TECHNICAL EFFICIENCY OF TERRACE RICE CULTIVATION IN *NUWARA ELIYA* DISTRICT OF SRI LANKA

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Terrace rice cultivation is the most prominent rice cultivation system in *Nuwara Eliya* District. Production variability and low profitability have been observed in this system. This study was aimed to determine the level of efficiency of terrace rice farming, to examine the socioeconomic characteristics of the terrace rice farmers, and to compare the present yield gap percentages in the *Walapane* division in *Nuwara Eliya* district. A pretested structured questionnaire was used to solicit information on socio-economic, income and expenditure, market and physical factors from randomly selected 50 terrace rice farmers. The stochastic frontier production function based on the Cobb-Douglas regression model was used to investigate the relationship between input and efficiency. The Frontier 4.1 software was used to analyze data. Results revealed that labor input positively and land area negatively affect on-farm productivity. Higher levels of irrigation lead technical inefficiency for the whole farming community due to the low availability of water in minor irrigation system. According to the frequency distribution of technical efficiency estimates in the *Walapane* division, there is wide variation between the most efficient farmer and the less efficient farmer. The average efficient farmer can increase the yield by 45.44% and to the least efficient farmer by 78.27% to achieve the required technical efficiency. As a solution for high labor requirements, it is important to distribute suitable machinery like two-wheel tractors and fan machines at tolerance price levels among farmers. Furthermore, the farmers should improve the land and water management practices due to the limited availability.

Keywords: Stochastic frontier production analysis, Technical efficiency, Terrace rice cultivation, Yield gap