Hand Washing Practice in ASEH Project Area: A Study for Impact Monitoring

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This study (2008) examined the status and benefits of hand washing with cleaning agents at five critical times. It was the third part of a longitudinal study of a project in rural and urban areas of Bangladesh, with an earlier baseline (2004) and mid-term impact study (2007). It was designed using an iterative Cluster Sampling Technique. The study revealed that knowledge about critical hand washing times increased significantly in both rural and urban areas at all five critical hand washing times, except for two critical times related to children in rural areas. Of respondents in rural and urban areas, 27% and 63% respectively have knowledge about all five critical times.

Hand washing at these critical times increased in rural and urban areas, with the exception of hand washing before feeding young children in rural areas. Notably, 27% of people in rural and 32% of people in urban areas reported washing their hands properly at all five critical times. These results, however, critically depended upon time period of project implementation and geographical contexts. Incidence of diseases, duration of sickness and workdays lost for waterborne diseases decreased from baseline. In addition, people who did not wash their hands properly were more affected by waterborne diseases. Data from respondents showed that medical expenditures were reduced by 64% in rural and 73% in urban areas, implying a significant increase in disposable income. The project may have significant positive impacts, e.g. reducing waterborne diseases, decreasing lost workdays, increasing disposable income, and decreasing medical expenditures as a result of proper hand washing practice with appropriate cleaning agents.

Introduction and Rationale of the Study

Hand washing with cleaning agents is a low-cost intervention that people can easily adopt to reduce communal risk of common infections as well as diseases, especially water borne diseases. This practice could save more lives than any single vaccine or medical intervention, cut the number of child deaths from diarrhoea (the second leading cause of child deaths) by almost half and from pneumonia (the leading cause of child deaths) by one-quarter [Source: Homepage. (n.d.). Retrieved December 22, 2008, from The Global Public-Private Partnership for Handwashing with Soap: http://www.globalhandwashing.org/]. The Centres for Disease Control and Prevention (CDC) has stated, "It is well documented that the most important measure for preventing the spread of pathogens is effective hand washing".

The Advancing Sustainable Environmental Health (ASEH) project was the largest project of WaterAid Bangladesh (WAB). It started in July 2003 and successfully ended in March 2009. ASEH was implemented through 20 Partner NGOs working in 307 Unions (the lowest administrative unit of geographical boundary in Bangladesh) of 41 sub-districts under 19 districts and in 732 slums of Dhaka city, Chittagong city, Khulna city, and Narayanganj Paurashava (municipality). The overall objective of ASEH was to promote sustainable safe water supply, environmental sanitation and hygiene promotion services to the poor and marginalized population of project areas. ASEH aimed to be a major contributor to the achievement of the relevant National Millennium Development Targets of the Government of Bangladesh, and thereby have a positive impact on the reduction of poverty.

Despite the proven value of effective hand washing, the level of practice appeared to be low in the ASEH project areas during the baseline. WAB introduced hand washing awareness raising as a part of its hygiene promotion activities from the very beginning of the project and established a participatory process for monitoring the practice through Community Based Organizations. This study, as a part of WAB’s impact monitoring, aimed to reveal the status of hand washing knowledge and people’s attitudes towards hand washing practice with cleaning agents. In addition, it set out to determine whether this intervention
contributed to the overall impact of the ASEH by reducing water borne diseases, increasing disposable income and decreasing workday loss.

**Objective of the Study**
The objective of the study was to assess overall change in recipients’ knowledge of hand washing and practice in daily life during five critical times, as recognized by ASEH.

**WAB Considered Five Critical Times for Washing Hands**
Proper methods of hand washing with appropriate cleaning agents at different critical times are identified in Table 1.

<table>
<thead>
<tr>
<th>Critical times</th>
<th>Cleaning agent</th>
<th>Steps for washing hands</th>
</tr>
</thead>
<tbody>
<tr>
<td>After defecation</td>
<td>Soap or ash</td>
<td>Step 01: Wet hands with water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 02: Apply appropriate agent to cover all surfaces of hands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 03: Rub hands palm to palm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 04: Rub each palm over the back of the other hand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 05: Rub palm to palm with fingers interlaced</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 06: Rub backs of fingers to opposing palms with fingers interlocked</td>
</tr>
<tr>
<td>Before eating</td>
<td>Soap</td>
<td>Step 07: Rub each thumb clasped in opposing palm</td>
</tr>
<tr>
<td>After cleaning children’s bottom</td>
<td>Soap or ash</td>
<td>Step 08: Clasp fingers and circular rub opposing palm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step 09: Rinse well with water</td>
</tr>
<tr>
<td>Before feeding children</td>
<td>Soap</td>
<td>Step 10: Allow hands to dry completely before touching anything else</td>
</tr>
<tr>
<td>Before handling food</td>
<td>Soap</td>
<td></td>
</tr>
</tbody>
</table>

**Limitations of the Study**
- Sex and age distribution were not considered during the process of sample size determination.
- To analyse the disease profile, if any person was suffering from any diseases during the period of data collection, the interview day was considered as the last day of that disease duration even though the illness may have continued beyond that date.
- Though males head most households, to manage time and resources, females were interviewed in most cases.
- To compare data with the baseline and mid-term impact studies, the total numbers of households, rather than just households with children, were considered for hand washing before feeding children and after cleaning children’s bottom. Thus, the proportion of people who know about and practice hand washing with respect to children appears lower than it was subsequently clarified to be in actual practice.
- Only the variables related to the basic questions were considered during analysis, though other variables from within and outside the scope of the project may have contributed to project outcomes.

**Methodology**

**Sample size**
Based on given human resource, time and budget requirements, determining sample size is one of the most crucial and important facets of an impact monitoring study that aims to reveal representative results. This sample was selected with a 95% confidence level and 7% confidence interval, assuming 50% of units possess characteristics expected in the population. Thus, calculated total study samples for rural and urban areas are 196 and 196 respectively.
The following example offers insight into these terminologies:

- The 7% confidence interval suggests that this result is true within the range of (80±7) per cent, or within the range of 73% to 87%.
- Following the 95% confidence level, if this survey were repeated 100 times on the same study area, the result would be same 95 times.

In the other two longitudinal studies, the confidence level was the same, but the confidence interval was 2% for the baseline and 5% for the mid-term impact studies respectively. This is because, once the benchmark information was collected at stronger (2%) confidence interval as well as larger sample size, it will be rationale and easier to make inferential analysis as well as compare at weaker confidence interval (even at 5% and 7%) with a smaller sample size at the next to baseline’s longitudinal studies.

**Sampling technique and strategy**

Household heads or household representatives of ASEH intervention areas served as the basic unit of this study. Again, as a sampling frame was not fully available and easily accessible, cluster sampling was the most suitable technique for this study. To make the sample representative of the population and to avoid bias (since the clusters differed greatly in size of area, household, and population), a sampling technique named *Probability Proportional to Size Cluster Sampling* was used. In this methodology, the probability of selection of a cluster is proportional to its size, e.g. a larger cluster has a larger probability of selection. Hence, the samples are truly representative of the population, as an equal number of households were finally chosen from each of the resulting self-weighting clusters (in other words, every household had the same chance of being included in the sample).

The following five stages and sampling units were followed:

- At stage 01, the contexts of areas were taken into consideration. The contexts of ASEH working areas were plain, flood, hilly/ hillock, and coastal. The samples were chosen from all of the contexts.
- At stage 02, names of the Partner NGOs were taken under consideration. The study conducted at the selected Partner NGOs' fields and the Partner NGOs were selected randomly by using the ‘sampling’ analysis tool of MS Excel software to avoid bias.
- At stage 03, the numbers of Community Based Organizations were determined. In this process a number of Community Based Organizations were selected randomly from the list of total Community Based Organizations using the ‘sampling’ analysis tool of MS Excel software to avoid bias. The names of the Community Based Organizations were then plotted serially as the number came from the software. Thus, the number of Community Based Organizations included in the study was determined by the total desired sample size.
- At stage 04, the economic classification was considered as 5% of the total numbers of households were taken from each of the Community Based Organizations’ areas. Five per cent was used because the average number of households associated with each of the Community Based Organizations was approximately100 and they had households from all five economic classes (rich, middle class, lower middle class, poor, and extreme poor). This approach ensured that households from all economic classes had an equal chance of being selected.
- At stage 05, the numbers of households were selected proportionately as the ultimate sampling unit based upon the economic classifications from each of the sampled Community Based Organizations.

**Tools**

In this study, three tools were used to collect information. Primarily, a *questionnaire survey* was used to collect and analyse data with a total of 392 questionnaires surveyed. *Ranking and pocket chart*, another participatory group discussion tool, was then applied to triangulate the core results. During the ranking and pocket chart phase, 13 sessions were conducted with a total of 142 participants through group discussions that averaged 11 participants per session. Females comprised 71% of participants.

**Tools Used for the Study**

- Questionnaire survey
- Ranking & pocket chart
- Case study
To capture insight into qualitative changes, and learn about people’s experiences, dreams, and challenges with regard to hand washing, case study methodology was also applied. Seven case studies were collected from the field to supplement understanding of the contexts and human factors for future planning purposes.

**Approach for Promoting Hand Washing in ASEH Project**

WAB followed its own approach to deliver its program components to the intended beneficiaries. A synopsis of its approach to implementation of hand washing promotion is summarized below:

- At the beginning of project intervention in the field, community people were inspired and motivated through community situation analysis and ‘risk analysis on Water, Sanitation, and Hygiene (WaSH) and other tools. These important tools made people aware of the necessity of hygiene practices — especially washing hands at five critical times.

- After the community situation analysis, people were motivated about WASH and formed a community group to solve the identified problems. This community group evolved as a community based organization that prepared its own community action plan in a participatory manner. The plan was based on problems identified during situation analysis including hand washing behaviour, scope of income generating activities, availability of safe drinking water, and hygienic latrines, among others.

- Based upon community need and demand, hygiene education was then delivered through households and community groups (e.g. mother group, children group, adolescent group) in communities, schools and public places. Adoption of proper hand washing practice by children at schools and in the community was given high priority, as they were the potential change agent in society and behaviour change in this population had long term potential. This hygiene education, especially on hand washing, was conducted through courtyard meetings, tea stall sessions, household visits, street dramas, rhymes and story competitions, and mass campaigns. Pictorial flash card and flip charts, rhyme and storybooks, hygiene promotion ludo, billboards, and stickers were used as a means of targeting hygiene education so community members could recall the right messages at the right time.

- After the education sessions, the community group used a participatory approach to update the community action plan. They formed a participatory monitoring group to monitor activities of the action plan, especially the practice of effectively hand washing with cleaning agents at five critical times. This participatory community monitoring group played a vital role in establishing and sustaining the hand washing practice. Notably, community members’ use of the platform of community based
organizations resulted in participatory delineation of hand washing monitoring that differed from one community to another, so field staff facilitated validation of the information flow. The following serves as an example of how hand washing was monitored by a community group:

- The committee of the community based organization formed clusters of twenty households (a convenient population sampling for purposes of observation) within the catchment area of that community based organization.
- One member from the committee and one member from the cluster were collected observed information through house-to-house visits.
- The collected information was presented in a pre-determined format, developed by project participants, which was filled in through discussion during a participatory community based organization meeting that included members/ monitors, household representatives, and field staff.
- The status was reviewed during the meeting and the next course of action was determined on the basis of available information and discussion.
- The members responsible for collecting observed information conferred as peer pressure group to improve the situation, and thus people of each of the clusters motivated spontaneously to change their behaviour in this regard.

Findings from Rural Areas

Knowledge on hand washing

In WaterAid Bangladesh intervention areas, the level of knowledge regarding hand washing at five critical times increased from the baseline and mid-term impact study (Figure 01). For three of the practices, the percentage of respondents who recalled the critical hand washing times increased with the increasing time periods of project implementation. The exceptions were the two critical times related to children. In these two cases, knowledge levels were higher when the implementation period was one to two years and more than two years, rather than six months to one year. Since, most of the households do not have children (only 27% of households had children aged less than 6 years of age), the beneficiaries appear to forget these messages with the passage of time.

