



Remediation process of groundwater quality in Asian Tsunami affected Southern Sri Lanka- Case study in Kumbalgama area

Ranjana.U.K. Piyadasa¹, K.D.N.Weerasinghe², J. A. Liyanage³, L.M.J.R. Wijayawardhana², D. S. E. Kumara², H.K.C.S.Lakmal²

¹Department of Geography, University of Colombo, Colombo, Sri Lanka.

ranjana@geo.cmb.ac.lk

²Department of Agric. Engineering, University of Ruhuna, Mapalana, Kamburupitiya, Sri Lanka.

³ Department of Chemistry, University of Kelaniya, Kelaniya, Sri Lanka

Prior to the Tsunami wave occurred on 26th December 2004, groundwater in the southern coastal margin was non saline and used by the people for drinking and other domestic purposes. The preliminary results of the study revealed that the Electrical conductivity of well water in all wells situate in the Tsunami affected Zone are turned to be saline (EC in average increases from 300 μ Siemens per cm to around 5000 μ siemens /cm and above). Total dissolved solids of the well waters are around 2000 mg/L.

Groundwater table behavior and quality have been studied from March 2005, in the southern coastal margin Sri Lanka, which situates in the tsunami affected zone (Lat 80.42. Long 5.97). 30 affected and non-affected shallow dug wells, by the Tsunami wave, situates in 7 km coastal strip, were selected for the study. The selected wells are sunk into the permeable quaternary sand deposits overlying Precambrian granite gneiss. The top quaternary sandy aquifer in the coastal margin of Weligama bay area is very permeable and hydro geological conditions are very favorable for salt-water intrusion. The study helped to prepare the hydrogeological, and the hydro-geo-chemical maps of the area.

According to the atmospheric precipitation from January 2005 to June 2006, most of

the months received more than 50 mm of rain except in Feb, Sept 2005 and Feb, April 2006. The maximum of 423 mm rainfall has received in November 2005. During the sampling period, January 2006 to June 2006 total rainfall received by the locality is 452 mm. But in the some affected wells groundwater quality was improved to 1500 to 2000 μ siemens /cm due to high atmospheric precipitation. According to groundwater map, Hydrogeological condition of the area is the on of the most affect to remediation of quality in groundwater.