

GROUNDWATER LEVEL AND QUALITY OF KAMMALAKKULAMA VILLAGE IN ANURADHAPURA

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Agro-wells are the most valuable resource for many farmers in dry zone of Sri Lanka, because it has a good potential to stabilize and sustain crop yield. A study was conducted to evaluate the suitability of groundwater for irrigation and drinking in *Kammalaakkulama* village. Important quality parameters such as pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Phosphorus (P), Ammonium nitrogen, Hardness and Alkalinity were tested in randomly selected 12 agro-wells located in the village from September 2010 to March 2011.

Depth of agro-wells in the area were; 25% between 4 – 6 m, 33% between 6-8 m and 42% more than 8 m. 83% of wells had more than 2 m water depth at the end of dry period indicating high groundwater potential in the study area. Average pH value of the area ranged from 6.75 to 8.11 and this water is suitable for drinking and irrigation. Eight percent of the wells had EC values below 700 $\mu\text{S}/\text{cm}$ and 92% of the wells had EC values between 700-3000 $\mu\text{S}/\text{cm}$ (ranged from 500 to 2200 $\mu\text{S}/\text{cm}$). Thirty three percent of wells had TDS values below 450 mg/l and 67% of wells had TDS between 450- 2000 mg/l (ranged from 254 – 1100 mg/l). All the wells had alkalinity values between 150-800 mg/l (ranged from 160-500 mg/l). Hence, most of the wells are slight to moderate for irrigation purpose. Fifty eight percent of the wells had available P above the critical level of 0.03 mg/l where eutrophication is likely to be triggered. Ammonia nitrogen content in all the wells were below the recommended level of 1.5 mg/l for drinking purpose. Considering total hardness value of wells 92% of the wells are not suitable for drinking but all the wells are suitable for irrigation.

Key words: Agro-well, Electrical conductivity, Groundwater, pH, Water quality