The geographical context of ASEH implementation reveals that the percentage of hand washing knowledge at all of the critical times is higher in hilly/hillock areas than in flood/char where there is significant room for further development in this regard. This can be attributed to the fact that people of hilly/hillock areas live in a place for a longer period of time, whereas the people of flood/char areas are compelled to change their living place due to regularly occurring natural calamities. Knowledge levels were higher in arid plains and coastal areas than in flood/ char areas, but still need attention to reach the desired results.

The proportion of respondents who could recall all five critical hand washing times increased from 43% in the baseline study to 53% during midterm impact study. The proportion who recalled all five times, however, decreased dramatically to only 27% in the present 2008 study.
Practice hand washing
Baseline data were not available for hand washing behaviours, so the data from the 2008 study were compared only with the mid-term impact study. Hand washing practice, as reported by the respondents, increased (Figure 02) except before feeding young children. Reported practice increased remarkably before eating and before handling food. Hand washing after defecation is nearly universal and hand washing before eating has increased significantly (from 34% to 68%), but hand washing before handling food and before handling young children requires special attention to reach the expected result. Over the implementation period, the percentage of practice is increasing at all critical times of hand washing except one — before handling food.

When geographical contexts were considered, only hand washing after defecation was nearly universal at all geographic areas. The percentage of hand washing practice at two critical times related to children, however, was lower and occurred only 53% of the time in flood/char areas.

It is noteworthy that 27% of people reported washing their hands with cleaning agents at all five critical times, an increase from less than or equal to 6.6% during mid-term impact study.

Disease, medical expenditure and disposable income

Incidence of diseases
Incidence of diseases decreased from the baseline (Figure 03). A forecast trend line based on data available from all three periods was analysed for all diseases and for waterborne diseases. It revealed that while the rate of incidence is decreasing in both categories, the rate of decrease in water borne diseases is greater than for all diseases.

Duration of sickness of all diseases and water borne diseases decreased from the mid-term impact study. This data was not collected for the baseline study (Figure 04).
It is worth mentioning that people who do not wash their hands properly are affected more (79%) by water-borne diseases than those who do (23%).

**Medical expenditure saving and disposable income gain**

Factoring in 15% flat inflation from 2006 (source: International Monetary Fund - 2009 World Economic Outlook) to 2008, baseline medical expenditure was reduced by 65% for all diseases and by 64% for water borne diseases. This represents increased decreases with respect to the midterm-impact study, which reported percentage decreases of 46% for all diseases and 10% for water borne diseases from medical expenditures reported at baseline (Figure 05).

Thus, the savings for only water-borne diseases were Taka 786/- (US $ 1= Taka 70) from baseline, which was equivalent to Taka 3,144/- per year per household. Hence, the total amount saved by rural household include in this study was Taka 2,012,254,320/- per annum (US $ 1= Taka 70).

**Workdays lost**

Within the ASEH intervention area, workdays lost for water borne diseases decreased 10% from the mid-term impact study. Workdays lost for all diseases decreased 31% from the midterm study and 79% from baseline as reflected in Table 2.

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Work days lost (in days)</th>
<th>% of change (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All diseases</td>
<td>19.7</td>
<td>5.9</td>
</tr>
<tr>
<td>Water-borne disease</td>
<td>No data</td>
<td>3.5</td>
</tr>
</tbody>
</table>

**Findings from Urban Areas**

**Knowledge on hand washing**

In the WaterAid Bangladesh intervention urban study, the level of knowledge about all critical hand washing times increased from the baseline and mid-term impact study following an upward trend (Figure 06). Hand washing targets were reached for after defecation, and nearly reached for before eating. Significant progress was made toward the three other critical targets as a result of special attention that must be maintained in order to reach these targets in the future.

The percentage of respondents having knowledge of all five
critical hand washing times increased remarkably in this study (63% over levels midterm impact study and baseline study levels of 3% and 1% respectively).

**Hand washing practice**
The data for hand washing practice at five critical times were compared with the mid-term impact study only, since the data is not available at baseline. Reported hand washing increased remarkably (Figure 07) for each critical time. Hand washing after defecation and before eating was above 90%. The proportion of respondents practicing hand washing at all of the critical times increased over the implementation period. Only 5% reported washing their hands at all of the five critical times during the midterm study, and 32% reported doing so in 2008.

**Medical expenditure and disposable income**

**Incidence of diseases**
Incidence of diseases decreased from the baseline (Figure 08). While the figure suggests that the incidence of waterborne diseases was the same from mid-term to current studies, it is important to note that midterm impact study data was collected during dry season, whereas data of this study was collected in the rainy season. The usual pattern of disease in urban areas of Bangladesh shows that people suffer more waterborne diseases in the rainy season. Therefore, though both the midterm impact study and this study report the incidence of waterborne disease as 16%, this actually reflects an improved situation during this study.

Duration of sickness of all diseases and water borne diseases decreased slightly over the two reporting periods, although the difference is not significant (Figure 09). Since the survey for the latest study was completed in rainy season, the duration of water borne disease was slightly increased, though duration of all diseases was slightly decreased.
It is worth mentioning that people who did not report washing their hands properly were affected more by waterborne diseases (58%) than those who reported washing their hands properly (26%).

**Medical expenditure saving and disposable income gain**

Factoring in 15% flat inflation from 2006 (source: International Monetary Fund - 2009 World Economic Outlook) to 2008, it appears that there was a reduction from the reported baseline medical expenditure of 71% for all kinds of diseases and 73% for specifically water borne diseases. This percentage was 6% for all diseases and 16% for water borne diseases with respect to midterm-impact study (Figure 10). Thus, the savings for only water-borne diseases were Taka 1,095/- (US $ 1= Taka 70) from baseline that was equivalent to Taka 4,379/- per year per beneficiary household. Hence, considering total urban household for this study total saving amount was Taka 350,965,232/- (US $ 1= Taka 70) per annum.

**Workdays lost**

There was a decrease in workdays lost for both all diseases and for water borne diseases. Table 3 presents these findings in detail.

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Work days lost (in days)</th>
<th>Percentage of change (2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All diseases</td>
<td>10.4</td>
<td>8.1</td>
</tr>
<tr>
<td>Waterborne disease</td>
<td>No data</td>
<td>5.3</td>
</tr>
</tbody>
</table>

![Figure 10: Medical Expenditure in Urban Areas](image)
Triangulation
To test the results of responses to the structured questionnaire, data from the Ranking and Pocket Chart, one of the participatory group discussion tools, were compared with data from the questionnaire survey. The Ranking and Pocket Chart is a tool that maintains the anomy of the respondent. It is based on the concept that people are more likely to respond candidly if their identity is not revealed in the ranking process. During the Ranking and Pocket Chart activity, core data were collected on hand washing knowledge and practice in rural and urban areas. The results are compared in the figures below.

These figures show levels of knowledge and practice of hand washing with cleaning agents at critical times in rural and urban areas. The responses to the questionnaire and the pocket voting for each item do not differ significantly. In each case, however, the pocket voting tends to be uniformly higher than the responses to the structured questionnaire. This trend lends credence to the questionnaire responses. On the other hand, it would be very surprising if more than 90% of the respondents always washed hands with cleaning agents after defecation and before eating. These proportions appear to be very high. However, the trends noted above suggest that the results of questionnaire survey are acceptable within the range of its statistical limitations for the following reasons:
- results of questionnaire and survey were statistically tested, and
- triangulation of the results with another tool (the Ranking and Pocket Chart) yielded similar trends.

Conclusion
Hand washing with a cleaning agent is, no doubt, the most effective and inexpensive ways to prevent WaSH related diseases that are responsible for child deaths. Therefore, promoting and practicing hand washing is the most appropriate and effective intervention for hygiene behaviour in the developing countries. It is evident from the study that the project beneficiaries experienced reductions in waterborne diseases, fewer lost workdays, increased disposable income, and decreased medical expenditures. These
changes may be due in all or in part to proper hand washing practice with appropriate cleaning agent. Beneficiaries are changing their hand washing behaviours, but despite the lifesaving effect and potential for increases in disposable income, room for further improvement remains. The challenge is to transform hand washing with cleaning agents at five critical times from knowledge into a spontaneous behaviour performed by individuals in households and communities. The key factors in determining success were proper motivation of the community through risk analysis on WaSH during community situation analysis, and participatory community monitoring of hand washing practice as both peer education and a means of evaluation. ASEH took on this challenge and significantly improved the situation from a worst-case scenario to a moderate one. ASEH aims to realize an even better result in future.

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References


Notes
Three abbreviations that occur throughout this paper are (i) WAB for WaterAid Bangladesh, (ii) ASEH for Advancing Sustainable Environmental Health, and (iii) WaSH for Water, Sanitation, and Hygiene.
Keywords
hand washing, disposable income gain, incidence of disease, workday lost, triangulation, monitoring.

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This study documents the results of field visits, interactions with household members, and focus group discussions with village health workers, municipal health officers and NGOs working in two regions of the Philippines (Bicol and Eastern Visayas). Case studies on personal and home hygiene in flood prone communities were documented by members of the WASH (Water, Sanitation and Hygiene) Philippines Coalition working in the provinces of Western Samar, Northern Samar, Sorsogon and Albay, which are periodically battered by typhoons, floods and volcanic eruptions. These case studies provide insights into personal and household hygienic practices and form the basis of recommendations for improving sanitation, hygiene and water programmes.

Introduction

The Waray and the Bicol are among the 110 ethnic groups in the Philippines. Living in regions that receive more than 250 centimetres of rain a year, both are hardy peoples who have adjusted well to frequent natural disasters. The areas in which they live, for example, are subject to five to six typhoons (cyclonic storms) on the average, each year.

Of the estimated total population of 90 million in the Philippines today, the Waray people of Eastern Visayas and the Bicol people at the southern part of Luzon comprise approximately 5 million each. The Waray and the Bicol languages are among the most widely spoken of the over 120 languages in the Philippines. Inhabiting the south-eastern part of the Philippines, the Waray and the Bicol reflect the ethnic diversity as well as the archipelagic character of the country.

This study looked into the personal and home hygiene practices of people living in flood prone communities in the Waray provinces of Western and Northern Samar, and in the Bicol provinces of Albay and Sorsogon. This knowledge management initiative was undertaken by the WASH (Water, Sanitation and Hygiene) Philippines Coalition in support of its three other strategies — programme development and resource mobilization, advocacy and networking, and institutional strengthening — all aimed at increased access to basic water and sanitation services with emphasis on hygiene promotion. The study is also part of a combination of activities for policy reform, infrastructure, capacity building, WASH awareness raising, and hygiene promotion at household, community and institutional levels. WASH Philippines Coalition has members working in remote island communities and provinces that are among the poorest in the Philippines and that have the lowest access to water supply and sanitation services in the nation.

Objectives of the Study

1. To find out about personal and home hygiene practices of people living in flood prone communities in the Waray provinces of Western and Northern Samar, and in the Bicol provinces of Albay and Sorsogon in the Philippines.

2. To identify specific advocacy efforts as well as immediate actions and recommendations to be communicated to local governments, NGOs, communities and households.
Methodology
This study used various methods of data gathering. These included field visits, observation, and interactions with household members; as well as focus group discussions with village health workers, municipal health officers and NGOs. Separate case studies on personal and home hygiene practices were conducted on the Bicol and on the Waray in flood prone communities. Members of the WASH Philippines Coalition in the Waray and Bicol provinces gathered the data.

Focus group discussions facilitated by 15 to 20 village health workers working in flood prone communities were conducted in four municipalities of Northern Samar: San Jose, Lope de Vega, Allen and Mondragon; four in Western Samar: Paranas, Villareal, Santa Rita and Pinabacdao; three in Albay: Camalig, Daraga and Guinobatan; and two in Sorsogon: Pilar and Barcelona. House visits and observations were undertaken in at least 10 houses in each of these 13 municipalities. Municipal Health Officers, sanitary inspectors and representatives of local NGOs joined some of the focus group discussions.

