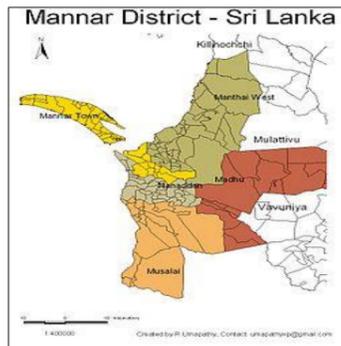


5. Hydrogeological study at Mannar limestone aquifer.

Water demand of the Mannar district is rapidly increasing with the resettlement activities and the increasing of agricultural practices. It was noted that the development of groundwater for the paddy cultivation is common in the area through deep tube wells.



The locating of the well fields are done by state and private organization without any scientific methodology. As the water extraction rates are high in those wells there is a tendency of depleting the groundwater levels of the area considerably. Therefore, in this study attention was focused on demarcating of the aquifer types in the area and identify their properties as well as the safe yield of the limestone aquifer system.

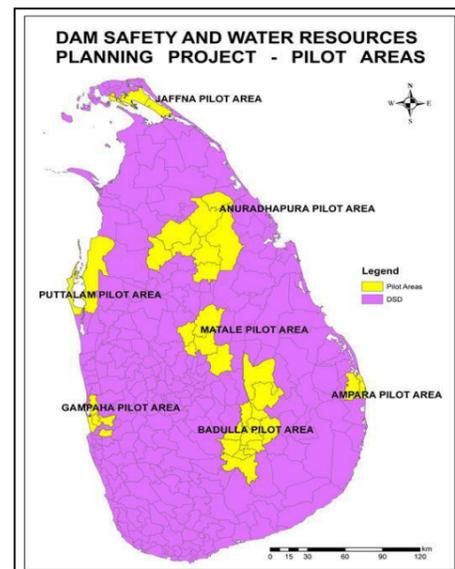
6. Establishment of groundwater monitoring network under DSWRPP

The groundwater resources in Sri Lanka have been under serious threat over the past three decades with the intensive industrial development and extensive application of fertilizer in agricultural activities together with high extractions resulting rapid groundwater depletion, saline intrusion and groundwater pollution.

The early identification of these issues and implementation of remedial measures are of vital importance since the groundwater contamination is irreversible if significant damages have already occurred.

The spatio-temporal assessment of hydrogeological setup and present water chemistry of the groundwater resources of the country is of prime importance before the establishment of systematic long term groundwater monitoring network which is essential before the implementation of any remedial plans.

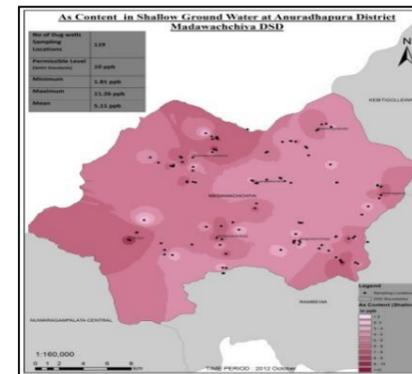
As an initiative, WRB has selected 07 pilot areas in the country to identify threats and impacts on groundwater resources through comprehensive study under component – 2 of DSWRPP. Subsequently, long term monitoring networks have been established. The pilot areas which include selected DSD's of Jaffna, Anuradhapura, Matale, Puttalam, Gampaha, Ampara and Badulla Districts are as given in the following map.



Major findings and Recommendations

The following findings and recommendations were made based on the study conducted at Medawachchiya DSD in Anuradhapura district.

1. Based on the sociological analysis, 84% of the reported patients in Medawachchiya DSD are above the age limit of 50 years.
2. The presence of Arsenic in groundwater was reported within the ranging of 2.67 ppb to 11.28 ppb.



Abstracts of Research Studies

1. Hydrogeological study on the coastal aquifer extending from Colombo to Negombo

Sand aquifer from Colombo up to Katunayake, is well developed and that would be one of the major shallow aquifers existing in the area. Considerable amount of water is extracted from this aquifer by various organizations and private parties (BOI Katunayake, Airport, other industries, Hotels etc). Water Resource Board planned to embark upon a study on this valuable aquifer in detail which commenced in 2011 and expected to be completed in 2014. The major objective of the study was to identify the geometry and the hydrogeological parameters of the aquifer. The final goal is to develop a groundwater model for the aquifer. During the last three years considerable amount of data were collected and compiled. The aquifer parameters were assessed and a conceptual model will be developed at the end of this year.

