C-15: A Community surviving on reservoir cascade system in the dry zone of Sri Lanka

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System-L is among the 13 independent development areas identified under the Mahaweli Ganga Development Scheme and it is virtually the drainage basins of Manel Oya and Ma-Oya. The Padaviya irrigation scheme, which sustains a substantial population relying on agriculture occupies the right bank of Ma-Oya, which falls into the ocean through the Kokilai Lagoon, dividing the eastern and northern provinces. The development area known as "Weli Oya" lies on the left bank, and has been occupied by 3364 settler-families, from the inception of the "Weli Oya project" in 1984.

According to the feasibility report, the aim of the "Weli Oya Project" is to provide both irrigation and social infrastructure facilities to 12,650 (3364+9286) settler-families, so that they could contribute to the growth of the national economy. It is envisaged that on completion of the development activities, the facilities would cater to a total population of 15,000 families.

During the period, 1984 - 1990 there have been 16 minor reservoirs in operation in Zone-2, Zone-4 and Zone-5 and the irrigable farms of the settlers (out of 3364) have been below these reservoirs. The villages or hamlets were established around the reservoirs, thus maintaining the ancient concept of "water based societies". These minor reservoirs store water mainly during the NE monsoon.

Each settler family is entitled to 0.4 ha of lowland, 0.2 ha of homestead and 1.4 ha of upland, in close proximity to the reservoir or the irrigable farm.

The main crop that is being cultivated under each reservoir is paddy. The active capacity of the reservoirs range between 0.4 MCM and 1.7 MCM and the irrigable extent varies from 30 ha to 140 ha. The irrigation system under each reservoir comprise of one or 2 distributory canals, with several field canals taking off to command a number of turn-out areas. The average extent under a field canal command is 10-15 ha and is known as a "Turn Out Area".

A notable feature in the management of water in each irrigation system is the care exercised by the farmers in managing the limited quantity of water, while producing high crop yields. The conservation aspect of irrigation water is amply demonstrated by the re-use of water, in irrigating agricultural crops, which yield good results irrespective of the season.

The efficiency of the irrigation System is evident from the fact that each of these reservoirs is relatively small compared to the irrigable extent being commanded. However, there have been instances, where both Maha and Yala in a year have been cultivated under some reservoirs, with reduced extent during Yala.

It is equally essential that the reservoirs contain sufficient water for domestic purposes during Yala season. Drinking water is generally obtained from tube-wells sunk in the settlements. The limitations to the extraction of ground water are, low yield and physical or chemical contamination of water.

In the absence of soil classification maps of the area, it is generally assumed that the ratio of well-drained to poorly drained soils is about 60 : 40. However, the crops yields have been always high, mainly due to very high fertility of the soil.

As far as the irrigation system efficiency is concerned, it is evident from the results and findings that smaller the reservoir greater the conservation. A significant factor contributory to this character is that the entire community is conscious and concerned that water available for them is limited. The farmers are, therefore, compelled to keep to a calendar during a season.

An inference, which can be derived from the concept of the reservoir cascade system is that for smaller reservoirs the principle of water re-use works well.

An indirect benefit observed in the highlands around the reservoirs, is caused by the water table which varies slightly throughout the year.