



Tropentag, September 17-19, 2018, Ghent

“Global food security and food safety:  
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## Sustainable Community Based Ecosystem Irrigation Water Management for Climate Change Adaptation- Sri Lanka

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### Abstract

Sri Lankan history is deeply connected with its hydraulic civilisation and its erroneously named as a community based cascade ecosystem irrigation system. In Sri Lanka water is collected using man-made interconnected cascade tanks ecosystems in dry areas mainly for paddy cultivation. These tanks comprise of various components of ecological importance. The ancient cascade ecosystems, throughout the Sri Lanka in particular, are under unprecedented pressure, threatening prospects for sustainable development. Cascade ecosystems were originated within the community and practised over many generations. The all the cascade ecosystem based irrigation systems were operated and managed by the community and responsibility rested with the chief of the village community based organisation. The study was conducted in Horivila cascade system in Anuradhapura district in north central province, Sri Lanka to identify present community based management of the cascade water management system. The results of the study revealed that the several important ecological component of natural ecosystem types are still maintain by the community for sustainability of the system. Community organisation are adapting to the precarious situation through the use of indigenous knowledge, varying cropping systems, the use of drought tolerant paddy varieties, changing of food habits, and the use of local agrochemicals. Many indigenous and traditional farming practices have immense potential for wider use to increase adaptation to climate change. With the increasing unpredictability of rainfall seasonality and variability in the study area, community organisations promote the use of drought tolerant varieties of crops to provide the food security during the drought years. A significant attribute of Sri Lankan community based Ecosystem Adaptation to climate change, besides environmental and adaptation benefits, is the pursuit of social benefits for local communities. including women, youth and other vulnerable populations in terms of enhanced income/economy, diversification of jobs, educational opportunities and gender equality.

**Keywords:** Adaptation, cascade, climate change, environment, gender