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Temporal groundwater salinity mapping in Navalady Peninsula (Batticaloa, Sri Lanka)

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SUSTAINABLE DEVELOPMENT OF WATER RESOURCES, WATER SUPPLY AND ENVIRONMENTAL SANITATION

Temporal Groundwater Salinity Mapping in Navalady Peninsula (Batticaloa, Sri Lanka)

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Most of the coastal populations of Batticaloa District (East Sri Lankan coast) depend on groundwater for drinking water and domestic purpose. This resource was contaminated by the December 26th tsunami: the majority of wells used by the population for drinking water became salty and unusable. In response to this crisis situation, the international NGO Action Contre la Faim (ACF) – present in Sri Lanka since 1996 - has immediately implemented emergency actions on the East coast: distribution of chlorinated water by trucks, disinfection and rehabilitation of well.

One year later, within the frame of water trucking phasing out strategy, and in order to get people back to their traditional and sustainable freshwater sources, ACF has been monitoring groundwater salinity in more than 650 domestic wells in Navalady Peninsula from December 2005 to May 2006. This monitoring, combined to a GPS referencing of all these wells has allowed a precise temporal mapping of salinity over the whole area.

Measurement of salinity during the study period has showed a natural decrease of salinity down to an acceptable level, especially after the rainy season. However, punctual brackish water upconing phenomena were pointed out mainly in the south-western part of the peninsula, even after this rainy season.

These observations have enabled to locate sensitive areas where upconing are likely to occur, and to define protocols for sustainable aquifer exploitation at household level. Regarding the growth of coastal population, this issue should be taken into account in order to preserve freshwater resources in these areas.

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