Results

Waray case study
The Waray people associate hygiene with health, well being and cleanliness. Home hygiene is seen in the context of practices in a house as an architectural structure and in relation to the other members of the household. Most practices are conducted at home to prevent the spread of diseases, accidents, or even misfortune and ill will. Practices enumerated relate to hand washing; food handling and preparation; laundry; safe disposal of human and other wastes; cleaning of toilet and bathing area; care of pets and livestock; care of sick family members; control of dust, molds and mildew; mental hygiene; and harmonious relationships.

Personal and home hygiene for the Waray are directly affected by the tropical monsoon climate and the change in seasons. The typical temperature is 27 degrees Centigrade. Seasons change from dry to wet and last for months. It is also common that a single day could be both sunny and rainy.

Household hygiene
The researchers observed that home hygiene, as defined by the local people, has a direct link to the local architecture. It was observed that most houses in the flood prone communities have a strong, pyramidal thatched roof that can withstand and deflect the wind and torrential rains. Windows are wide and usually left open all day to allow continuous air flow and thus good ventilation that prevents the growth of moulds and mildew, which are common in the humid tropics. Dust build-up inside the house is prevented by the daily sweeping and wiping of surfaces with a wet cloth that is washed and re-washed and then hung up to dry under the sun.

Air circulation is regarded as an important aspect of home hygiene. The mere act of keeping the windows open to allow air and sunlight inside the house already helps control moulds, mildew and other allergens. It also eliminates any unpleasant odour. Fragrant flowers like sampaguita, jasmine, and camia are planted near windows so that the breeze carries the fragrance inside the house.

Many houses are built on posts and stilts one or two meters above the ground to keep snakes, rats, and other vermin from entering the living areas. The open space between the bamboo floor and the ground or soil, allows floodwaters to pass through. People have adapted to the coming and going of floods. Some houses have boats nearby. Others have items, which could readily be used as or converted into flotation devices. Floors made of split bamboo allow air circulation and also facilitate house cleaning as dirt and dust inside the house could readily be disposed of through the spaces in the bamboo slat flooring. The multipurpose open space beneath the house is often used for storage or as a work place. It safeguards the household against flooding, snakes, and insects.
Construction of houses with light local materials (e.g. bamboo, *nipa*, wood, grass, palm leaves) enables occupants to survive earthquakes and typhoons. Such lightweight houses are said to cause only minor injuries when toppled by earthquake or typhoon.

The inside of a typical house is a multi-use open space that gives the simple dwelling a spacious feel. Some houses have an open front porch used to store jars of water for washing the feet prior to entering the house and for other purposes. Jars and pots are used for cooking and for storing water and other liquids. The abundance of raw materials from indigenous plants such as *buri*, palm leaves, *tikog*, grass, *rattan*, bamboo, and *pandanus* encourages the making of mats, baskets and other useful household items. Rice and other foodstuffs are stored in baskets. A fruit basket, root basket, vegetable basket and hanging basket for storing leftover food are commonly found in most houses.

Sunlight, which is widely abundant and free, is regarded as a good disinfectant. Many personal and household items such as clothes, beddings, mats, hammocks, utensils, shoes, and slippers, are taken out of the house daily to be hung or directly exposed to sunlight and air. People also try to catch the early morning sun and expose themselves to sunlight from early to midmorning. Exposure to the morning sun while working or relaxing is believed to provide energy giving benefits.

In the late afternoon, when the sun is down, dried leaves and twigs that fall from the trees and other plants in the yard are swept into a heap and burned to allow the smoke to move upwards to the trees and towards the house. The smoke controls pests and induces the flowering of fruit trees such as mangoes. The smoke that enters the house drives away mosquitoes, which normally swarm during the early evening.

People wear footwear outside the house. Most prefer to walk barefoot inside the house to maintain its cleanliness. The floor has to be kept clean, as it is a multipurpose shared social space by day and a sleeping area at night. Researchers observed that the floor is swept almost daily. The Waray language has many words referring to floor cleaning -- from sweeping it with various types of brooms, to washing it with water, to drying it, to making it shiny by scrubbing it with banana leaves.

The kitchen and the dining areas are cleaned after every meal, which is three times a day. Dishes and cooking utensils are washed after use. Wet surfaces are wiped dry. Drinking water occupies a special place in the house, away from contamination and other disturbances.

Home hygiene is based in a family-centered perspective. Caring for the very young and the elderly is given more attention, as they are perceived to be the members of the family who are more prone to illnesses. This shows in the aspect of food preparation. For example, in cooking the staple food rice, a family with very young children and elderly members tend to cook their rice with more water to make it soft to ensure that both the very young and the elderly are able to eat rice that is easy to chew.

**Personal hygiene**

Eating food with bare hands is a common practice. Hand washing before and after meals is universal. According to some elders, hand washing before meals used to be a sacred ritual. The oldest member of the family, usually a grandparent, initiated hand washing and was followed by the next eldest through to the youngest. It was a manifestation of filial piety or respect for the elders. After meals, hand washing is a natural thing as the typical Waray diet of rice, fish, vegetables, root crops and fruits leave a messy feeling on the hands if left unwashed. The smell of fish has to be washed from one’s hands with soap and water. If soap is not available, local sour fruits commonly grown in the backyard garden like *limoncito* and *camias* are used as a substitute. The juice of *limoncito* — a small, green, lemon-like fruit commonly used in cooking and as a beverage — is effective in removing the fishy smell from hands, plates, utensils and kitchen surfaces. In some social gatherings, such as returning from a wake or a funeral, a hand washing ritual using lukewarm water boiled with citrus leaves is still practiced. Aside from hygiene aspects, this practice is also a type of aromatherapy meant to uplift the spirit or relax tired hands.

Home and personal hygiene change in times of calamities such as during floods and typhoons. Adults undertake some form of fasting or reduce food intake as resources typically dwindle during a calamity. Water use in the house is typically reduced during floods. Taking a positive attitude during calamities is
regarded as a means of mental hygiene. Conflicts are avoided. Opportunities arise for storytelling and for learning from the elders some useful knowledge for survival as well as lessons in life. Story telling is also used as a means to prevent children from playing in flooded waters.

The notion is that if one cannot have a clean house or a clean body because of a natural calamity, having a clean mind or a high spirit must prevail instead. People also resort to prayers as a form of spiritual hygiene. Several Waray expressions refer to emotional and spiritual strength, conveying the belief that nothing bad can last forever. The Waray find something to celebrate in the face of adversities, and build confidence as they survive or move on despite difficulties. Each calamity is followed by the restoration of houses and the communal cleaning up of surroundings.

Personal hygiene is closely linked to home hygiene. Personal hygiene practices include: hand washing, taking a bath daily or a sponge bath if bathing with flowing water is not possible due to circumstances, changing clothes after each bath or when the clothes get dirty or sweaty, wearing clean clothes, using clean beddings, consuming clean food and water, safely disposing of human waste, brushing the teeth, trimming the nails, rubbing the skin and hair with coconut oil, getting a regular hair cut, having a massage when fatigued, and keeping the mind and the emotions clean.

Collectively referred to as a daily cleaning routine or ritual, personal hygiene practices are carried out by both males and females. Women, however, have more diverse and elaborate hygiene practices associated with beautifying or making themselves feel good considering the numerous chores and responsibilities they face in daily life.

Some women boil water with the leaves of citrus fruits. The resulting fragrant smelling warm water is mixed with their water for bathing. They attest that bathing with the lukewarm fragrant water gives them a feel good effect. Other practices have to do with achieving a clear complexion. Some women use rice washing for facial toning to prevent pimples and blemishes. Grated coconut is used as a body scrub. The application of coconut oil on the hair and scalp prevents dandruff and promotes healthy hair. Coconut oil is also used to moisturize the skin. Women typically resort to a daily change of clean light clothes that are suited in style and material for the humid tropics.

The leaves of guava trees, which grow abundantly in garden yards, are boiled. The infusion is used as mouthwash or as an antiseptic for skin irritations and for washing wounds. Toothpaste is used in dental hygiene. Salt is sometimes used as a substitute for toothpaste.

The Waray view personal hygiene as a health investment. One must be in good health for emergency preparedness as their communities are prone to natural disasters brought about by typhoons, floods and earthquakes.

**Bicol Case Study**

Bicol households covered in this study also regard hygiene as a means of keeping clean and as a protection against illnesses. Home hygiene practices identified as behaviour and activities aimed at keeping the house clean and safe were similar to those mentioned by the Waray. Household and personal hygiene practices were similar, and people also bask in the morning sun to be energized in body, mind and spirit. Like the Waray, the Bicol hold communal cleaning sessions and reconstruction activities after each flood, earthquake and typhoon. Such activities reinforce their community cohesiveness and enhance the value of social capital.

It was observed that both the Waray and the Bicol have many herbal preparations that are used for personal hygiene and for treating common illnesses. Diuretics like tea made from the leaves of the *banaba* tree, from ginger, or from corn tassels are some of the popular drinks. Diuretics are resorted to during calamities and in other times when salted dried fish is eaten more often instead of the usual diet of fresh fish and other seafood.
The majority of households in both the Bicol and the Waray study areas have a water sealed toilet with a septic tank. Pour flush toilets with soak pits were also observed. Some households do not have toilets due to poverty. Others that do not have toilets have access to the toilets of their relatives who are usually also their neighbours. In both areas, paper is used for anal cleaning, followed by washing with soap and water. When toilet paper is not available, anal cleaning is done by washing with soap and water. The private parts are washed too. It was common for some of the women to wash their private parts after urinating.

No sacred ritual was associated with hand washing before meals in the Bicol area. This may be because very few Bicol elders were engaged in conversations during the study period. As observed in the Waray households, hand washing among the households visited in the Bicol areas was usually undertaken when the hands got dirty or felt sticky and also after using the toilet. Some women and men in both the Bicol and Waray areas mentioned taking a bath twice a day, especially during the summer months and on days when they engage in a lot of physical activity.

Like the Waray, the Bicol also highly value personal hygiene as an investment for good health, enabling them to adapt and thrive in communities prone to natural disasters.

**Findings**

Home and personal hygiene of the Waray and the Bicol reflect a lifestyle borne out of indigenous knowledge and emergency preparedness acquired over time in a region characterized by a cycle of natural calamities. It could be surmised that they would be able to adapt well to the onslaught of climate change and to real or perceived future difficulties.

Home and personal hygiene are also regarded as forms of social insurance. The human body and its dwelling are strengthened for emergency preparedness in anticipation of times when resources and opportunities are lessened as a result of natural calamities.

Case studies or the Waray and the Bicol remind us that hygiene does not have a fixed definition. In these case studies, hygiene has a spiritual dimension. Spiritual and emotional hygiene are recognized as special components of personal hygiene, which provides strength and well being in trying times. A positive outlook that values harmonious relationships helps nurture social capital, which in turn promotes community cohesiveness that serves as an alternative to financial capital in societies with not much cash emphasis.

**Recommendations**

On the basis of these case studies of healthy hygiene practices in the Waray and Bicol regions, we have formulated three recommendations.

Firstly, the studies have identified many positive aspects of current hygiene practices and shown that such studies can be useful. It is recommended that personal and home hygiene practices be documented among the other ethnic groups in the Philippines to identify indigenous knowledge that could help enhance and sustain WASH programmes.

Secondly, it is known that new hygiene practices are most likely to be sustained when they are related to existing practices. Thus, the recommended strategy is to build upon local capability and indigenous knowledge in promoting healthy hygiene behaviours and in mobilizing resources for safe and sustainable water supply and sanitation systems. This should allow for various options, especially low-cost appropriate technologies that help sustain and promote hygiene behaviour.

