

## **WATER POLLUTION AND WATER QUALITY ASSESSMENT OF MIHINTALE TANK**

**K.D.S.H. Shanthapriya<sup>1</sup>, D. M. S. H. Dissanayaka<sup>1</sup>, R.A.A.S. Rathnayaka<sup>1</sup> and  
S. Wickramasinghe<sup>2</sup>**

<sup>1</sup>*Department of Agricultural Engineering and Soil Science, Faculty of Agriculture,  
Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.*

<sup>2</sup>*Faculty of Applied Sciences, Rajarata University of Sri Lanka, Mihintale, Sri Lanka*

*Mihintale* Tank is one of the main reservoirs in *Mihintale, Anuradhapura, Sri Lanka*. Being an important water resource in the area, it provides water to the surrounding agricultural lands to sustain crop production during the dry season. Deterioration of surface water quality in *Mihintale* Tank has been reported for the past few years. However, systematic research to investigate water quality deterioration and its root causes have not been conducted. This study was steered to evaluate the temporal variability of water quality in different wastewater canals feeding the tank. Two major wastewater canals were identified, and sampling locations were selected on several hot spots of these canals and the surrounding area of *Mihintale Tank*. Water samples were collected from each selected location in a one-month interval for three months' period. Electrical conductivity (EC), pH, total dissolved solids (TDS), nitrate-nitrogen ( $\text{NO}_3^-$ -N), ammonium-nitrogen ( $\text{NH}_4^+$ -N), available phosphorous (Av.P) and heavy metals (Cd and As) concentrations were determined using standard methods in each water sample. The results of this study revealed higher pH, EC, and TDS in some of the tested water samples compared to the WHO standards. Other water quality parameters were within the permissible level according to the WHO drinking water quality standards and Central Environmental Authority general guidelines describing the criteria to be considered in discharging industrial effluents into inland surface waters. Although, heavy metals, i.e., Cd and As were detected in some wastewater samples, the values were within permissible levels. A considerable temporal variation of each tested water quality parameter was observed in the wastewater canals and the surrounding area of *Mihintale* Tank during the study period. It is concluded that there can be a considerable impact on water quality in wastewater canals on the water pollution of *Mihintale* Tank. Implementation of a pollution management plan in the surrounding area of the feeder canals is recommended to prevent further deterioration of water quality. However, further research works are suggested before a solid conclusion.

**Keywords:** *Mihintale* Tank, Water pollution, Water quality