

Tank Cascade Systems in Sri Lanka: Some Thoughts on Their Development Implications

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IT WAS ALMOST 10 years ago, that the concept of tank cascade systems was introduced as such to the literature on water resources in the dry zone of Sri Lanka (Madduma Bandara 1985). A cascade was defined as a "connected series of tanks organized within a micro-catchment of the dry zone landscape, storing, conveying and utilizing water from an ephemeral rivulet." It was also found that, in the north central region, over 85 percent of all the operational village tanks were located within the cascade systems. The balance were mostly found to be *olagam* or tanks without settlements. The mean size of a catchment area of a cascade was observed to be around 6 to 7 square kilometers and the average number of tanks per cascade was about four, although in some it exceeded even ten.

During the last ten years, some effort appears to have been devoted to detailed studies on the hydrology of cascades (Gamage 1990; Dharmasena 1991; Itakura et al. 1993). It seems however, that similar attention has not been paid to the social organization within the cascades except for some occasional references (Tilakasiri 1989; Sandal 1987; Wong 1988). It is only recently that, some attempt appears to have been directed towards organizing irrigation management activities of village tanks on a cascade basis. Apart from their historical significance as original irrigation systems in the dry zone, I would argue that the concept of cascade systems has much potential for the development of a sustainable water resources management strategy for areas outside the major irrigation systems. The essence of my argument is that, irrigation management in the respective areas has to rise from treating each individual tank separately, towards adopting a strategy that treats the system as a whole.

Any attempt at utilizing the concept of cascades for improving water resources management efficiency has to be rooted in scientific knowledge of the hydro-ecology of the systems as well as in the sociology of respective village communities. Land use planning covering the whole system undoubtedly provides the key to any transformation towards sustainability (Gangodawila 1992). Devising a suitable social organizational strategy for bringing together all diverse social groups in a cascade is an equally challenging task for the planners. This may require the formulation of some conventions and agreements based on tradition and past experience, through participation of the communities concerned. Any attempt at applying the social benefit-cost analysis to cascade management must be extended to encompass the environmental dimension and the long-term gains and losses.

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