An investigation of Fe and Mn polluted groundwater in Mannar

A dissertation submitted to the
Faculty of Science & Technology
Uva Wellassa University
in partial fulfilment of the requirements for the award of the
Degree of Bachelor of Science

by

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MINERAL RESOURCES AND TECHNOLOGY DEGREE PROGRAM
UVA WELLASSA UNIVERSITY, SRI LANKA

2013

ABSTRACT

Groundwater has an important source and the quality being measured for contamination by various parameters. Mannar Island has major water source from groundwater. However during the dry season groundwater usage is one of the important issues. The main purpose of this study was to determine current groundwater quality of Mannar Island by comparing with SLS drinking water standard to determine whether it is portable or not and to develop some hydro-chemical distribution map of Mannar Island for further study.

According, 60 groundwater samples were collected randomly with GPS coordinates and analyzed for physiochemical parameters of EC, TDS, pH, turbidity, alkalinity, total hardness, chloride, fluoride, nitrate, sulphate, sodium, potassium, calcium, magnesium, iron, manganese. The relationship between resultant quality and SLS drinking water standards was compared. The analyzed quality results were interpreted using Visual MINTEQ to calculate the approximate ion species, precipitation of solid phases and the type of water was classified by plotting piper diagram using Rockware AQ.QA. Hydro chemical distribution maps were developed using ArcGIS.

Key words: Water quality, geochemical distribution map, chemical speciation