Prevention of water borne diseases in the tsunami affected Thotagamuwa-Hikkaduwa area of southern Sri Lanka

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Prevention of water borne diseases in the tsunami affected Thotagamuwa-Hikkaduwa area of southern Sri Lanka

Dr. P. Wijeyaratne et al., Sri Lanka.

Thotagamuwa, Hikkaduwa in the southern coast of Sri Lanka was devastated by the Indian Ocean tsunami of December 26, 2004 leaving the affected population with poor sanitation conditions and at risk to water borne diseases and vector borne diseases. The Thotagamuwa Tsunami Relief Environmental Health Program (THOTEN) is serving a community of four thousand households towards improving the quality of drinking water through chlorination and providing for hand washing with soap—the Safe Water System (SWS). The first monitoring and evaluation survey conducted after three months of interventions are revealing that the population is beginning to use the SWS introduced under the THOTEN program. It also revealed that numbers have increased in awareness of appropriate use of soap to wash hands. The paper describes the overall approach and methodology used and the preliminary results.

Background
Thotagamuwa, Hikkaduwa in the southern coast of Sri Lanka was devastated by the Indian Ocean tsunami of December 26th, 2004. At the outset, at the establishment of the Thotagamuwa Tsunami Relief Environmental Health Program (THOTEN) in February 2005, a systematic and total population survey on environmental health was conducted covering the target population of approximately four thousand (4000) households in the eight Grama Sevaka areas of Thotagamuwa–Hikkaduwa focusing on water, sanitation and vector borne issues. The survey revealed that the National Water Supply and Drainage Board in Hikkaduwa, Sri Lanka supplied pipe borne water to only twenty-four percent (24%) of the population. The rest depended on water from a public tap, open or protected wells and tubewells for their supply of water and water bowers provided by various organizations.

A follow up rapid assessment of 156 households, in the same target population on water handling practices and hygiene revealed that nearly half of the population (47%) claimed to boil water before drinking and was aware of the need to boil water before drinking. On the question of willingness to disinfect water using a chemical, the majority responded with willingness. The survey also revealed that the majority of the households had designated locations for washing hands after toileting and before preparing meals. The respondents described diarrhea as a health problem and knew that contaminated water could cause diarrhea and was also aware of the need to boil or treat water with effective means to prevent diarrhea.

Rationale
Given the post tsunami situation on poor water quality and hygiene and related health risks the THOTEN program decided to implement the Safe Water System (SWS) in selected communities. The SWS consists of three primary components:

1) household-level disinfection of drinking water with a dilute bleach solution
2) safe storage of water in narrow-mouthed containers, and
3) behavior change communication to encourage adoption of these new behaviors and sustain utilization of the SWS.

Along with the introduction of the SWS, THOTEN promoted hand washing as part of the overall Program.

Objective
Prevention of diarrhoeal diseases through household water chlorination and promotion of hand washing with soap in tsunami affected community of Hikkaduwa, Sri Lanka

Expected outcomes
Overall to reach 4000 households in tsunami affected communities of Thotagamuwa, Hikkaduwa area with behavior change communication and distribution of the Safe Water System

Approach/methodology
The methodology and overall approach of the SWS was discussed with the Ministry of Health, the Government Water Board, World Health Organization and other key institutions such as the UNICEF.

A local private sector manufacturer was engaged for the production of chlorine at 0.9% concentration for individual 130ml plastic bottles. Each household was provided a chlo-
### Table 1

<table>
<thead>
<tr>
<th></th>
<th>In one year</th>
<th>In the 2nd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% of households to be aware of the SWS</td>
<td>70% of households to be aware of the SWS</td>
<td></td>
</tr>
<tr>
<td>30% of household to know how to use the SWS system</td>
<td>50% of households to know how to use the SWS system</td>
<td></td>
</tr>
<tr>
<td>15% of household to use the dilute bleach component of the SWS</td>
<td>25% of households to use the dilute bleach component of the SWS</td>
<td></td>
</tr>
<tr>
<td>25% increase in the relative proportion of households using soap for hand washing</td>
<td>40% increase in the relative proportion of households using soap for hand washing</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Community</th>
<th>No Households</th>
<th>Jerry Cans</th>
<th>Chlorine</th>
<th>Soap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kalupe</td>
<td>1231</td>
<td>1041</td>
<td>1005</td>
<td>1059</td>
</tr>
<tr>
<td>Malawanna</td>
<td>449</td>
<td>465</td>
<td>394</td>
<td>465</td>
</tr>
<tr>
<td>Wellawatte</td>
<td>340</td>
<td>330</td>
<td>176</td>
<td>330</td>
</tr>
<tr>
<td>Seenigama</td>
<td>450</td>
<td>321</td>
<td>08</td>
<td>321</td>
</tr>
<tr>
<td>Thotagamuwa</td>
<td>475</td>
<td>461</td>
<td>-</td>
<td>461</td>
</tr>
<tr>
<td>Werellana</td>
<td>107</td>
<td>94</td>
<td>-</td>
<td>94</td>
</tr>
<tr>
<td>Telwatte</td>
<td>728</td>
<td>728</td>
<td>100</td>
<td>728</td>
</tr>
<tr>
<td>Peraliya</td>
<td>423</td>
<td>423</td>
<td>-</td>
<td>423</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4203</strong></td>
<td><strong>3863</strong></td>
<td><strong>1683</strong></td>
<td><strong>3881</strong></td>
</tr>
</tbody>
</table>

Two months following the distribution (in April 2006) a monitoring exercise was undertaken through a detailed survey of a random sample and focus groups to establish the SWS usage patterns and trends in the community.

At the time of preparing this paper (1st June 2006) the data from the first monitoring and evaluation exercise are being processed for analysis but will be available and presented at the Conference in November 2006.

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