Thirdly, it is recommended that strong partnerships be initiated between and among communities, local governments, NGOs and academics in promoting and implementing WASH programmes.
Keywords
Waray, Bicol, indigenous knowledge, social capital

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Thirty-five years of Searching for Answers to Rural Sanitation and Hygiene in Bhutan

John Collett, [SNV Bhutan]

During the past 35 years, there have been many achievements in relation to rural sanitation and hygiene in Bhutan. Toilet construction coverage is the highest in the region - 95% of all rural households. Rural water supply has also progressed well with 88% having access to an improved water source. From an institutional point of view, Bhutan has some advantages: the government considers sanitation to be a key factor in achieving Bhutan’s goal of Gross National Happiness, which is enshrined as an individual’s right in the country’s Constitution and has the support of His Majesty the King through the Royal Decree on Sanitation. Implementation is the responsibility of a single ministry, the Ministry of Health, which has received a generous proportion of the total Royal Government of Bhutan (RGoB) budget in successive Five Year Plans. Nonetheless, child morbidity and mortality is still among the highest in South Asia; and water, sanitation and hygiene-related diseases are usually among the top three diseases reported at Basic Health Units throughout the country.

Considering the commendable water and sanitation infrastructure improvement efforts and the integration of health and hygiene education and promotion into the work of the Basic Health Unit staff, Bhutan would appear to be a success story. This paper illustrates that although great progress has been made in community participation, tap and toilet construction coverage, and health education and promotion; more needs to be done to achieve the desired effective use and hygiene behaviour change necessary to ultimately attain the expected health and socio-economic impacts.

Introduction

Over the past 35 years, Bhutan has reached a number of milestones in relation to water and sanitation. In 2008, toilet coverage in rural areas reached 90.8% of the population, which is the highest level in the region. In the same year, access to piped-water supply or a protected water source reached 83.2% (MoH, 2009). The 2007 Bhutan Living Standards Survey (National Statistics Bureau 2007) reports even higher levels, and indicates that 96% of the population has access to improved sanitation (99% in urban areas and 95% in rural areas) and access to an improved water source (99.5% in urban areas and 88% in rural areas).

From an institutional point of view, Bhutan has a number of advantages over other countries in the region. Firstly, the Royal Government of Bhutan (RGoB) considers sanitation to be a key factor in achieving Bhutan’s goal of Gross National Happiness. It is enshrined as an individual’s right in the country’s Constitution and has the support of His Majesty though the Royal Decree on Sanitation. Secondly, since 2003 both rural water supply and rural sanitation have been the responsibility of a single ministry, the Ministry of Health. Hence, implementation of rural water supply and sanitation involves both public health engineering and health workers. Thirdly, the health sector receives a generous allocation of total government expenditure – 9% in the 9th Five Year Plan (2002-07). Furthermore, due to the under-developed private sector, most of the country’s best qualified people work in the civil service.
Box 1. Bhutan at a glance

- 38,392 square kilometres: 8% used for agriculture, 72% forest cover
- 635,000 people, 133,000 households
- 4,500 settlements, 205 sub-districts, 20 districts, 61 ‘towns’ (including 1 city and 5 municipalities)
- 40% of the population live in the southern foothills
- One in four people reside in urban areas
- Urban population growing by 5-7% per year - estimated to grow to 400,000 by 2020
- Main source of government revenue is from export of hydroelectricity
- Second main source of government revenue is tourism
- Human Development Index UNDP HDI ranking 134/177 countries

Other countries in South Asia can only dream of such high levels of water and sanitation construction coverage and provision of prevention and promotional outreach services by Basic Health Unit staff and voluntary Village Health Workers in every sub-district. However, the case of Bhutan shows that this has not been enough to ensure sustainable hygiene behaviour change to ultimately impact health. Although the mortality rate for children under five decreased from 162 per 1,000 live births in 1984 to 61.5 per 1,000 live births in 2008 (MoH, 2009), it remains among the highest in South Asia. Bhutan still needs to improve its rate of progress to reach its Millennium Development Goal (MDG) target of 32 per 1,000 live births by 2015 (reducing the under-fives mortality rate by two thirds between 1990 and 2015).

Great progress has been made in community participation in Rural Water Supply and Sanitation (RWSS) project planning, implementation and management, tap and toilet construction coverage, and health education and promotion. Nonetheless, this paper illustrates that still more needs to be done to achieve the desired effective use and hygiene behaviour change necessary to ultimately achieve the expected health and socio-economic impacts.

**Historical Background to Rural Sanitation and Hygiene Promotion in Bhutan**

Rural sanitation and hygiene promotion in Bhutan started in 1974, during the 3rd Five Year Plan (FYP 1972-77), when UNICEF began supporting the Royal Government of Bhutan (RGoB) RWSS Programme. The outreach of sanitation promotion and its link to health was further established from 1979 onwards, with the Village Health Worker (VHW) Programme. Regular training of VHWs countrywide was in place by the mid-1980s.

In 2002, the RWSS Sector Policy was published. The Community Development for Health (CDH) Workshop was initiated with the Netherlands Development Organization (SNV) support in the same year, and then institutionalised in 2005. By 2008, in addition to 235 training-of-trainers workshops for staff of Basic Health Units (BHUs), the number of Community Development for Health (CDH) workshops conducted reached 1,838. This 2-day workshop is conducted with the communities by BHU staff. It seeks to improve the sustainability and effective use of rural water supply (RWS) schemes through community action and to help communities reflect about community health issues and their causes. The Workshop employs a variety of commitment-building tools, stimulating unified community action for management of RWS schemes and for tackling selected health issues according to priorities set by the community. It can cover a wide range of issues such as household drinking water storage, sanitation, hygiene, health, nutrition, and reproductive health.

By 2005, 3,000 standard rural water supply schemes and 1,000 spring protections were in place. Over 30% of previous RWS schemes had been rehabilitated, and half of the RWS schemes had a trained Water Caretaker. Coverage was 73.5% if functionality is considered. Overall, 84% of the population had access to safe drinking water and 92.6% had access to sanitation (toilets). Data was not, however, collected about toilet use and hygiene behaviour, and the under-fives morbidity and mortality figures remained high. Upon reflection on this situation, the Public Health Engineering Division (PHED) and SNV agreed in 2008, to
pilot a new Rural Sanitation and Hygiene Programme designed to develop an in depth understanding of this missing link.

**Current Roles and Responsibilities for Health and Hygiene Preventive and Promotion Services in Rural Areas**

The Royal Government of Bhutan’s policy is to provide free health care to all Bhutanese citizens. The MoH receives 9% of the overall budget, but within the Ministry, the breakdown of government expenditure on curative and preventive health services allocates 83% to diagnostic and curative services and 14% to health promotion and disease prevention and control (MoH, 2009). Furthermore, two thirds of the MoH budget is allocated to national level efforts while the remaining one third is allocated to the districts and sub-districts where 75% of the population resides. The number of dedicated sanitation and hygiene staff is insufficient in rural areas, and approved costs for Basic Health Unit (BHU) activities often fall short of what is requested. Consequently, BHUs are unable to implement all of their plans.

The RGoB health services delivery system in rural areas is carried out by a current workforce of 540 staff located in 178 Basic Health Units’ and 1,049 volunteer Village Health Workers (VHWs), (the staff ratio is approximately three men to each woman). All 205 sub-districts in Bhutan currently have one or more Basic Health Units (BHUs) or are located close to one of the 30 district hospitals.

The Royal Civil Service Commission job description for a Health Assistant (HA) specifies that about one third of their time is to be spent on community health education programmes including water and sanitation. The expected outcome of this work is the reduction in morbidity and mortality, and control and prevention of communicable diseases in the rural population. Health assistants have a heavy workload. For community health, regular duties of the HA include: data collection and monthly progress report, monthly antenatal care clinics in BHU and ORCs, monthly monitoring and supervision of VHWs, quarterly STD and HIV/AIDS awareness-raising, quarterly RWSS follow-up, bi-annual de-worming in schools and monastic training institutions, bi-annual supplementary vitamin A programme, bi-annual health education in schools, bi-annual drug report, and annual VHW refresher course.

Environmental sanitation and hygiene practices that Basic Health Unit staff and Village Health Workers (VHWs) promote include: washing plates and cups, sweeping the house, burning household solid waste in garbage pits, bathing regularly, and clothes washing. Older villagers say that there was no one to advise them about cleanliness and hygiene when they were growing up. One villager said, “I did not have any such concept (of cleanliness or hygiene). We used to eat, shit and throw garbage in the same place - it was almost as if we were living like pigs” (Allison, 2009).

Front-line health workers report that it is still difficult to convince everyone to use toilets. Though most people have constructed toilets, some still avoid using them because of the smell or their preference for using the fields. When health workers come to check on the usage of pit toilets, some people put animal faeces in the toilet to make it look as though they have used it (Allison, 2009).

The district health authorities, who want to submit good figures for sanitation coverage, pressure BHU staff who in turn pressure VHWs, who then push villagers to build latrines. Latrines built under such pressure are often made hastily and without care, and they are unlikely to be effectively used or maintained in hygienic condition. Consequently, health impacts are unlikely. District health authorities (and those above them) need to be convinced that health impacts cannot be achieved in this way. Hygiene behaviour change that can lead to the desired health impacts will not emerge until villagers decide from their own interest and free will to improve their sanitation and hygiene situation. Currently, the absence of local NGOs dedicated to water, sanitation and hygiene prevents formation of partnerships to address this issue.
Current Hygiene Knowledge and Behaviours in Rural Bhutan: Main Results and Findings of the Rural Sanitation and Hygiene Programme Baseline Survey

From the above it can be seen that the government of Bhutan and the responsible ministry had key elements in place for successful sanitation and hygiene programmes:

- commitment from the highest level,
- support from donors and technical agencies,
- outreach in the villages,
- data collection and monitoring.

Regular data collection by the Ministry of Health combines toilet coverage, on the one hand, and, the incidence of diseases on the other. Until 2008, however, information on the link between the two—hygiene behaviours—was not available. This made adjusting strategies and determining focus difficult. Therefore, the PHED and SNV agreed to conduct a baseline survey on sanitation practices, hygiene knowledge, and behaviour. The primary purpose of the baseline survey was to obtain an accurate picture about the water, sanitation, and hygiene situation in the four pilot Geogs at the start of the RSAHP programme to support comparisons and allow for assessment of changes over the course of the programme. The secondary purpose was to refine programme design and target interventions in each Geog through data analysis, so as to optimize results and impact.

The cross-sectional survey included 453 households in 37 villages in the four pilot Geogs; 46% of respondents were male and 54% female. In three Geogs, the majority of respondents were 41 to 60 years age, while in the fourth Geog the majority were 21 to 40 years of age. The respondent was generally the family member found at home who the other people present thought was the most suitable for the questionnaire-based interview. 105 variables were investigated – 50 through observation and 55 through a structured questionnaire-guided interview. In addition there were 12 general background questions. The observation checklist consisted of 30 external observations made outside the house with regard to sanitation, water and other general observations, and 20 internal observations made inside the house concerning kitchen hygiene, food storage, water storage, nutrition etc. To help improve the consistency of observation by different enumerators, a list of definitions was developed for each item. The interview and observations at each household were carried out by a team of two enumerators, one female and one male, and took on average approximately one hour. If the respondent was female she was interviewed by the female enumerator and if male by the male enumerator. All the information collected was entered in code form on an answer matrix in order to simplify the data recording and reduce the volume of paperwork.

A random sampling method was used within each Geog. The BHU Annual Household Survey (AHS) file of all households in the Geog (updated every March) provided a straightforward and easily replicable sampling frame. This also had the advantage that by using existing MoH records, the HAs were involved from the beginning; the same records could then be used in the post-intervention stage to track the original households for behavioural change. Every third household from the AHS records was sampled for the two larger Geogs and every second household for the two smaller Geogs. Utilising BHU records also enabled the cases to be accurately located as household numbers are recorded and the number of family members in each household can be taken from the existing records.

The survey team consisted of 14 hired enumerators and SNV WASH specialists accompanied by Dzongkhag health staff, Geog and BHU staff, and supported by national consultants from LNW Consulting. For three of the baseline surveys the team was joined by a staff member of PHED and in one, a staff member from the MoH Health Research and Epidemiology Unit joined the team. After completion of the baseline survey, the survey team did data-entry and cleaning using SPSS and Excel. The Centre for Research Initiatives (CRI), Thimphu provided professional support during the data analysis. Some of the results of that baseline are presented below.

