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**An Assessment of Land Use on Water Quality in Different Inlet and Outlet Canals
Connected to Nuwarawewa in Anuradhapura**

**Ranasinghe R.P.L.N.* , Rathnayaka R.A.A.S., Dissanayaka D.M.S.H.,
Nirmanee K.G.S., Jayaneththi J.P.H.U.**

*Department of Agricultural Engineering and Soil Science, Faculty of Agriculture,
Rajarata University, Anuradhapura, Sri Lanka
nirmani1218@gmail.com

Abstract

Water quality is a term used to describe the chemical, physical and biological characteristics of water. Water quality parameters in various hydrologic systems have been closely linked to the types of land use within a watershed which are closely related to the characteristics of human activities. As water drains from the land surface, it carries the residues from the land and these residues carried into hydrologic systems through drainage or runoff processes. Hence, this study aimed to assess the impacts of land use on water quality in inlet and outlet water canals connected to Nuwarawewa in Anuradhapura. Seven major inlets and one outlet canals connected to Nuwarawewa were identified. Water samples were collected from each selected location in one-month interval for three months period. Soil samples (0-30cm) were collected from each location at second time point and reference soil samples were collected from the nearby locations. 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 showed that pH, DO, TDS, NH_4^+ -N, and Av.P of some of the water samples tested were higher and other parameters were within permissible levels according to WHO drinking water standards. Higher average N and average P were observed in all soil samples compared to the reference values in literature. Soil As level was within the permissible levels according to European Regulatory Standards for soils and Cd were not at detectable level. 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 surrounded land use on water pollution in inlet water canals connected to *Nuwarawewa* 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