Impacts of Frequent Flooding on Small-Scale Agriculture in the Nilwala River Basin: A Case Study in Bandaththara-Deeyagaha

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Frequent flooding in the Nilwala River Basin poses a significant threat to small-scale agriculture and rural livelihoods, particularly in Bandaththara-Deeyagaha, where paddy and mound cultivation underpin household economies. Recurrent floods disrupt cropping cycles, reduce yields, and weaken food security. While previous studies have largely examined crop damage and economic losses, limited attention has been paid to differences in flood impacts and adaptive capacities between men and women in farming communities. Gender dynamics further shape these challenges, as men are primarily engaged in paddy cultivation, while women contribute through mound cultivation and unpaid household labor. These differentiated livelihood roles create uneven vulnerabilities, exposing men to economic losses from crop damage and women to increased workloads and limited access to recovery resources. Therefore, this study assesses the impacts of recurrent flooding on small-scale agriculture and rural livelihoods in Bandaththara-Deeyagaha, emphasizing gendered vulnerabilities and adaptation strategies using the Gender-Climate Change Framework. The research adopted a mixed-method case study design. Data were collected through household surveys (n = 60), key informant interviews with agricultural officers, and focus group discussions. Quantitative data were analyzed using descriptive statistics to measure economic losses, crop damage, and livelihood diversification, while qualitative data were thematically analyzed to identify coping mechanisms, adaptation practices, and gender-based differences in vulnerability. Findings reveal that flooding severely undermines paddy farming, with men facing recurring debt cycles, while women's mound cultivation, though essential for food security, contributes little to household income and remains undervalued. Women reported limited access to extension services and decision-making but demonstrated greater adaptability through livelihood diversification and community-based coping practices. These findings suggest that resilience is unevenly distributed across gender, with women bearing intensified workloads during floods. The study highlights the need to recognize women's contributions to food security, integrate gender-sensitive perspectives into flood management and agricultural planning, and strengthen adaptation strategies through the Gender-Climate Change Framework. By highlighting the differentiated experiences of men and women, this research contributes to a more inclusive understanding of flood resilience and provides insights for designing sustainable and equitable adaptation strategies for flood-affected farming communities in rural Sri Lanka.

Keywords: flooding, small-scale agriculture, gender, resilience