analysed using descriptive and multiple regression analysis techniques. Based on the results, the majority of farm households experienced a high impact (2.88/3.00) of climate change on their livelihoods; high (2.94/3.00) climate vulnerability; and low (1.44/5.00) resilience to climate change. Farmers' age, credit access, family labour, and prior drought exposure significantly influenced the climate change impact, while the vulnerability was significantly influenced by farmer's education level, credit access, non-farm income sources, and weather information. The resilience to climate change was significantly influenced by the farmer's education level, credit access, household income, and the availability of non-farm income sources. Some factors, such as credit access influenced all aspects, while others significantly influenced one or two aspect/s. Therefore, it is necessary to develop a comprehensive strategy that takes into account all the influencing factors in addressing climate change for smallholder rice farmers in the Anuradhapura district.

Keywords: Climate change impacts, Dry zone, Resilience, Vulnerability