2. Water quality study at Anuradhapura district

85% of the people in Anuradhapura district use groundwater for their day to day activities. The supply of pipe born water is limited only to urban areas. The diseases like dental fluorosis and dental skeletal fluorosis are the common diseases reported in the past but CKD is the most critical health problem reported within the last ten years. The number of CKD patients reported in Anuradhapura district was increased year by year and considerable number of research work was conducted by various parties including Water Resources Board.

Our approach was in several ways as outlined below :

1. Aware the people in Anuradhapura district on water related diseases and the possible mitigation.
2. Water quality assessment in water sources in Anuradhapura district.
3. Development of natural springs which provide safe and good quality water.
4. Perform water clinics in village level.



Awareness programme



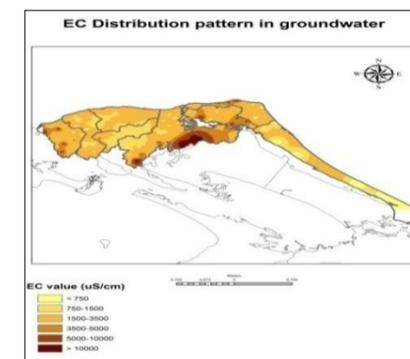
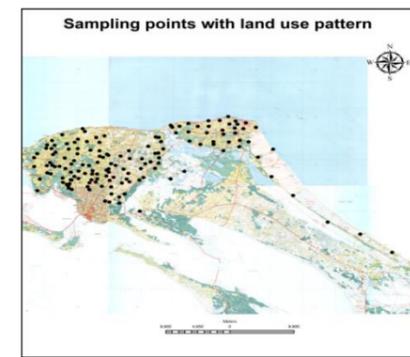
Mobile Lab at the water clinic programme

The above activities were started in 2011 and water quality maps have been prepared for the entire district. The study reveals that the occurrence of excess fluoride in drinking water directly involved with the health hazards like dental fluorosis and skeletal fluorosis and the application of excessive quantities of fertilizer and low quality agrochemicals leads to cause CKD problem in the area.

3. Hydrogeological assessment and establishment of monitoring network for Jaffna Peninsula.

with groundwater related studies in Jaffna peninsula but due to the prevailed situation of the area in the last 30 years, there was no opportunity to continue the research studies.

However, in 2011 research activities were started in Jaffna peninsula to assess the quality and availability of groundwater in order to establish a groundwater monitoring network for the peninsular.

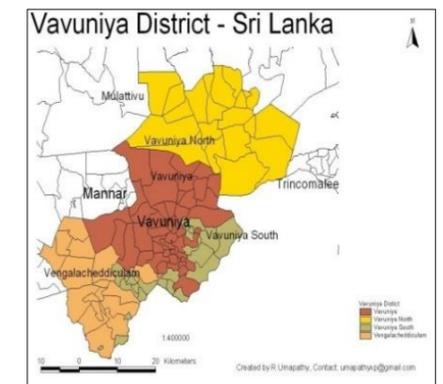


Groundwater being the main water source available in the peninsula needs to manage properly. Otherwise water quality will be deteriorated due to over extraction and also due to pollution caused by the extensive application of fertilizer and agrochemicals in agricultural practices. The objective of the study is to monitor groundwater quality variation through a properly designed monitoring network.

4. Hydrogeological Study at Vavuniya and Kilinochchi Districts

This study was started in 2013 with the aim of studying the aquifer types and demarcating the groundwater potential zones of the two districts. Project areas of Vavuniya and Kilinochchi districts are indicated below.

Vavuniya



Kilinochchi



Vavuniya and Kilinochchi districts fall on the dry zone of Sri Lanka. The major aquifer system of the two districts are alluvial deposits associated with major stream and the fractured basement rock aquifers. It was revealed that the groundwater availability of two districts is mainly depending on the structure and the tectonic of the underlying basement rocks.