Figures 1 and 2 relate to knowledge of respondents about disease and hygiene. Figure 1 shows that both men and women have similar knowledge about critical hand-washing times, causes of worm infestation and skin disease. Men scored higher than women in their knowledge about the causes of diarrhoea and maintaining water quality. Also surprisingly, illiterate people are not so far behind literate people in their knowledge of disease. This should mainly be attributed to BHU (Basic Health Unit) staff and volunteer
Village Health Workers working at the front-line of Bhutan’s rural health delivery system and doing an admirable job of raising the rural population’s awareness and knowledge on a wide range of health issues.

Figure 1. Knowledge of Disease (disaggregated by sex)

In spite of peoples’ high level of knowledge, Figure 3 shows that there is often a gap between knowing and practice. For example although over 93.6% of respondents were able to give one or more correct answers about important moments to wash hands, only 21% of households have a hand-washing place inside or near the toilet. This suggests that hand-washing with soap after using the toilet is unlikely to be a common practice even though people may say they engage in this practice.
Figure 3. Hand-washing knowledge compared with presence and location of hand-washing facility

Figure 4 provides another example of this gap between knowledge and practice. Although the majority of respondents were able to give one or more correct answers to the question ‘what are the different ways you get diarrhoea?’, 60% of toilets are poorly maintained and have flies and over 80% of pit latrines have no drop-hole cover.

Figure 4. Condition of Toilet

As illustrated in Figure 5, 12.8% of households were observed to have human defecation around the house. This is much more than the percentage of respondents who said they dispose of the faeces of under-five year-old children in the open (4%), which suggests under-reporting on this question. It is worth noting that
the MoH guideline states that a pit latrine, the simplest sanitation facility, should be located 50 feet away from the house. One of the consequences of this is inconvenience for users, especially at night or when it is raining. When the toilet is far from the house there is a greater tendency for neglect and for it to deteriorate into a filthy, stinking place.

Figure 5. Household Sanitation

72% of households have no special place for bathing. An earlier initiative in a village close to one of the Basic Health Units in the pilot project area found that women especially appreciate a private bathing place conveniently close to the house. Such a facility can contribute to the personal hygiene of mother and child and hence their health and well being.

The findings that appear in the table below indicate that boiling drinking water and keeping drinking water in a covered container both occur in households where the incidence of diarrhoea is lower. Both practices are important as ample evidence from studies in south Asia confirm the very poor quality of water (for example, more than 500 faecal coliforms/100 ml) stored in households where water is not boiled or covered, or where containers are not clean.

Table 1. Drinking Water and Diarrhoea

<table>
<thead>
<tr>
<th>Drinking water</th>
<th>Cases of diarrhoea</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Households</td>
<td>Percent</td>
<td>Households</td>
</tr>
<tr>
<td>Boiled</td>
<td>111</td>
<td>35.7</td>
<td>200</td>
</tr>
<tr>
<td>Not boiled</td>
<td>52</td>
<td>40.3</td>
<td>77</td>
</tr>
<tr>
<td>Covered</td>
<td>114</td>
<td>36.7</td>
<td>197</td>
</tr>
<tr>
<td>Not covered</td>
<td>48</td>
<td>37.2</td>
<td>81</td>
</tr>
</tbody>
</table>

By far the most common container for storing drinking water is the plastic jerry can. Keeping the inside clean is an important part of drinking water hygiene. Use of a ladle is the most common way of dispensing drinking water, followed by use of a jug and a mug. Keeping these utensils clean will be another complementary element of hygiene behaviour change efforts.

Although 93.6% of the respondents could give one or more correct answers about critical moments to wash their hands, only 21.5% of households were observed to have a hand-washing place in or nearby the toilet. Despite the fact that 65.1% of the respondents could give one or more correct answers about the causes of
diarrhoea, over 80% of pit latrines have no drop-hole cover and 60% of toilets are poorly maintained and have flies. The presence of toilets and a certain knowledge about hand-washing and safe water use in households, coexists with an absence of actual hygienic practices. There appears to be a lack of motivation to change current practices and a lack of more detailed knowledge of disease transmission.

**Reflections and the Way Forward**

**Reflections**

Over the past 35 years the RGoB, with assistance from many donors, has implemented numerous programmes and projects with the aim of improving the health status of the rural population. In addition to the extensive work by PHED on rural piped-water supply, they have also given rural sanitation and hygiene some priority - at least more than most countries. However, the net result of all these efforts aimed at decreasing water and sanitation-related mortality and morbidity has fallen far below expectations. Since the year 2000, the number of reported cases of diarrhoea among children less than 5 years of age has decreased by only 12% (i.e. by an average of 1.5% per year). Interestingly, cases of under-fives dysentery have decreased by 40% in the same period.

Some elements that contribute to the extent to which the impact on health has been less than expected include:

- **Shortcomings in the quality of the interventions**: Information to villagers on what precisely a ‘minimum facility of a basic pit latrine’ should consist of was often unclear, for example. Consequently, large numbers of the constructed latrines did not meet the basic principles of safe containment of human excreta.
- **Top-down style of the interventions**: Well-intentioned field staff and Village Health Workers (under orders from those higher up) sometimes used house-to-house inspections and the threat of disciplinary measures (such as fines or appearance before district authorities) to speed up latrine construction coverage.
- **Choice, timing and combination of the interventions**: The emphasis at the start of the RGoB Rural Water Supply and Sanitation Programme was on water/sanitation coverage. Later, when it was realized that many RWS schemes were failing, the focus shifted to improving functionality and sustainability through enhancing community ownership and management. At about the same time, emphasis started to be placed upon sanitation coverage. Health and hygiene advocacy, awareness raising, and education and promotion on a broad range of issues followed.
- **Insufficient attention to institutional support for district-wide Rural Water Supply and Sanitation programmes**: There is not a single district or-sub-district in Bhutan with an area-wide water, sanitation and hygiene programme - the approach is still one of ad hoc projects.
- **Lack of concerted effort on communication and coordination at all levels both within and between ministries, departments and divisions.**
- **Promotion seems to be based largely on health reasons, while research shows that many people adopt new practices for non-health reasons. Examples of non-health motivations are convenience, for example, the desirability among women of bathing in an enclosure near the house, or desirability of conveniently locating the latrine.**
- **Weaknesses at the sub-national level in strategic planning and prioritisation.**
- **Loss of institutional memory caused by frequent transfers of RGoB staff.**
- Although the Bhutan Health Management Information System annually collects data on the number of rural households with a toilet and the number of cases of diarrhoea, dysentery, typhoid and cholera reported at Basic Health Units, no data is currently collected about hygiene behaviour. Breakdown of data by type of toilet, convenience of access, utilization, condition, proximity of hand-washing facility with soap and water, and bathing facilities is still needed for the MoH to report more meaningfully on progress towards the target of universal access to safe drinking water and hygienic sanitation by the end of the 10th Five Year Plan.

**Recommendations**

The broad approach to rural water supply, environmental sanitation and hygiene improvement that MoH has been following since the mid-1980s that attempts to cover everything (from drinking water supply to
toilets, paved foot-paths and separate animal sheds) has not resulted in the desired health and hygiene behaviour outcomes. Now appears to be a good time for PHED, the division responsible for RWSS, to take stock of this situation with other relevant stakeholders and consider strategic prioritization and combination of those activities most likely to have the greatest impact on the health and social well-being of poor households and communities - in particular on reducing water, sanitation and hygiene-related morbidity in children five years of age and under. Key recommendations include:

Fine tune demand creation for both sanitation and hygiene:
Pay more attention to creating the demand for sanitation and hygiene. This has started in 2008 through implementation of the Community Sanitation Demand Creation (CSDC) Workshop with technical assistance from SNV.

Box 2. Community Sanitation Demand Creation (CSDC) Workshop
This 2-day workshop, which builds on the CDH Workshop, is currently being piloted under the PHED Rural Sanitation and Hygiene Programme in four sub-districts. It aims to stimulate demand for improving the sanitation and hygiene behaviour situation by a series of activities that lead to self-discovery of the good and less than optimal features of the present situation in the community. After mapping and ranking all toilets and other defecation sites in the community, a ‘tour of toilets’ is made where participants visit at least one example of a toilet from each of the ranked categories, share their observations on what they like and do not like, and give their suggestions for improvement. This process allows both the public acknowledgement of successes and public criticism of failures. The workshop concludes with a session where the participants draw up a record of their plans and agreements for united action to change.

At the moment, seven HAs have been trained on the job as CSDC Workshop facilitators. Based on experience to date, BHUs with two HAs feel confident they can undertake this new responsibility after suitable training and supervised practice.

Critically review the institutional setting and the capacity to deliver:
Review the content and process of the Water Caretaker Training, CPM Workshop, CDH Workshop, Water Safety Plan Workshop, and CSDC Workshops to see how these initiatives (or parts of them) can be clubbed together to make them less time-consuming, to avoid duplication and waste of resources, to improve efficiency and to make them more feasible for scaling up. Also explore if there are any ways for achieving the same thing in a shorter time, but without compromising quality.

Simultaneous development of the sanitation supply side and a more diverse range of technical options:
Before the CSDC Workshop it is vital to have ready a comprehensive set of technical information about different toilet and bathroom solutions suitable for the diversity of household and community settings found across the country. Several RWSS programmes around the world have developed ‘informed choice manuals’ and these should be consulted as a starting point. After the CSDC Workshop it is important that the next steps towards the community implementing their sanitation and hygiene improvement action plans are not hindered by obstacles such as the non-availability of affordable sanitary hardware or non-availability of any special construction skills needed. Hence there is a need for simultaneous development of the sanitation and hygiene supply side together with the demand creation side. Government support for local small business development to manufacture suitable products and/ or deliver specialised services should be explored.

Base the behavioural change communication strategy on detailed local hygiene behaviour studies:
There is a pressing need for detailed studies on the current hygiene beliefs, attitudes and behavioural practices of the target populations. This would place PHED and others in MoH who are responsible for preventive health in a much stronger position to develop tailor-made hygiene behaviour change strategies and programmes that focus on those aspects of environmental sanitation and hygiene behaviour that are most likely to have the biggest impact on reducing sanitation-related child morbidity and mortality.
Embed hygiene behaviour change communication appropriately in existing institutions such as dratshangs (monastic teaching centres), schools and Basic Health Units:

Buddhist scriptures contain instructions for maintaining cleanliness and hygiene. In a religious country like Bhutan these religious texts might be used to guide and encourage people in maintaining the cleanliness of themselves and their surroundings. For example, Jenuk is written about cleanliness and describes how to maintain health, and the Tsewang Nag mantra is about maintaining cleanliness - the need to maintain shiny floors and walls (Allison, 2009). Rural schools with properly functioning water supply and hygienically maintained toilets are hard to find in most Asian countries, and Bhutan is no exception. Generally the condition of school toilets in rural areas is disgusting. Not only does this set a bad example for school children, but it also impacts on students’ learning performance and health. Currently there is no legislation that gives a school inspector the authority to order a school to be closed if its toilets do not come up to standard. Intensified efforts are urgently needed to address this situation. This should start with the formation of a National School Water, Sanitation and Hygiene (WASH) Working Group, bringing together all responsible parties to discuss and agree on a concerted plan of action. The first key issue for immediate attention is how to ensure the proper cleaning, maintenance and timely repair of school toilets.

Improve hygiene and waste disposal at BHUs:

According to a recent Ministry of Health survey (MoH, 2009) there is good practice of universal precaution in hand washing and use of gloves at health facilities but poorer practice of waste disposal. 65% of the hospital and BHU I facilities included in the survey practiced adequate waste disposal and 35% had moderate to poor practice requiring appropriate modification for improvement (of which 5% required considerable improvement). For BHU II facilities, 45.7% had inadequate practice indicating the need for improvement in disposal practices for sharps, infectious materials and liquid clinical wastes.

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SOUTH ASIA HYGIENE PRACTITIONERS’ WORKSHOP

Measuring hand washing behaviour: methodological and validity issues

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Significant global health attention and promotion has been focused on hand washing with soap due to the clear benefits observed in promoting and ensuring child health. However, the measurement and evaluation of hand washing behaviours remains complex. The Sanitation, Hygiene Education and Water Supply in Bangladesh Programme (SHEWA-B) is a large project being implemented by the Government of Bangladesh and UNICEF.

