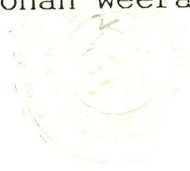


551

The Hydrogeochemistry
of
Ground water and Surface water
in
Sri Lanka



A THESIS PRESENTED BY
Sri Vijaya Rohan Weerasooriya



IN PARTIAL FULFILMENT OF THE
REQUIREMENT FOR THE AWARD OF
DOCTOR OF PHILOSOPHY
OF

UNIVERSITY OF PERADENIYA

SRI LANKA

25th July 1985

394093

Research Laboratory
Department of Geology

ABSTRACT

An island wide hydrogeochemical survey was carried out to evaluate spatial variations in water quality for different parameters of the groundwater in Sri Lanka (parameters: TDS, total hardness, NO_3 , NO_2 , NH_4 , Cl, F, SiO_2 , total V, total Cr, Mn, total Fe, Co, Cu, Zn) and Kandy topographic sheet (parameters: NO_3 , NO_2 , NH_4 , F, Total V, total Cr, total Fe, Mn, Co, Cu).

A total of 25 water quality maps (15 maps for Sri Lanka at 1:506880 scale) and 10 maps for Kandy at 1:63360 scale) were produced for the first time in Sri Lanka.

Depending on its water chemistry, the groundwater of Sri Lanka has been classified into four main types, namely Ca, Mg, Na+K and non-dominant cation (NDC) type. Each of these major groups are subdivided into 2 or 4 subgroups.

The aquatic chemistry of the Mahaweli river, the Kelani river, the Wellawatte canal, the Mid canal/Kandy, the Kandy lake/Kandy and the Polgolla reservoir/Kandy were also investigated. Even though industrial pollution has not caused much concern in Sri Lanka, the environmental impact of polluted canals running through densely populated cities particularly in developing countries has assumed serious proportions.

In a separate study, rainwater and tap water samples collected from different parts of Sri Lanka have been analyzed for their chemical constituents. It was observed that except for minor occurrences, 'acid - rain' is still not prevalent in Sri Lanka. Further, the tap water has been graded into 3 categories depending on the source of the water. In view of the fact, that only a small percentage of the population of Sri Lanka have access to piped water, no serious health hazards due to the poor quality of the tap water have been encountered.