

AVAILABILITY AND SUITABILITY OF AGRO WELL WATER IN MALWATHU OYA CASCADE I IN ANURADHAPURA DISTRICT

L.R.G.D Bandara, M.K.N. Kumari and M.H.J.P. Gunarathna

Department of Soil and Water Resources Management, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura.

Agro-wells are one of the most valuable irrigation water resources instead of tanks for many farmers in dry zone of Sri Lanka. Irrigation with poor quality water may bring undesirable elements in excessive quantities affecting soil properties and fertility. Therefore, a study was conducted to evaluate the availability and suitability of groundwater for irrigation in *Malwathu Oya* Cascade I. Electrical Conductivity (EC), Total Dissolved Solid (TDS), pH, Alkalinity and concentration of Sodium (Na), Potassium (K), Magnesium (Mg), Calcium (Ca), were tested from 20 randomly selected agro-wells from March to August, 2012. Residual Sodium Carbonate (RSC), Sodium Adsorption Ratio (SAR) and Sodium percentage (Na %) were calculated using measured parameters. Suitability classes of irrigation water were determined using aforesaid calculations and salinity levels of water. Forty five percent of wells recorded low or moderate groundwater potential during the driest month of the period (August). The EC and TDS data showed, 40%, 50% and 10% of the wells had good, permissible and doubtful quality of irrigation water, respectively though pH values of water indicated 95% of wells had good quality water. Since average SAR varied from 1-8, all the wells were suitable for irrigation for all types of soils. All the wells recorded good quality irrigation water based on RSC level ($RSC < 1.25$). Based on, Na %, 70% of the wells had excellent or good quality water, 25% of the wells had permissible quality water and 5% of the wells had doubtful quality irrigation water. Measured water quality parameters indicated 60%, 30% and 10% of agro wells can be classified as good, permissible and doubtful in quality for irrigation, respectively.

Key words: Agro-wells, Groundwater potential, Irrigation water quality, *Malwathu Oya* cascade I