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**A HYDROGEOLOGICAL ASSESSMENT OF THE  
PRECAMBRIAN BASEMENT  
IN THE AREA AROUND VAVUNIYA TOWN  
AS REVEALED FROM  
EXISTING TUBE WELL AND DUG WELL DATA**

A PROJECT REPORT PRESENTED BY

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to the Board of Study in Earth Science of the

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*in partial fulfillment of the requirement  
for the award of the degree of*

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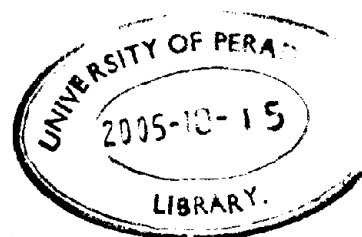
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Groundwater in hard rocks is important in the area of Vavuniya for town and rural water supply due to the extreme scarcity of surface water bodies. The present study was carried out to understand the hydrogeology of hard rocks in Vavuniya region. The rocks are massive and therefore, there is no matrix porosity, but secondary porosity has formed by weathering and fracturing. The thick weathered zone overlies moderately weathered hard rock and this is identified as a productive aquifer unit. This zone is thicker in the areas of geostructural features, such as lineaments. Its storage capacity may be sufficient to supply the domestic water requirements of the rural population. Since fracture zones are concentrated mostly at shallow depth of the rock, the water supply boreholes have to be constructed to shallow depth up to about 35m for best productive rates. In addition, there is a tendency of quality deterioration with increasing depths. However, groundwater quality in the region generally remains satisfactory for domestic purposes.

The monitoring data revealed that the aquifer is mainly recharged by precipitation, when it exceeds the potential evapotranspiration. Due to the same reason, low rainfalls are not effective in recharging the aquifer. The trend of increasing construction of deep tube wells and large diameter open dug wells may cause over exploitation of the aquifer system. Therefore, proper mechanism for management of the limited groundwater resources of the area should be established.