

SUITABILITY OF WELL WATER FOR IRRIGATION IN  
MANMUNAI WEST DS AREA OF BATTICALOA  
DISTRICT



By

NAGARASA ARULKIRITHAS



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DEPARTMENT OF AGRICULTURAL ENGINEERING  
FACULTY OF AGRICULTURE  
EASTERN UNIVERSITY  
SRI LANKA

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## ABSTRACT

Groundwater is the most important source of domestic, industrial and agricultural water supply in the world. Evaluation of groundwater quality in the developing countries has become a critical issue due to fresh water scarcity. Suitability of water for various uses depends on type and concentration of dissolved minerals. Suitability of irrigation water is directly influences on the plant growth and its development. Therefore, irrigation with poor quality water ultimately effect on the yield of the plant and deteriorate soil fertility. Irrigation water pumped from wells contain appreciable quantities of chemical substances and always carry substances derived from its natural environment or from domestic and industrial effluents.

In many places, groundwater used for irrigation without knowing the quality and its suitability. In this new, the present study was conducted to analyse the physical and chemical parameters of well water at Manmunai west Divisional Secretariat Division, Batticaloa District to find the quality and the suitability of well water for irrigation. Through these findings, farmers will be able to aware about the suitability of their well water for irrigation at their land. The basic information about the study area was collected from the Department of Agriculture, Batticaloa. Water samples were collected from 80 randomly selected wells at Manmunai area during the period from July to September 2017. Water quality parameter such as pH, EC, TDS, DO and salinity were tested at the field during sample collection. Other water quality parameters such as hardness, Na, K, bicarbonate, carbonate and TSS were tested at water quality laboratory of the Faculty of Agriculture, Eastern University, and Sri Lanka.

Derived parameter like SSP, SAR, RSC, Ca: Mg ratio were also used in the present study to find the suitability of irrigation water.

According to the results, parameters such as pH, Temperature, TDS, Mg, Bicarbonate, hardness, and SAR were within the Food and Agriculture Organization (FAO) recommended range for irrigation purpose. While other parameters such as TSS, DO, P, Ca, Na, Carbonate, RSC, SSP and EC were above the Food and Agriculture Organization recommended range for irrigation purpose. The study concluded that, about 85% of the well water of the study area is not suitable for irrigation in respect to Na, K, Carbonate, Bicarbonate, RSC, SSP and EC. Therefore, proper management is important against the sodium, bicarbonate hazards to avoid the buildup of those elements in the agricultural land for the continuous cultivation. It is also suggested that the management strategies need to be studied against the problematic water quality parameter and create awareness among the farmers about the present quality of their well water which is used for the irrigation.

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