## Assessment of water poverty of agricultural farming communities adjacent to Kala Wewa and Siyambalangamuwa reservoirs

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Provision of safe water in sufficient quantities has become a major upcoming issue globally, because water is considered as one of the most critically stressed natural resources and act as a major livelihood capital. Lack of access to water is directly associated with the nature and state of poverty; thus, it becomes a necessity that water is allocated in more equitable manner at every level, i.e. from individual household to the national. The root causes associated with water poverty and reservoir water management and the areas of greatest need to facilitate the prioritization of action towards integrated water management aiming equity and transparency in the Kala Wewa (2,914 ha) and Siyambalangamuwa reservoirs (788 ha) in the North-Western Province of Sri Lanka were investigated using the *Water Poverty Index* (WPI) – a multifaceted index with its values range from '0' (minimum) to '100' (maximum) and is estimated by taking the weighted sum of scores provided by respondents to five major components, including: (1) Resources; (2) Access; (3) Capacity; (4) Use, and (5) Environment, and each is characterized by several sub components. The data were collected from agricultural farming communities adjacent to these reservoirs by means of a series of in-depth personal interviews supported by a pre-tested structured questionnaire. Principal Component Analysis was employed to select the components with a large variance and to discard those with a smaller variance, and those indicators retained (i.e. the 1st Principal Components associated with Eigenvalues greater than 0.7) were combined using an additive aggregation. The estimated WPI was 76.24 to which the contribution of each component was, in their order: Capacity (17.79), Access (17.75), Use (15.47), Resources (12.93), and Environment (12.30). It was revealed that the severe drought condition prevailed in 2013 and 2014; chronic kidney disease, and the low rate of water quality assessment have led into low contribution from Environment component. The outcome of analysis implies that the information generated through WPI can be used effectively at the 'ground level' to assess the relationships between water and poverty that enables implementation of new strategies aiming integrated water management in reservoir-based communities in Sri Lanka.

Keywords: Agricultural farmers, Irrigation systems, Water Poverty Index, Water management