

# **Importance of Rehabilitation and Reconstruction of Irrigation Infrastructure, before the Introduction of Pedma Cultivation under Iranaimadu Irrigation Scheme of Northern Sri Lanka**

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**Abstract** — Iranaimadu tank is the only major irrigation scheme in the northern Sri Lanka. The major portion of the agricultural sector in northern districts depend on the Iranaimadu tank for their agricultural activities specially paddy cultivation. The water shortage in yala season of the Iranamadu tank, the primary source of water for the northern districts, signaled an imminent crisis to farmers, who are now grappling with an uncertainty. Therefore the “Pedma” cultivation was introduced with the limited irrigation water supply through the D4 canal in Maruthanagar Kilinochchi especially for the seed paddy production. The objective of this study was is to assess the suitability for selection of Maruthanagar D4 canal for the “Pedma” cultivation. The analysis of the water conveyance efficiency, water quality parameters and social impact analysis were done. The water conveyance efficiency was measured for different five flow rate at D4 canal. Electrical conductivity, pH, total dissolve solids were measured at site for ten days with morning and afternoon temperature difference within a day. Water conveyance efficiencies of D4 canal were always below the recommended level for all different flow rates and the values were ranging from 52.9% to 68.9%. The D4 canal water had the acceptable value in relation to the irrigation water quality parameters as pH, EC, TDS and salinity. Since the efficiency is lower than the recommended value, there is a need for construction and renovation of irrigation structures for optimize the efficiency in D4 canal. Income levels of the farmers under the “Pedma” cultivation were far below than the previous income levels. Inefficient land allocation and optimization and reduction in the household economy lead them to seek for an efficient alternative, after a full scale rehabilitation and reconstruction of the irrigation infrastructure and to practice good water management.