

# **THE ROLE OF LIVELIHOOD CAPITALS IN CLIMATE ADAPTATION BY RICE FARMING HOUSEHOLDS IN THE ANURADHAPURA DISTRICT, SRI LANKA**

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Climate shocks and changes in weather patterns have a greater impact on rice production in the dry zone than in other parts of Sri Lanka. Adaptation provides effective protection against climate shocks and farmers adapt based on their available capital or resource mix. However, it is unclear how each type of rice farmer's livelihood capital affects their climate change adaptation strategies. This study investigated the role of livelihood capital in influencing rice farmers' adoption of climate change adaptation strategies using the sustainable livelihood framework. The study was conducted in the highly climate-vulnerable rice production regions in the 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. Data were analysed using descriptive and binomial logistic regression analysis techniques. Index weights were determined objectively using the entropy method. The results indicated that changing crop variety and planting dates were the most common and perceived as effective adaptation strategies. The order of the mean values for the five forms of livelihood capital from the largest to the smallest was human, natural, physical, social, and financial. The households were relatively rich in human and natural capital, but relatively poor in financial capital. According to regression analysis, human, natural, and physical capital had a positive and significant influence on farmer adoption of climate adaptation practices. The changing crop variety was primarily influenced by human capital, whereas changing planting dates was primarily influenced by natural capital. Therefore, farmers' livelihood capitals play a key role in adopting adaptation strategies to cope with climate change. Rice farming households should be encouraged to invest in human, natural, and physical capital to adopt adaptation strategies and improve their adaptability to climate change.

**Keywords:** Climate adaptation, Entropy method, Livelihood capital, Rice farming, Sustainable livelihood framework