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Groundwater potential assessment after the tsunami destruction in southern coastal belt of Matara District, Sri Lanka

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Abstract

This research is based on the assessment of the damage caused by the tsunami on dug wells in the coastal margin of the Matara district – Southern Sri Lanka and its impact on fresh groundwater pollution due to saline water. It is aimed to identify corrective behavior groundwater availability and gives guidance on future planning. Seventy percent of the population relies on groundwater in this area and prior to the tsunami wave, water of these wells was non-saline and used by the people for drinking and other domestic purposes.

Field survey program was initiated after the tsunami coastal strip in Matara district from Kudawella to Medigama and collected physical parameters of the dug wells and Sociological information's of the area. A total of 239 dug wells were selected from the coastline covering both affected and non-affected wells. Dug wells are located in nearly 1 km to the land wise in coastal belt and survey conducted 0.5 km distance from Meedigama to Kudawella. Geographical positions of each well were detected using the GPS to prepare maps.

The results revealed that 60 % of the total depth of the dug wells remains at 3 – 7 m depth and respect to diameter, most of the wells are in the diameter range of 0.5 – 2 m. Results indicate that 72% of the dug wells were located within the 300m zone and 51% of wells had been flooded by the tsunami. This pattern could be explained by place to place tsunami affect is deference due to topography, elevation, vegetation cover and constructions. Tsunami affected Zone are turned to be saline (EC in average increases from 300 µ Siemens per cm to around 5000 µ siemens /cm.).

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