

# The Cost of Production of Rice in Kegalle and Kurunegala Districts of Sri Lanka

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### **Abstract**

The study provides a detailed investigation on the cost of production of paddy farming in Kegalle and Kurunegala districts of Sri Lanka. The main focus of the investigation was to analyze the factors affecting the variation in cost of production of paddy in Sri Lanka with a special reference to different agro-climatic zones and water regimes.

The research methodology was based on literature reviews, questionnaire survey and participatory research techniques. The questionnaire survey was conducted using multistage stratified random sampling techniques. Sample size was 120 and 90 farm families from the Kurunegala and Kegalle districts respectively, which represented major irrigation, minor irrigation and rainfed areas.

According to the frontier production analysis, mean technical efficiency is not closer to 1 in any study location indicating that paddy cultivation is technically not fully efficient in all locations. Nevertheless, paddy cultivation is relatively efficient in major irrigation areas (0.76) compared to the minor irrigation (0.61) and rainfed areas (0.68) of Kurunegala district. However, average technical efficiency in the rainfed areas of Kegalle district is only 0.54.

The multiple regression analysis indicates that land size has a significant impact on increased production in all areas. Though there is no clear relationship between labour use and the level of production, it has a positive effect in rainfed areas of both districts. In the meantime, return for labour was low in rainfed areas and high cost incurred for animal draught power indicates the potential of mechanization, but feasibility of mechanization in small landholdings needs to be studied. The findings also show that use of animal draught power, especially in Kegalle district is another reason for the increased cost of production.

The study findings indicate that the cost of production in major irrigated, minor irrigated and rainfed areas of Kurunegala district vary indicating relatively high costs in rainfed areas and lowest costs in minor irrigation. Cost in Kegalle district also shows a similar situation. Labour cost represents over 50 percent of the total cost in all locations for both seasons, but labour cost exceeds over 65 percent in rainfed areas of Kegalle district. Harvesting of paddy alone accommodates 36 – 46 percent of the total labour cost. Therefore, the study strongly recommends to investigate the pros and cons of adopting mechanization in rice harvesting. Fertilizer cost amounts 45 – 60 percent of total material cost of paddy cultivation. However, it was found that, there is an imbalance in fertilizer application, which leads to inefficiency in fertilizer use. Although, use of straight fertilizer reduces fertilizer cost and increases efficiency of fertilizer use, majority of the farmers have not adopted straight fertilizers. The cost for producing one kg of paddy varied from Rs.9.38, 13.25 and 13.27 in major irrigation, minor irrigation and rainfed areas respectively in Kurunegala district during maha 2000/01. The average cost for producing one kg of paddy in Kegalle district is around Rs. 15.23 in the same season.

The average yield per acre in major irrigation areas during maha 2000/01 was above 90 bushels and it was around 60 bushels and 55 bushels in minor irrigated and rainfed areas respectively. Thus, yields in major irrigated areas is significantly higher than in minor and rainfed areas due to water availability, better management practices and commercial cultivation practices, but yields in rainfed areas have gone down mainly due to lack of water, especially during the maturing phase of the plant, small size of land holdings, tenant cultivation and inefficient cultivation practices. The factors affecting the existing yield gap are associated with high risk of crop failures in rainfed and minor irrigated areas, poor extension services and constraints in social and institutional factors.

Considering the existing yield level between efficient farmers and less efficient farmers, the yield level of less efficient farmers could be increased by 24, 39 and 32 percents respectively in major, minor and rainfed areas without adding any additional cost. This can be achieved by use of production factors in an efficient manner, especially by paying attention on use of quality seed paddy, correct amount and combination of fertilizers and timely application of suitable agro-chemicals. In rainfed areas, labour use efficiency is also very low. Results obtained from stochastic frontier production function analysis shows that, farmers' age, farming experience and level of education are the significant factors causing inefficiency among farmer in minor irrigation systems. Therefore, it is necessary to enhance the farmers' knowledge, skills and entrepreneurship in order to improve productivity, through training, demonstration and field level research programmes.