REHABILITATION APPROACH FOR THE ABANDONED TANKS IN TANK CASCADE SYSTEMS: A CASE STUDY OF THE *THUMBIKULAMA* TANK

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The sustainability of a tank cascade system depends on the rehabilitation of all tanks while understanding the functions of each tank in the system. Therefore, rehabilitation strategies and methodologies for a particular tank should be identified through a participatory planning approach with the village community and other stakeholders. In a case study, this research aimed at developing rehabilitation approaches for the *Thumbikulama* tank in the *Bellankadawala* cascade system. One hundred and fifty stakeholders were randomly selected for primary data collection through tools such as questionnaire surveys, focus group discussions, and key informant interviews. Secondary data were collected from resource profiles, updated unpublished surveys of the Department of Agrarian Development, and records maintained by the farmer organizations, and the *Grama Niladhari* (village headman). Data were analysed through root cause analysis to identify the reasons for the abandonment of the *Thumbikulama* tank. Major physical root causes as manifested by respondents were: structures that were not repaired properly (81%), poor maintenance of the system (79%), and inefficient communication among the stakeholders (76%). Also, the ecological causes were soil erosion (78%), climate change vulnerability (62%), and resource depletion (54%). Declaring the tank under forest reserve by gazette number 1821/34 in 2013 (98%), archaeological value (91%), and breakdown of old social values (71%), were the main social reasons. Using focus group discussions and secondary data analysed by SWOT analysis, and thematic analysis in this study, it could be able to identify various strategies such as cascade-based interventions, physical and ecological rehabilitation, development of infrastructure, other agricultural improvements, sustainable operations and, maintenance mechanisms, and institutional developments. These findings can be utilized in the rehabilitation process of many abandoned tanks found closer to dense forest areas in the dry zone of Sri Lanka.

Keywords: Ecological rehabilitation, Forest reserve, Participatory planning approach