

## SUMMARY

Sri Lanka produces almost the annual rice requirement by nearly 2 million farmers cultivating 0.78 million hectares of land. In addition to the heavy investment on rice cultivation, the government spends a substantial amount of foreign exchange for the importation of rice to meet the total requirement of the country. Presently, the paddy farmers are tended to abandon their paddy lands due to the rapidly increasing cost of production that leads to poor income they received from paddy farming. This study attempted to examine the impediment factors of the rice sector in the southern dry-zone and wet-zone under different water regimes, and to make suggestions to improve the level of paddy production. In addition to the secondary data and information collected from various sources, primary data and information were collected through field surveys and focus group discussions. Field survey in dry-zone of Hambantota district was conducted in Ambalantota, Beliatta and Walasmulla ASC areas representing major-irrigation, minor-irrigation and rain-fed paddy farming. Kirinda/ Puhlwella and Akurassa ASC areas in Matara district were used for the field survey in major-irrigation and rain-fed paddy farming in wet-zone. It is worthwhile to note that the selection of these ASC areas for the study is being done upon recommendation made by senior officials at the Assistant directors' office in Agriculture in each administrative district. However, the authors always tried minimizing any bias arising from selecting representative samples from each irrigation regime.

The study revealed that the paddy farming under major-irrigation, minor irrigation in the dry-zone as well as major-irrigation in wet-zone are comparatively efficient while somewhat inefficient under rain-fed conditions in both dry and wet zones. The technical efficiency of paddy production is low in rain-fed farming compared to that of under irrigation. Therefore, unless any improvement of the irrigation facilities in minor and rain-fed paddy farming areas, farmers may not be able to attained highest efficiency of production leaving other alternative crops such as other field crops as most promising for those areas.

From the total expenditure for paddy farming farmers spend around 40% for labor, 20% for farm power, and the rest for agro-chemicals, fertilizer, farm-equipments and seeds. High wage rate for labor in paddy farming has become an inhibiting factor for the promotion of paddy production and therefore the technical efficiency. Hence, as expected, the farmers in the major-irrigation regimes make effort to substitute labor with tractors particularly in the land preparation and for harvesting. The paddy farmers particularly who cultivate paddy under major-irrigation conditions prepare own seed requirement by themselves at a low cost compared to the price at the commercial sources. However, they are still required foundation seeds from an improved variety. Prevailing high price of fertilizer at the private sector dominated market has resulted with use of fertilizer by the farmers less than the recommendation. Hence, the poor response to their paddy yields affect negatively on increasing the level of production and therefore the technical efficiency. With the ever-rising cost of weedicides, which cover a large part of total expenditure for agro-chemicals, the farmers are losing their profit margin from the paddy farming. The farmers cultivate paddy under major-irrigation regime still rely on weedicides due to the high labor wages in paddy farming. Integrated Pest Management

(IPM) is becoming very popular among the farmers who cultivate paddy under irrigated water regimes. The rain-fed farmers face more pest outbreaks due to stagger cultivation, which leads them to bear higher expenses for chemical pesticides. Even though the paddy farmers spend comparatively little money for farm equipment, they can still increase the efficiency of production in paddy farming by utilizing more equipment as a substitution for high wage labor. The farmers particular who cultivate paddy under major-irrigation regime have higher expenditure for farm-power mainly tractor. Their expenditure for tractors except for the major-irrigation farmers in Matara district affects the technical efficiency of paddy farming negatively.

The farmers who produce paddy under major-irrigation regimes have more than 70% of market surplus while rain-fed farmers have only 25% of market surplus. On the other hand, the middlemen in paddy marketing system of the rain-fed paddy production areas obtain higher market margin than in major-irrigation regime. The paddy productions of major-irrigation regimes are distributed through Colombo market. The paddy produced by the rain-fed areas is distributed among local market as well as newly emerged distance markets. Fellow farmers and mass media have become more popular than the extension service in disseminating technical information. The rain-fed farmers could be categorized as regular borrowers who obtain mainly inform credit to cover the seasonal farming expenses. Crop insurance is more popular among farmers in major-irrigation areas. Insurance policy has the potential to increase the paddy production and therefore the technical efficiency but affordable premium and fair compensation schemes needs to be introduced based on the risk involved in each areas rather than one general model. Introduction of this type of insurance schemes will provide answers to the problems arising from 'adverse selection' and 'moral hazards' in the insurance markets. It has been recorded that a substantial amount of water is wasted due to poor water management procedure and lack of maintenance for distribution channels. Farmer organization has a positive role in improving paddy sector.

Based on the findings of the study several policy implications can be drawn. Educate farmers through in-formal educational approaches has become an important strategy to make farmers more innovative. Profitable highland crop cultivation may replace the unprofitable paddy fields especially in the rain-fed areas. Though raising the guaranteed price of paddy increases the profit to producers, it adversely affects the consumers. One possibility is to look for the development of value added production that uses rice as raw material. Raise the price of rice. Replacement of high waged labor with machinery and equipment and absorption of excess labor by agro-based industries or other manufacturing industries may solve the labor problem in paddy sector to some extend. Transfer of responsibility to the farmers for preparation of seed paddy and technology improvement of paddy variety are recommended to produce better paddy seeds. Area specific fertilizer recommendations and farmer education promote the efficiency of fertilizer usage. Mechanical weeding may reduce the expenditure of weedicide if the farmers could adopt paddy transplanting. Popularization of IPM, avoid stagger cultivation and variety improvement are the solution for reduction of pesticide expenditure. Though it is somewhat problematic, provision of fuel subsidies as practiced by some other developed countries or introduction of low cost machinery is required to solve the

problem related with high expenditure on farm power. Farmer organizations or companies with the provision of information system could play a passive role in paddy marketing. Farmer managed credit market, restructured crop insurance scheme, participatory water management system are some of the other main recommendations, which are necessary for the improvement of the paddy sector of the southern Sri Lanka.