Abstract No: 63 ***Earth and Environmental Sciences***

THE ANCIENT TANK CONSTRUCTION TECHNOLOGY IN NORTH CENTRAL DRY ZONE OF SRI LANKA: A HYDRO-ECOLOGICAL ASSESSMENT

M.D.S.W. Goonathilake[1*] and M.P. Perera[2]

[1]Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka.
[2]Department of Geography, Faculty of Arts, University of Peradeniya, Peradeniya, Sri Lanka
[*]wanamalis@gmail.com

The ancient civilisation of Sri Lanka is known as a "hydraulic civilisation" due to the advanced water management practices associated with the tank irrigation heritages of ancient Sri Lankans. Ancient people selected the dry zone for their settlement by considering the availability of suitable natural and physical resources for agriculture. Tanks were constructed to store water for agriculture even in periods with minimum rainfall throughout the dry zone. Historical records indicated from the 3rd century B.C., that tanks have been built by constructing an earth dam, across a valley, employing technical devices such as sluices, canals, and spillways. Although there are several studies on irrigation technology, sufficient attention has not been paid to analysing the hydrological and ecological dimensions of these techniques. The objective of this study is to make an attempt to fill this gap of knowledge. For this purpose, data were collected basically from literature citing Journal articles, scholarly work, google images, and institutional reports in addition to field verifications. In-depth field studies were conducted covering two large tanks, two medium and six small tanks selected from the North Central Province. Further, structured interviews were conducted with senior farmers and key local officers to understand the significance of hydro-ecological features. The study revealed that sluice technology, including *besokotuwa* and sluice front ridge, spill and outside spill, *kulu-wewa* system, and the cascading nature exemplify specific hydrological requirements. Some ecological devices, such as tank reservations and *olagam-wewa* system, were linked with the sustainability of irrigation tanks. These ecological devices have also contributed to purifying water and ensuring sustainability. Further, these techniques also contributed to wildlife impact management strategies in the dry zone of Sri Lanka. The findings of this study reflect that ancient tank construction technology and devices performed significant technical roles in hydrological and ecological management.

Keywords: Ancient technology, Dry Zone, Hydrology, Sustainability, Tank Systems