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**HYDROGEOCHEMISTRY OF GROUNDWATER FROM TWO  
DRY ZONE REGIONS OF SRI LANKA**

A PROJECT REPORT PRESENTED BY

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To the board of study in Earth Sciences of the  
**POSTGRADUATE INSTITUTE OF SCIENCE**

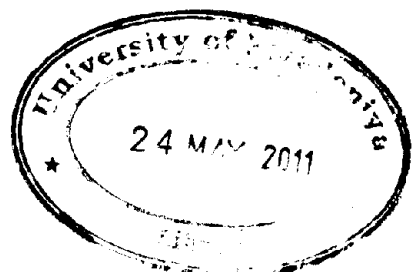
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# HYDROGEOCHEMISTRY OF GROUNDWATER FROM TWO DRY ZONE REGIONS OF SRI LANKA

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Recent studies indicated a high prevalence of Chronic Kidney Disease (CKD) with uncertain aetiology in the North Central and adjacent dry zone regions of Sri Lanka and the number of deaths due CKD have also been increasing. For this study, two areas in the dry zone of Sri Lanka were selected based on the endemicity of CKD. Nikawewa in the Kurunegala District was identified as sensitive for CKD while Huruluwewa in the Anuradhapura District was known to have very low or no prevalence of CKD. These two areas were investigated in detail for the quality of drinking water. People in these regions are mainly involved in agriculture activities. Most of the land areas in these two regions are covered by paddy and dry lands. Although there are a number of natural and man made surface water bodies, most of them are seasonal. So the drinking water requirements of the people in these areas are mainly met by tapping groundwater.

In the study, water samples were collected from shallow and deep dug wells and tube wells which were used as drinking water sources. Thirty five samples were collected from the Nikawewa area and sixteen samples were collected from the Huruluwewa region. Random sampling was carried out along a north - south directed transect and water samples were tested for eighteen physico-chemical parameters. The fluoride concentrations in both regions were relatively high and some water samples recorded values as high as 5.3 mg/L. The nitrate concentration of Nikawewa water was higher than that of Huruluwewa and Girandurukotte, possibly due to higher usage of fertilizers in farming.

The Sodium/Potassium type and bicarbonate type water was found to be predominant in Nikawewa region. Sodium/potassium type and non dominant anion (NDA) type water was predominant in Huruluwewa water. This study suggested no direct relationship between groundwater quality and occurrence of CKD in the region.

