INFLUENCES OF WETLAND AND LAGOON ON GROUNDWATER QUALITY IN SINNAUPPODAI, BATTICALOA

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2006

ABSTRACT

Sinnauppodai has a very good hydrological potential due to the presence of peripheral water bodies of the Batticaloa Lagoon. In general wetland pollution and high level of urbanization reduce groundwater aquifer quality during dry weather condition.

This study focuses on influence of lagoon and wetlands (Thamarikerni, Kannamadu and Uppodaikuddah) on groundwater quality. In this contest field and laboratory quality parameters were measured at field and laboratory level to identify buffering action of each wetlands and lagoon. The results were used to recommend the suitability of drinking water in the study area.

The EC was high in wells near the Thamarikerni and Uppodaikuddah than Kannamadu wetland. The percentage increments were 12.35 and 11.87 respectively. In Kannamadu wetland EC was 52.2%higher than Thamarikerni wetland.

The nitrate concentration higher in well near the lagoon than all wetlands. It was about 67.49% higher than well near the Thamarikerni wetland.

The phosphate ionic concentrations were high in well near the Kannamadu and Thamarikerni wetlnd than Uppodaikuddah. This increment values were 10.98% and 72.74% respectively. Numbers of total coliform were higher in wells near the Uppodaikuddah and Thamarikerni wetland than Kannamadu wetland. This increment values were 86.7% and 64.5% respectively. BOD_5 was 51.3% higher in Uppodaikuddah wetland than Thamarikerni.

Carbonate and Bicarbonate ion concentrations were higher in wells near the wetland Thamarikerni and Lagoon points. Carbonate and Bicarbonate concentration was 35.2% higher than Uppodaikuddah and 52.1% higher than Thamarikerni wetland respectively.

Finally, the Kannamadu wetland and Uppodaikuddah wetland are highly act as buffer to maintain ionic concentration in wells. Especially Thamarikerni wetland maintains Carbonate and bicarbonate ion concentration than others and Kannamadu wetland maintains Nitrate and phosphate ion concentration. Uppodaikuddah Wetland maintains number of total coliforms in the wells.

Key words: EC, Nitrate, Phosphate, Carbonate, Bicarbonate, Total coliform, BOD

TABLE OF CONTENTS