This research assesses methodological issues of measuring hand washing behaviours through comparison of structured observation and responses to cross-sectional survey measures (spot-check observation, self-reported hand washing, and a hand washing demonstration) and discusses the suitability of indicators. Focus group discussions with fieldworkers also shed light on measurement issues and the appropriateness of indicators.

The results of this study indicate that hand washing behaviours were over-reported compared with structured observation findings. This implies that current estimates of hand washing from large scale surveys, e.g. Demographic and Health Surveys (DHS) are likely to also be overestimates. This research also has important implications for the methods used for measuring hand hygiene practices in the clinical setting.

In about 1000 households, approximately 1% or less of female caregivers were observed to wash their hands with soap or ash before preparing food or before eating, and 3% were observed to do so before feeding a child. Hand washing with soap was higher for defecation related events with approximately 29% of female caregivers using soap two thirds or more of the time after cleaning a child’s anus/disposing of a child’s stools; and with 38% using soap two-thirds or more of the time after defecation. Soap was observed at the hand washing location in about 50% of the households; however, actual practice was much lower. Reported knowledge of important times for hand washing was high; approximately 90% identified before eating and after defecation, and approximately 50% before preparing food and after cleaning/changing a baby.

In conclusion, this research demonstrates that self reported hand washing measures are subject to over-reporting. Structured observation provides useful information on directly observed hand washing behaviours and the frequency of behaviours. Spot check methods of soap and hand washing locations also provide more optimistic data than observations.

Background

The role and potential of hand washing, in particular hand washing with soap, is acknowledged as one of the most cost effective ways of preventing infectious diseases. It is now recognized as the, “do-it-yourself vaccine when promoted on a large scale due to its ability to interrupt the transmission of infectious disease pathogens and it is cited as being more effective than any single vaccine” (PPPHW 2003). Hand washing is regarded as a low cost intervention that reduces the incidence of two of the largest killers in children under five: diarrhoea and respiratory infections (Luby 2001). The importance of hand washing in reducing the transmission of infectious diseases cannot be underestimated.

Although hand washing in itself is a simple act, evidence suggests that most mothers in developing and developed countries fail to wash their hands adequately after faecal contact. Estimates from studies conducted in the developing world indicate that on average less than 20% of mothers wash their hands
with soap after cleaning up a child or going to the toilet themselves (Curtis and Cairncross 2003; PPPHW 2003). Studies have tended to be targeted at mothers and female caregivers as they are identified to be the primary caregivers of children less than five years of age. This is one of the fundamental reasons why the promotion of hand washing as a public health intervention has the potential to have an enormous impact on public health (Curtis and Cairncross 2003).

Valid and reliable data on hygiene behaviours and practices is necessary in order to appropriately plan, monitor and evaluate hygiene promotion programmes and interventions (Alemdom, Blumenthal et al. 1997; Manun’Ebo, Cousens et al. 1997). Valid data is required so that the method of measurement of hand washing provides an accurate reflection of the normal hand washing practice of the individual. This also relates to reliability of the measure.

**The Sanitation Hygiene Education and Water Assessment in Bangladesh programme (SHEWA-B)**

The SHEWA-B project, through the partnership of UNICEF and the Department of Public Health Engineering, has the largest reach of any water supply and sanitation sector programme in Bangladesh and is conceivably the largest hygiene intensive hygiene, sanitation and water quality improvement programme ever attempted in a developing country. The expected outcomes of this programme are important for the people of Bangladesh, the sponsors of the programme, and to the global public health community, as the effectiveness of such a large-scale programme has never been evaluated. The SHEWA-B project features a range of components, and the focus is to encourage community hygiene promoters to encourage improved hand washing behaviour, sanitation and water quality to a population of 18 million people in the first phase of the programme (UNICEF 2008).

The SHEWA-B programme uses a range of data collection methods and activities to collect data. From mid 2007 a range of baseline activities were conducted including structured observations, a cross sectional survey, sentinel surveillance and rapid screening. This research focuses on structured observation and cross sectional survey data. In total, 1000 households were observed during structured observations and 1692 households were included in the cross sectional survey component. Structured observation was conducted over a five-hour period in eligible households. Hand washing behaviours were observed for all household members for the five critical hand washing times: before preparing food, before eating, before feeding a child, after cleaning a child’s bottom/disposing of a child’s stools, and after defecation.

The sampling procedure involved the use of probability proportional to size and targeted the 68 sub-districts (upazilas) of Bangladesh and randomly selected 50 unions (upazilas are further subdivided into unions) with intentional over-sampling in the Chittagong Hill Tracts communities. The selection of evaluation villages within each selected union was achieved through generating a list of all villages within each selected union and using a random number generator to select evaluation villages.

The selection process of households for inclusion in the study was achieved through the field worker asking the residents of the selected village to identify the central point of the village. The household closest to the centre of the village with a child under five years of age for which consent had been sought was the first to be enrolled. Field workers subsequently skipped the next two closest households and enrolled the next household with a child under five years of age. This procedure was repeated until ten households in each village were enrolled. An additional seven households were included for the cross sectional survey component.

This research focused on female caregivers only who participated in the structured observation and cross sectional survey components. This resulted in a total sample size of 995 female caregivers with approximately 7000 hand washing events observed in total. The cross sectional survey component included: (a) the use of self report questions on hand washing behaviour, (b) spot check observations to assess the presence or absence of a designated hand washing location and hand washing materials, e.g., water, soap, ash and other hand washing agents; and, (c) a hand washing demonstration conducted with female caregivers and young children.
Structured observation results for critical hand washing behaviours

For the five critical hand washing exposures studied, the use of structured observation to assess hand washing behaviours has provided an important and useful insight on the frequency with which hand washing events occur and on what individuals do on those occasions. Structured observation enables the observation of particular specified practices, e.g., whether hands were washed, whether both hands were washed, whether soap or other hand washing materials were used, and how hands were dried. Therefore, this provides a method of capturing an individual’s behaviour on the day of observation over a specified time period.

The study is in alignment with current hygiene promotion initiatives in advocating, that proper best practice hand washing behaviour, which involves hand washing with soap or ash at critical times and drying hands through either air drying or with a clean towel/material, is the crucial behaviour for reducing the transmission of infectious disease pathogens onto hands. A primary objective of the programme is to increase the proportion of persons that wash their hands at critical times.

The data analysed in this research assessed female caregivers only. The structured observation component involved the observation of multiple household members including male caregivers, younger females aged 5-12 years and children aged 3-5 years. Therefore, this method provided information on multiple household members and their hand washing behaviours. This method is also able to provide information on occasions in which hands were not washed and by whom. The duration of observation is such that information on the repeatability and consistency of hand washing behaviour can be obtained. Table 1 shows the results of the structured observation.

Hand washing with soap was identified to be a low priority, particularly amongst female caregivers for food related critical times, when less than 1% of female caregivers were observed to use soap before preparing food and before eating. For the critical food related time of before feeding a child, approximately 3% of female caregivers used soap for hand washing. For food related critical times, washing hands with water only was the common practice, with over 95% of female caregivers performing this practice for the three food related critical times. Furthermore, approximately 50% of female caregivers did not wash hands before feeding a child, and approximately 35% of female caregivers did not wash hands before preparing food. A further 14% did not wash hands before eating.

However, for defecation related critical times, the percentage of female caregivers that did not wash hands was lower, with approximately 90% of female caregivers washing hands after cleaning a child’s anus/disposing of a child’s stools and 97% after defecation. Hand washing with soap was higher for defecation related events with approximately 29% of female caregivers using soap two thirds or more of the time after cleaning a child’s anus/disposing of a child’s stools, and 38% used soap two-thirds or more of the time after defecation.
Table 1. Use of hand washing agents and water only for critical hand washing exposures as observed during structured observation

<table>
<thead>
<tr>
<th>Hand washing exposure</th>
<th>% that never washed hands (Not observed)</th>
<th>% that used soap between 66% of the time to 100% of the time</th>
<th>% that used ash/mud between 66% of the time to 100% of the time</th>
<th>% that always used water only to wash hands</th>
<th>Total no. of females washing hands for this event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before preparing food</td>
<td>34.9</td>
<td>1.3</td>
<td>0.2</td>
<td>98.1</td>
<td>479</td>
</tr>
<tr>
<td>Before eating</td>
<td>13.9</td>
<td>0.1</td>
<td>0.0</td>
<td>99.1</td>
<td>677</td>
</tr>
<tr>
<td>Before feeding a child</td>
<td>49.2</td>
<td>3.0</td>
<td>0.0</td>
<td>95.2</td>
<td>330</td>
</tr>
<tr>
<td>After cleaning a child’s anus/ disposing of stools</td>
<td>9.5</td>
<td>28.6</td>
<td>9.4</td>
<td>56.2</td>
<td>276</td>
</tr>
<tr>
<td>After defecation</td>
<td>3.0</td>
<td>37.5</td>
<td>14.1</td>
<td>48.4</td>
<td>64</td>
</tr>
</tbody>
</table>

The use of ash greater than two-thirds of the time during the observation period was 9% and 14% respectively for the events previously discussed. The results demonstrate that hand washing with soap was not the norm, particularly for food related events and that these events were subject to multiple observations. Hand washing behaviour was therefore inconsistent and hands were not always washed for all events.

Structured observation, therefore, provides information on inconsistent hand washing behaviour and practices of individuals, e.g., if hands were not washed on all occasions for a particular hand washing exposure or if soap was not used for all hand washing events observed. From a public health perspective, this information is important in order to identify and target risk practices and seek techniques and methods to improve hand washing behaviours.

Structured observation can aid the identification of certain groups, for example, those that always wash hands and are consistent hand washers, those that use all of the necessary hand washing materials, e.g., water, soap or ash, those that wash both hands and those that are inconsistent hand washers and do not wash hands appropriately as discussed.

Furthermore, this method is based on observed behaviour and its use allows for direct comparisons with other measures of hand washing behaviour, e.g. self report, spot check methods and hand washing demonstrations. These methods only provide and capture information based on a single response to a question or the presence or absence of a hand washing material. Therefore, the use of multiple methods to assess hand washing behaviours is particularly useful in order to assess validity.

Methodological issues

The use of structured observation to assess hand washing behaviour does present methodological and measurement issues. One of the fundamental issues raised is reactivity. Structured observation as a method to assess hand washing behaviour is subject to reactivity. Reactivity occurs when an individual being observed modifies her/his behaviour due to the presence of an observer (Bentley, Boot et al. 1994).

This issue was raised during focus group discussions with fieldworkers. Fieldworkers reported that once some households became aware, through signing the consent form, that the study was on hygiene; they would rearrange their households before fieldworkers came. This raised the issue of reactivity whereby over reporting of hand washing by respondents was reported by fieldworkers.
Fieldworkers visited the same households for structured observation and the cross sectional survey. Fieldworkers reported that during the focus group discussions when respondents were asked questions on their hand washing behaviours in the cross sectional survey, they tended to over report compared with what was actually observed during structured observation (e.g. hand washing with soap was over reported compared to the observed practice). The concern about reactivity remains a fundamental feature of studies that use direct observation techniques, such as structured observation; however, few studies have measured reactivity directly.

Evidence that supports evaluation of this concern is therefore limited as discussed by Harvey et al. The research conducted in Peru by Harvey et al focused on the systematic measurement of reactivity during a malaria prevention study. The study focused on bed net use and malaria risk. In this study, sixty observations were assessed over a nine-month period. Observers recorded all events that they perceived to be potentially reactive. In total, 339 reactive episodes were documented using iterative analysis and coding. However, of all the reactive events recorded, only two were identified to be related to the objectives of the study (Harvey, Olortegui et al. 2009).

The authors concluded that although reactivity is common, it need not bias results, thus, the evidence supporting evaluation of this concern is limited. In addition, of the few studies that have assessed reactivity, the majority of studies have found that it had less impact than intended (Harvey, Olortegui et al. 2009). For example, a study focused on hygiene behaviour in Burkina Faso assessed reactivity. In this study, two hundred households were assessed over two or more consecutive days using observation that lasted 3 hours.

