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## **Irrigation water management in Murapola Ela Scheme – Central Province**

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A study was carried out to investigate the best use of irrigation water in the Murapola Ela scheme, situated in the Central Province, Sri Lanka. The headworks of the scheme is located across Gurugal Oya, which is a tributary of Mahaweli Ganga. The command area of the project is 800 ha. Nearly 1100 families are reportedly dependent on the scheme for their livelihood. A further 1500 families occupying highlands adjacent to the project area are also partially dependent on the scheme. When the scheme was developed in 1940's, the cultivation of the entire area of the scheme has been dependent on

water diverted from the anicut. But at the beginning of 1980's, two reservoirs were constructed across tributaries of Gurugal Oya to meet water shortage during dry season. However, at present, water supplied from the reservoirs and the anicut was not sufficient to meet the demand. The cultivation has been abandoned in the tail end of the scheme due to water shortages caused by the sharp declination of the forest cover within the catchment. The objective of this study was to investigate the best use of irrigation water in the Murapola ela scheme giving much attention to the following aspects:

1. to introduce a better cropping pattern for Yala and Maha seasons to utilise the amount of water available at present more effectively. The criterion used in this analysis was mainly based on maximizing the cultivation area of the scheme with the intention of increasing the extent of paddy cultivation to at least 60%.
2. to propose a new reservoir to store more water during rainy season and there by, increase the irrigable area to cover the entire field canal system while allocating 80% of the total extent of the scheme for paddy cultivation.

To achieve these objectives, necessary field data were collected and analysed. Several reservoir simulations were carried out for the network of field canals and reservoirs with different cropping patterns. Initial analysis was performed with the existing scheme to adjust inflows to the reservoirs that were derived from rainfall data. In order to manage the amount of water available at present in a more effective manner, a suitable cropping pattern was found after several simulations. This cropping pattern includes 60% paddy and the rest with different types of vegetables, and the selection of these vegetables was based on a detailed survey carried out among farmers in the scheme. This study also reveals that an additional reservoir with a capacity of about 0.475 MCM is to be added to the system to cultivate the entire area of the scheme allocating 80% of the area for paddy cultivation, which is one of the prime requests made by the farmers in the scheme.

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