D - 37 **HYDROGEOLOGICAL AND RESISTIVITY INVESTIGATIONS FOR GROUNDWATER IN PART OF HAMBANTOTA DISTRICT**

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The Water Resources Board was interested in the possibility of obtaining fresh water in the eastern area of Hambantota district which is a metamorphic terrain invaded by saline water earlier and by mineralized water gradually at later periods. By regular and detailed geological and hydrogeological investigations supplemented with topographic surveys, the weak zones and the areas in which the geophysical investigation should be carried out were demarcated. Mainly using the well established technique of electrical resistivity soundings, and considering the hydrogeological conditions to select suitable sounding points, qualitatively interpreted resistivity data was used to select the most favourable location, having water bearing formations and these locations were recommended for test tube wells.

As a result of resistivity surveys, it was found that the soil overburden in the eastern area of Hambantota district is generally saline except the areas influenced by surface fresh water sources, because the salt in the soil has not been removed due to low rainfall. But in the central portion of the district, the salt has been concentrated

in topographically lowlands due to heavier rainfall. The resistivity surveys were chiefly for the purpose of finding out fresh water bearing thick weathered zones and fractures and fissures occurring in the hard rock. Higher yielding tube wells which were later drilled showed that more water is coming from the fractures and fissures and not from the overburden.

Using resistivity surveys the fractures containing saline water and those containing fresh water were identified in the same weak zone and the reasons for these conditions were explained by the hydrogeological and geological history of the area.

The fresh/saline water interface was not demarcated at most of the locations in sand dunes due to the presence of low resistive formations below the sand except where the sand formations were homogeneous. These sand dunes were found to bear water only during the rainy season of the year and the water level falls below to the level of the underlying sedimentary formations during the dry season.