The main findings of the study were that for certain behaviours, for example, the disposal of a child’s stools in a latrine, which was a frequent behaviour; there was little evidence of reactivity. For behaviours that were uncommon, there was some evidence of reactivity, however, this diminished over time. Unhygienic behaviours were identified as multiplying whilst hygienic behaviours decreased (Curtis, Cousens et al. 1993).

Photo 1. ICDDR, B – A female washing hands at a tube well

The use of a continuous monitoring approach whereby individuals were observed for a period of five hours provided useful information on hand washing behaviour over that time period. However, the start time of the observation is extremely important when assessing particular behaviours. For example, the assessment of defecation behaviours, which is a particularly sensitive behaviour to observe, illustrates the importance of the start time of structured observation by fieldworkers. The observations were noted to have started at 9.00 a.m. and finished at 14.00 hours. However, when the start time of the observation was assessed in greater detail within the structured observation data, it became apparent that there was inconsistency in the start time amongst fieldworkers with some commencing observations later than 9.00 am. This raises important questions as to whether structured observations in this context appropriately and accurately captured defecation events, as the overall number of defecation events observed for female
caregivers was very low compared with reports obtained from self reports and other studies (Scott, Lawson et al. 2007).

In addition, formative research conducted in Kenya for a public private partnership that used structured observation reported that defecation took place as soon as those observed awoke. In this study, observation commenced at 6.00 a.m. (Aunger, Schmidt et al. 2009). The results of defecation related hand washing behaviour are discussed in more depth later.

For particular types of events such as defecation, which is a sensitive and rare behaviour, if observations are started too late in the day such events may be missed. For example, a comparison of observation with a self reported question posed to female caregivers about whether they had defecated on the day of the survey revealed that over 500 female caregivers had defecated on the day of the survey. However, only 58 female caregivers were actually observed to have a defecation event during structured observation. This could be due to several factors; the behaviour itself is an issue and people may be sensitive about performing such a practice and many women in Bangladesh reportedly defecate very early or very late in the day, particularly when they lack toilets that provide privacy.

An important point pertaining to the use of one-time observations is that even though the observations were conducted in households over a five-hour period, this only provided a snapshot of what took place from the morning until the early afternoon. Therefore, structured observation only provides a small snapshot into an individual’s behaviour during the observation period. This may be different from their behaviour generally and at other times of the day. Furthermore, there may be other factors that may influence a household’s hand washing behaviour, for example, household size. A household that has many household members may prepare food at particular times when all household members are available or limit the number of times food is prepared.

There were a number of methodological and measurement issues that arose from focus group discussions with fieldworkers. Fieldworkers received extensive training on all of the survey instruments. This involved going through the survey instruments on a point-by-point basis. Fieldworkers were then briefed on what the survey questions meant e.g. the meaning of questions and what constituted hand washing practice. There was also an in-house interview demonstration to help fieldworkers understand the context of the questions; this was essentially a demonstration practice session. The fieldworkers then went to the field to practice administering the survey instruments. This included field testing instruments to ascertain if there were any issues/problems. Each fieldworker tested the instrument in three households before the actual survey took place.

A field test of the structured observation survey instrument identified hand washing on a food plate before eating as commonplace. This observed practice involved hands being washed directly on the food plate from which the food was subsequently eaten. This category was not previously included as one of the pre-assigned categories in the survey instrument. It was added to the survey after being identified in the field test. Another amendment was the addition of the “not possible to observe” category for hand washing materials. After the same field workers visited the structured observation household and cross sectional survey household, some explained that soap use was over reported compared to what they observed during the structured observations.

One very important feature was the observation of multiple household members. During the focus group discussion, there was a general consensus amongst fieldworkers that these observations were problematic at times and led to events being missed. In such cases, the focus was placed on observing the main female caregiver. In addition, there were occasions when hand washing occurred, but was not recorded as a hand washing event because it was an indirect measure, for example, bathing and cleaning.

Some field workers raised the issue that hand washing tended to take place for events where dirt was visible on hands. For example, after handling cow dung or cutting fish whereby an odour was present on hands. For these types of events, hands were washed and soap or ash was used.
In some households, male fieldworkers faced problems where families were reserved and did not want to be observed by a male. In some areas, logistical difficulties were raised as another important issue. For example, in some rural areas it was very difficult for field workers to reach certain locations.

**Cross Sectional Survey**

**Self reported hand washing behaviour results**
The use of self reported questions on hand washing behaviour included the use of open-ended recall and closed-answer questions. The results of these questions in comparison with structured observation identified that there was over-reporting on some issues, particularly hand washing with soap for defecation related behaviours. Food related events were also subject to over-reporting.

For questions that focused on the five event specific critical hand washing exposures, the results demonstrated that over 70% of female caregivers had experienced the three critical food related events either on the day of the survey or the previous day. The results also highlighted and asked a question on the direct use of hands for food related activities, particularly for eating and feeding a child, — specifically whether hands were used for eating purposes and for feeding a young child with hands.

The general results indicated a discrepancy between observed and self reported behaviours. Over 90% of female caregivers reported that they washed hands. However, in the results obtained from observed practices through structured observation the figures were much lower. This demonstrated that the practice of hand washing was over-reported. Furthermore, washing both hands and the use of soap was also over-reported compared with observed practice as approximately 1% of female caregivers used soap for hand washing before preparing food and before eating; and, approximately 3% before feeding a child. However, according to the self reported events specific results, approximately 26% used soap before preparing food and 15% for the two other food related critical times.

For the two defecation related times, a higher proportion of female caregivers reported that they had last cleaned a child’s bottom and defecated on the day of the survey or on the previous day. In response to this question, over 80% of female caregivers reported that they had experienced these events. For defecation this was of particular interest, as in total, 66 female caregivers were observed to have a defecation event and in total 69 events were observed. In total, 328 events were observed for 305 female caregivers after cleaning a child’s bottom/disposing of a child’s stools.

**Methodological issues**
This discrepancy between reported defecation behaviour with the observed number of events may be due to a number of factors. Firstly, if we focus on the day of the survey, approximately 60% of female caregivers reported that they had last cleaned a child’s bottom; of the 995 total females, this equates to 597 female caregivers. However, during structured observation 305 female caregivers were observed to have experienced this event.

It should be noted that structured observation and the cross sectional survey components took place at different times, approximately three months apart. This was not included in the cross sectional survey definition. Therefore, there is a discrepancy in the definition. Similarly, with defecation events approximately 57% of female caregivers reported that they experienced an event on the day of the survey. This equates to approximately the same figure of 600 female caregivers. However, if all events are focused on, only 66 female caregivers were observed to have an event during structured observation.

The very low prevalence of observed defecation events compared with self reported practices does, however, raise questions about the validity of the structured observation methodology on observing defecation events. The start timing of the observation is crucial as previously discussed, in order to appropriately capture defecation events.

This discrepancy could be due to the difference in timing of the event, whereby the cross sectional survey was conducted later. It could also be due to the cross sectional survey component being conducted at a
different time of the day than the structured observation. However, it must be recalled that the structured observation was conducted over a five hour observation period, and is therefore likely to have encompassed the start time of the cross sectional survey, which took approximately two to three hours to complete.

The prevalence of washing hands in general was high for both self-report and structured observation at 90% or higher. Washing both hands was over-reported compared with observed practice by approximately 10%, as approximately 505 of female caregivers were observed to always wash both hands after cleaning a child’s bottom and 54% after defecation, compared with approximately 65% reporting for both exposures that they washed both hands after these events.

The use of soap was also over-reported at a rate of 2 to 2.5 times over that of observed practice. For self reported practices, approximately 65% of female caregivers reported that they used soap for hand washing for these events. During structured observation, however, approximately 29% and 38% of female caregivers used soap greater than two thirds of the time to wash hands after cleaning a child’s bottom/disposing of a child’s stools and after defecation respectively. In comparison with observation, over-reporting also occurred in response to a question that focused on soap use for defecation events. Although there was also over-reporting for the food related critical times, some of the results (e.g. for feeding a child) were in line with observed practice of hand washing with soap at approximately 3%.

The results for defecation related events suggested that female caregivers may be more inclined to over-report that they hand wash with soap after defecation related events than they do for food related critical times. The questions that focused on knowledge of the importance of hand washing, particularly after defecation, was evident. Amongst female caregivers, 85% of female reported that hand washing after this exposure was important. This result was the highest for all of the exposures featured, and it indicates that the level of knowledge was high. One drawback of this question was that it did not directly include the use of soap.

During focus group discussions, a number of issues emerged regarding the approaches used to assess hand washing behaviour. The use of recall questions on hand washing posed particular issues. Some respondents were unable to appropriately recall events where they hand washed with soap without asking the interviewer for assistance. This was also evident in questions that involved the recall of soap use. A further assessment by fieldworkers indicated that respondents reported that they washed hands with soap, but were unable to produce soap during the spot check when asked to do so.

In general, fieldworkers identified over reporting of soap use compared with the spot check on soap availability. In addition, some respondents experienced difficulties understanding the nature and structure of the questions asked. Another important issue is that field workers felt that respondents tended to answer questions based on their knowledge rather than practice.

These results are consistent with results from other studies. For example, over reporting of hygiene practices were identified in a study in Bangladesh. In this study, respondents were significantly more likely to report practising good hygiene in a questionnaire survey than to actually practise good hygiene in an observer’s presence (Stanton, Clemens et al. 1987). In addition, studies from Zaire and Brazil reached the same conclusion (Manun'Ebo, Cousens et al. 1997; Strina, Cairncross et al. 2003).

For some of the open ended questions, some respondents did not remember or think that particular hand washing events were important to mention, for example after eating. Further observation from field workers was that most respondents did not have spare or separate soap available for hand washing.

The role of privacy arose during focus group discussions. Field workers commonly mentioned privacy and agreed that it was an important theme. They felt that some respondents gave inaccurate answers in front of others. Privacy was a major issue, particularly due to other people watching the interview. This issue was personally experienced in the field due to hot weather conditions that sometimes dictated that the interview be conducted outside. This gave others an opportunity to watch, and sometimes try and participate in, the interview.
Spot Check Methods Results
Spot check methods were used to assess whether a household had a designated location and the necessary materials for hand washing after using the toilet and before cooking, eating and feeding a child. Spot check observations provided information on the presence or absence of a hand washing location or hand washing materials. Such information acts as a “proxy” marker for hand washing behaviour, but does not provide sufficient information on whether and by whom hands are actually washed for relevant critical times. Spot check methods have been identified to be a suitable alternative to structured observation due to some of the difficulties previously discussed (Webb, Stein et al. 2006). The results of the spot check are included in Table 2.

The main findings from the cross sectional survey component that included spot check observations were that the major hand washing locations differed for food and defecation related hand washing. This was illustrated by respondent’s answers to a question about whether the hand washing location they used before cooking, eating or feeding a child was different from the one they used when they came back from the toilet. In response to this question, approximately 69% of respondents reported that the locations for these activities differed.

The major reported and observed locations after using the toilet were inside or near the toilet facility, followed by outside the yard, and greater than 10 feet from the latrine. For food related hand washing activities, the major hand washing locations were inside or near the kitchen/cooking facility, with approximately 50% of respondents reporting and observed to have this hand washing location. The other major locations were elsewhere in the yard (greater than 3 steps or less than or equal to 10 steps, and outside the yard (greater than 10 feet from the latrine). A substantial number of women (17%) were observed and reported to not have a specific place for hand washing for food related events.

The presence of water as observed for the defecation hand washing location was high with three quarters of households having water available at this location. The presence of soap or another hand washing agent at the hand washing location after using the toilet, for example detergent, ash/mud or sand was high. Approximately 80% of households were observed to have a hand washing agent including 55% with soap.

