E2-26 Preliminary evaluation of water quality parameters of irrigation water at "Ketawala Anicut" in the Gampaha District

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Sri Lanka is primarily an agricultural country. Agriculture in many developing countries is dependent on the usage of agrochemicals. The heavy usage of agrochemicals may have some detrimental effect on the soil fertility and salinity. Therefore it is important to be concerned about the quality of irrigation water. The main objective of this research was the evaluation of water quality parameters of irrigation water at "Ketawala Anicut" located in Gampaha District. Samplings and the subsequent chemical analysis were carried out for a duration of 4 months approx. Water samples were collected from 9 locations in the field. Water quality parameters such as pH, Temperature, Conductivity, Concentrations of Nitrates, Phosphate, Chloride, Calcium and Magnesium, Dissolved oxygen, Chemical oxygen demand and Biological oxygen demand were evaluated. Analysis of nitrate was given emphasis.

All the chemicals used in this study were analytical grade. Orion model (97-08-99) O_2 Electrode, Orion model 93-07 Nitrate ion selective electrode with pH/ISE meter and model UV/20/uv/vis spectrophotometer (Shimadzue) were used for measurements. Variations of the water quality parameters for the duration of approx. 4 months are: Temperature, pH, and Conductivity 27-35°C, 5.30 - 8.76 and 29.9 to 56.0 iS/cm respectively. Nirate, phosphate, chloride ion contents 0.271 - 0.472, 0.290 -0.520 and 1.99 - 4.99 ppm respectively. Concentration of calcium and magnesium ions: 10.29 - 21.38 and 6.32 - 15.32 respectively. Contents of Dissolved oxygen, Chemical oxygen demand and Biological oxygen demand: 4.90 - 8.00, 9.42 - 44.62 and 1.18 -2.07 ppm respectively.

In this project, several water quality parameters were evaluated through a limited number of samples and subsequent analysis. However, further monitoring of the water quality parameters on a regular basis with defined time intervals would be mandatory to arrive at a firm conclusion.