

**ASSESSMENT OF WATER QUALITY IN DIFFERENT INLET AND
OUTLET CANNALS OF NUWARAWEWA TANK IN ANURADHAPURA
SRI LANKA**

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Nuwarawewa tank is one of the major drinking water supplying reservoirs in the city of Anuradhapura, Sri Lanka. Assessment of water quality is vital for the sustainable management of drinking water resources. This study was conducted to evaluate temporal variability of water quality in different inlets and outlet canals of Nuwarawewa tank. Seven major inlets and one outlet canals connected to Nuwarawewa tank were identified and one sampling location was selected from each of these canals. Water samples were collected from each selected location in one-month interval for three months period. Soil samples (0-30 cm) were collected from each location at second time point. Simultaneously, reference soil samples were collected from the nearby locations which have no influence by canal hydrology. Water quality parameters such as pH, EC, DO, TDS, NO_3^- -N, NH_4^+ -N, Available Phosphorus (Av.P), alkalinity and heavy metals (Cd and As) concentrations were determined in each water sample. Soil samples were analyzed for pH, EC, NO_3^- -N, NH_4^+ -N, Av.P, total Cd and total As. The results of this study showed that pH, DO, NH_4^+ -N, and Av.P of some of the water samples tested were higher and other water quality parameters were within permissible levels according to WHO drinking water standards. Higher Av.N and Av.P were observed in all soil samples compared to the reference values in literature. Soil As level was ranged from 0.027 to 0.089 ppm and it was within the permissible levels according to European Regulatory Standards for soils and Cd were not detected. A temporal variation of water quality parameters was observed in the inlet and outlet canals during the study period. The results conclude that, impacts of surrounding land use on water pollution in inlet water canals connected to Nuwarawewa tank are higher and implementation of pollution management plan is required to prevent further pollution by conducting future researches.

Keywords: Land use, Nuwarawewa, Water pollution, Water quality