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Challenges of Sustainable Paddy Cultivation in Sri Lanka: A Special Reference to the Matara District.

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Background: Agriculture is a vital component of Sri Lanka's economy, with paddy cultivation playing a particularly significant role. Sustainable paddy cultivation, which balances productivity with environmental conservation, is essential for ensuring long-term food security and rural resilience.

Objective: This study aims to investigate the challenges associated with sustainable paddy cultivation in Sri Lanka. Specific objectives include assessing farmers' awareness of sustainable practices, identifying socioeconomic and environmental challenges affecting adoption, and suggesting measures to enhance Sustainability.

Methods: To achieve these objectives, a questionnaire survey was conducted across 10 selected Grama Niladhari Divisions (GNDs), covering 60 households. A 5% sample of paddy-farming families in each GND was selected using simple random sampling. Both primary and secondary data were utilised, with questionnaires as the main tool, supplemented by unstructured interviews and field observations. Data were analysed using Microsoft Excel.

Results: The findings reveal significant gaps in farmers' awareness and implementation of sustainable practices. Only 17% of respondents demonstrated awareness of sustainable paddy cultivation, highlighting a major knowledge gap. Socioeconomic challenges included lower profitability compared to traditional methods, limited adoption of sustainable practices by small landholders, and labour shortages for eco-friendly activities. Environmental challenges, identified by over 40% of respondents, included water scarcity and irregular rainfall due to climate change, soil degradation and salinity, declining soil fertility, and the excessive use of agrochemicals that affect soil and water systems.

Conclusion: To promote sustainable paddy cultivation, strategies such as water-saving methods like Alternate Wetting and Drying (AWD), integrated nutrient management, reduced soil disturbance, use of biochar to improve soil fertility and sequester carbon, and the development of climate-resilient high-yield rice varieties are recommended. Training programs and increased investment in research are also vital to strengthening adoption. The study provides valuable insights into socioeconomic and environmental constraints of sustainable paddy cultivation, emphasising its importance for food security, rural livelihoods, and national development goals.

Keywords: Environmental Challenges, Paddy Cultivation, Rural Livelihoods, Sustainability