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Use of domestic level rainwater harvesting techniques for agricultural purposes in the dry-zone of Sri Lanka

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Domestic level rainwater harvesting techniques have been promoted by several organizations in the areas where the water is limited. The two main techniques promoted were the rainwater harvesting tanks (RWHT) and rainwater ponds (RWHP). The objectives were to identify different techniques used, assess the socio-economic factors associated with their adoption, identify the problems and limitations and to make recommendations on improving the applicability of rainwater harvesting in the dry-zone of Sri Lanka. Based on the adoption in the dry zone, Hambantota and Puttlam districts were selected for the research. Primary data were collected from 62 farmers chosen by using stratified random sampling technique. Using the Statistical Package for Social Sciences correlations and Chi squares tests for associations between variables were performed.

Except for one person who had constructed RWHT with his own funds, all others (61) had received assistance from non-government organizations such as Practical Action, World Vision, OXFAM GB, etc. The assistance and the farmer's participation depended on the organization, which had provided the construction materials and technology in constructing the RWHT or RWHP. In Puttlam, RWHP were the primary water source for all respondents, but in Hamabantota, since there were other water sources, only 60% of the respondents used RWHT as primary water source. The RWHP (108000-324000 liters) had comparatively lager capacities than the RWHT (10000-15000 liters), but there was no significant relationship between incomes from farming with the type of technique. Majority of the respondents from both areas (81.3% in Hambantota and 56.7% in Puttlam) take out water manually. A significantly higher proportion of those who had larger storage devices used water pumps to take out water (Chi square value= 9.04, df=3, Sig < 0.05). Majority (90.3%) of the respondents was able to increase the income from farming and half of them have been able to cultivate *Yala* season using harvested water. They used pond water for numerous purposes except for cooking and drinking, but the tank water is mainly used for agriculture and brick making from which they were able to earn an average annual income of Rs.75,417.00 from brick making industry. It can be concluded that providing assistance have contributed to the adoption since it cost around Rs. 50000 for a RWHT and Rs. 15000 for a RWHP. It is important to disseminate the knowledge and skills of rainwater harvesting at household level and methods of efficient irrigation. It is recommended to have ground liners to prevent the water loss mainly through seepage, especially in areas where the soil is sandy.

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