Quality of water of Tsunami affected wells after cleaning and chlorination

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Five wells from the Tsunami affected area in Unawatuna of Southern Sri Lanka, which have been cleaned twice or thrice since then, by total removal of water and other solid material and chlorination were included in this study, to investigate whether the conventional cleaning procedure adopted have resulted good quality water. The water brought in by the Tsunami wave has covered four wells out of the five wells included in this study. Well which was not affected, was located on a small hill and it was selected to get the back ground values, as pre-Tsunami data were not available. Sampling was carried out two weeks after the destructive Tsunami wave, which hit nearly 65% of the coastal belt of Sri Lanka. Samples were analysed for pH, Conductivity (Conductivity meter-Horiba), Cl^-, F^-, I^-, NO_3^- (Ion meter-Horiba), oil and grease (extraction and gravimetry) and *E-Coli* (MPN).

Levels of F^-, I^- and oil and grease in water from affected wells were 0.07-0.15ppm, 0.05-0.07ppm, 6-11ppm respectively while water from the well which was not covered with Tsunami wave, were less than the detection limits. This indicates that above pollutants have come with Tsunami wave or as an after effect of the same. NO_3^- levels in all the wells (45-400ppm), except the well that was not covered with Tsunami water (15ppm), were higher than the level recommended by WHO and SLS (50ppm) or EPA (44ppm). Presence of oil and grease in tsunami affected wells also indicate the limitation of such water for human consumption. A reciprocal relationship of oil and grease content with *E-coli* count was also observed. An increase in the NO_3^- levels with the decrease in the distance from the wells to a canal blocked with large amounts of debris brought by Tsunami was also observed. These observations suggest that the conventional cleaning methods followed to clean affected wells, have not sufficiently cleaned the well water. It is essential to clean all the blocked waterways and wastewater discharging canals in the vicinity of the wells, continue the monitoring process and take appropriate action, and to investigate whether the force of the Tsunami wave has altered the porosity of the soil, which could in turn affect the capillary forces that help to draw water into wells.