



# Assessment of water quality in the selected village tanks (Peraru Tank, Nochchimoddai Tank and Mamaduwa Tank) in Vavuniya district

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**Abstract:** Peraru, Nochchimoddai and Mamaduwa are the three village tanks lying in a cascade line in Vavuniya district. The water resource of Peraru village reservoir was treated by National Water Supply and Drainage Board of Vavuniya, distributed to the local public. The objective of the study was to analyze the physical and chemical characteristics of water in the village reservoirs of Peraru, Nochchimoddai and Mamaduwa. Water samples were collected at the selected three locations of each reservoir weekly from March to April 2021 to determine the physico-chemical parameters such as Dissolved Oxygen (DO), pH, Electrical Conductivity (EC), turbidity, temperature, nitrate and phosphate. The results of physico-chemical parameters of selected tanks were statistically tested using ANOVA and compared among the three village tanks and with the standard water quality guidelines for inland surface water. When comparing the physico-chemical parameters of water among the selected tanks, DO and EC were significantly high in the Peraru village tank. Nitrate was significantly high in Nochchimoddai village tank whereas phosphate was significantly high in Mamaduwa village tank. Although not showed significant differences, the turbidity of the Nochchimoddai village tank was slightly higher than that of the other two tanks. Higher turbidity and nitrate levels and lower DO levels than standard values in Nochchimoddai tank were caused by the presence of floating aquatic weeds. According to the standards, phosphate levels of the selected three tanks recorded higher values. Contamination of fertilizers and detergents might be the reason for the increased level of phosphate and continuous contamination of phosphate could lead to eutrophication in the future. A high concentration of dissolved salts in the Peraru tank leads to an increase in the EC. Water temperature and pH did not show significant differences among Peraru, Nochchimoddai and Mamaduwa village tanks. Meanwhile, pH of water in the three tanks was found to be neutral.

**Keywords:** Dissolved salts, Fertilizers, Floating aquatic weeds, Physico-chemical parameters, Water quality