For the hand washing location used for food related activities, the main hand washing agent observed was soap with 54% of households having soap available, 2% had detergent and 6% had ash available. In terms of the availability of soap by hand washing location, the main locations where soap was observed for the hand washing location used after using the toilet was inside or near the toilet facility, elsewhere in the yard (>3 steps and < or equal to ten steps) and outside the yard (>10 feet from the latrine). For the food related hand washing location, 64% of households were observed to have soap inside or near the kitchen/cooking facility and 18% at the place that was described as no specific place.

Four main hand washing locations were observed including in the kitchen, on a plate/in a pot, at a nearby tube-well, and in the yard for food related activities. A comparison of hand washing in the kitchen compared with on a food plate/in a pot showed that a higher percentage of women always washed their hands on a food plate/in a pot compared with always washing hands in the kitchen. This was particularly the case for hand washing before eating or feeding a child compared to the critical time of before preparing food. The results were similar particularly washing hands in the kitchen. However, washing hands on a plate or in a pot was not identified during the spot check observation. Structured observation provided useful information on this practice and this may account for the 18% of female caregivers who were observed to not have a specific place for hand washing for food related critical times.

Although the presence of soap was moderately high at over 50%, results from structured observation demonstrated that the use of soap for the three hand washing related critical times was low at approximately 3% or less. Therefore, this suggests that although soap and other hand washing agents were present, soap was not routinely used, particularly for food related events. Therefore, from a policy perspective, the emphasis should be placed upon promoting the use of soap in the hand washing process.
Furthermore, during the spot check observation the criteria set was that soap had to either be at the designated hand washing location or brought to the interviewer within one minute. This means that soap was not necessarily at the hand washing location and may have been fetched by the respondent. This soap could have been used for purposes other than hand washing, e.g., washing clothes or bathing.

Therefore, the percentage of households with soap may not be a true representation of actual soap use behaviour. A further issue, and one of the disadvantages of spot check methods that is similar to structured observation, is that this method is also subject to day to day variability and affected by the time when the observation was conducted. For example, if a spot check was performed at lunchtime when food is being prepared, then the presence of soap may be more likely compared with if the observation had started earlier.

During structured observation, the main hand washing location after using the toilet was at a nearby tube-well. This was compared with inside or near the toilet facility or in the yard, which was the main place identified during the spot check. It was difficult to compare the locations as the terminology and definition given were unclear and did not include a nearby tube-well. This was particularly true for the spot check.

**Methodological Issues**

In terms of the spot check method, during the focus groups discussions fieldworkers reported that they mainly observed body soap and this tended to be used for hand washing and also for washing clothes. They also reported that during the spot check observation respondents tended to have a designated place for hand washing after defecation but not for food related activities. This is of interest as results from the structured observation indicated that hands tended to be washed on a food plate or at a nearby tube well. In addition, the inclusion of washing hands on a plate or in a pot was only identified through the field test of the structured observation survey instrument.

<table>
<thead>
<tr>
<th>Table 2. Availability of hand washing agents by hand washing location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soap available (%)</strong></td>
</tr>
<tr>
<td><strong>HW location</strong></td>
</tr>
<tr>
<td>Inside or near the toilet facility</td>
</tr>
<tr>
<td>Inside/near the kitchen/cooking facility</td>
</tr>
<tr>
<td>Elsewhere in the yard (within 3 steps)</td>
</tr>
<tr>
<td>Elsewhere in the yard (&gt; 3 steps &lt; or equal to 10 steps)</td>
</tr>
<tr>
<td>Outside the yard (&gt; 10 feet from the latrine)</td>
</tr>
<tr>
<td>No specific place</td>
</tr>
<tr>
<td><strong>Total (%)</strong></td>
</tr>
</tbody>
</table>

*HW-Hand washing

An additional issue was that some respondents did not want to show the interviewer their toilet facility because they felt embarrassed about its condition. One of the drawbacks of the spot check method was that it does not provide information on the individual of interest and only provides information on a household level as to the availability of soap. Therefore, this method raises questions on the level of measurement of interest.
Hand Washing Demonstrations

Hand washing demonstrations were conducted with female caregivers and children, who were asked to demonstrate how they usually washed their hands after defecation. In this research, the focus was on female caregivers only. In total, 513 female caregivers participated in the hand washing demonstration; approximately 70% used soap for hand washing and 18% used ash or mud. Only 145 washed hands with only water. The duration of rubbing hands with soap ranged from 2 to 59 seconds. For hand drying, at 84%, the vast majority of female caregivers dried their hands using their sharir anchal or kamiz. Another 7% used a dirty cloth, 3% used a clean towel, and 6% air-dried. Given that drying hands on clothing was the significant practice and that further investigation of the data illustrates that hands were also dried for other critical times during structured observation, from a public health perspective the preferred method of drying would be the use of a clean towel or through air drying.

In general, in the hand washing demonstration a higher percentage of women washed hands with other materials, particularly soap, than in the structural observation. Overall, soap was used in approximately 4% of structured observation events equating to regular use of soap by 141 female caregivers and regular use of ash for hand washing for all exposures by only 37%.

This indicated that soap was over-used during the demonstration in comparison with observed practice during which over 90% of female caregivers washed their hands with water only for food related events. For hand drying during structured observation, hands were often not dried, or dried on clothing or using a sharir anchal. This is in contrast to the hand washing demonstration, in which the majority of female caregivers dried their hands on their sharir anchal. However, during the hand washing demonstration, 84% of female caregivers dried their hands using their sharir anchal or kamiz, 7% used a dirty cloth, only a small percentage air dried their hands (6%), and an even lesser percentage used a clean towel (3%).

Conclusion

In conclusion, this research demonstrates that self report hand washing measures are subject to over reporting and should therefore be interpreted with caution. Structured observation provides useful information on directly observed hand washing behaviours and the frequency of behaviours. Spot check methods have the potential to be used in large-scale surveys, for example, DHS, but only provide proxy information on hand washing behaviour. The use of a mixed methodology approach is useful in understanding and validating methods to improve the choice and interpretation of measures to assess hand washing behaviour in low-income settings.

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This paper describes how the programme to improve hygiene knowledge and practice was designed and implemented. It provides information on impact derived from an assessment. Community participation in the decision making processes was crucial for designing the hygiene promotion programme. The study showed that continuous community hygiene education along with physical access to water supply and sanitation positively influences change in hygiene behaviours. For example, 54% of the families were observed to wash their hands with soap before eating versus 8% in the baseline study. 90% had knowledge of this practice versus 30% at the baseline.

Introduction

In Bangladesh, the high incidence of diarrhoeal and other diseases related to faecal contamination, causes an estimated 110,000 child (under 5) deaths each year (11% of total child deaths). Over 65 million episodes of diarrhoeal diseases occur annually among children under five years of age. An average child in Bangladesh suffers 3-4 episodes of diarrhoeal diseases every year. Much of this is thought to be preventable with improvements in sanitation, water quality and hygiene practices (Bangladesh Bureau of Statistics, 2007).

A large number of people in Bangladesh lack access to potable drinking water. Among them, urban slum dwellers face the greatest challenges. Their water quality is affected by unsafe water supply, unhygienic sanitation facilities, poor solid waste management, unhygienic practices particularly with regard to hand washing, insecure land tenure, poor socio-economic backing, and crowded living conditions (Sobsey M.D., 2003).

The people from these high-risk areas often suffer from diarrhoea and other water borne diseases. Due to lack of education, knowledge and basic awareness, people often have a poor understanding of the relationship between health, water, sanitation and hygiene. In some instances, people may still practice unhygienic habits even though this understanding does exist.

A World Bank report cited Bangladesh’s urban population as having grown almost nine-fold from 2.6 million in 1961 to approximately 22 million in 1991 with an annual urbanization rate of 7.5 percent (World Bank, 2000). Over 37% of the city populations live in slums that occupy only 4% of city land. Slums are the most densely populated areas with over 200 times the normal density of Bangladesh at 531,000 persons per square mile. Over crowding creates huge increases in communicable diseases like diarrhoea (Centre for Urban Studies, 2006).

24 % of urban households are estimated to have no sanitary latrines. In pockets such as slums, sanitary latrine coverage is even lower than the average of 14% for towns and cities. Furthermore, over 80% of the low income populations have no legal access to safe water. Hanging latrines and indiscriminate garbage dumping by Households, industries, clinics etc. are very common in the urban areas.

Huttly, Morris and Pisani have reviewed reductions in diarrhoea morbidity in children in developing countries (Huttly SRA, 1997). They found that hand washing resulted in a median 35% reduction in diarrhoea incidence. Feachem mentioned that his study findings suggest that improved water quality,
increased water availability and quantity associated with better hygiene practices, and improved sanitation facilities may reduce the ingestion of pathogens that cause diarrhoea (Feachem, RG, 2003).

Improved personal hygiene, especially hand washing at critical times, is one of the key determinants of success in reducing the prevalence of diarrhoea diseases. Recent research also indicates a link between respiratory infections and hand washing practices.

Hygiene promotion is a planned approach, which aims to reduce the incidence of poor hygiene practices and conditions that pose the greatest risk to the health of children, women and men. Several methodologies to promote hygiene have been developed over time.

**DSK’s WASH interventions in Urban Slums**

DSK, a Bangladeshi NGO, has been implementing integrated community-based water, sanitation and hygiene promotion in urban slums since 1992. Key interventions under DSK’s WASH initiatives are provision of safe water, environmental sanitation, promotion of hygiene and behavourial change practices, building community-based organizations, innovation, research and advocacy initiatives. The community-based urban water point is now popularly recognized as "DSK's Water Point Model" and has been replicated by other NGOs and by government agencies. The success of the model led Dhaka WASA (Dhaka Water And Sewerage Authority) to adopt a new policy to provide direct ownership of water connections to slum dwellers.

As a key component of WASH, DSK imparts participatory community-driven hygiene promotion methods to improve hygiene knowledge and behaviour change in the family and community. It disseminates hygiene education through three different active groups- adults, adolescent girls and children.

**Definition of Hygiene Promotion**

Hygiene promotion is an approach that reduces the incidence and prevalence of water and excreta related diseases through the adoption of safe hygiene practices. It begins with and is built upon what local people know, do and want. It is a holistic approach that includes raising awareness on good hygiene behaviour, including proper management of menstruation by adolescent girls and women, and safe water and sanitation.

Hygiene education or hygiene promotion encourages people to replace their unsafe hygiene practices with simple, safe alternatives. Most people are happy to use clean water for drinking, cooking and bathing purposes once it is readily available. But other hygiene practices are also crucial in preventing water and sanitation related diseases such as diarrhoea, cholera, dysentery and typhoid. These practices include the safe disposal of children’s faeces, safe drinking water storage, hand washing at critical times, and proper disposal of solid and liquid waste. In many parts of the developing world these activities are not traditionally associated with disease prevention and therefore require active promotion within water and sanitation projects.

**DSK’s Hygiene Promotion Procedures**

DSK developed its strategy through four steps:

- encourage community participation in the decision-making processes,
- identify current levels of awareness and start there,
- acknowledge community strengths,
- develop community’s capacity to take actions.

**Levels of Hygiene Promotion**

- personal hygiene [including menstrual hygiene],
- family hygiene [including food hygiene and solid waste management],
- community hygiene [including school and public places].
Designing the Hygiene Promotion Strategies

DSK invested time and effort in working with communities to identify what motivates people to act in a particular way, how different hygiene behaviours are articulated within everyday life, and the positive values that communities already relate to hygiene. Before initiating hygiene interventions, DSK explored what people already knew, did and wanted in relation to hygiene. A range of participatory activities was introduced to stimulate discussions about knowledge, attitudes, beliefs and practices. All of these were designed to build self-esteem and active involvement of community members in decision-making. DSK looked at what people want to do to effect behaviour change and worked to find positive ‘can do’ solutions to problems identified by the communities. For example, the use of Kalshi (a narrow mouth water pot) for water storage by most dwellers prevents secondary contamination at the household level.

Hygiene promotion activities began with the community’s own situation analyses of its hygiene behaviour. Effective hygiene promotion software activities are complemented by necessary water supply and sanitation facility initiatives in an integrated manner, and the process described below aimed to achieve this with the community that DSK adopted in hygiene promotion:

Step-I: Community situation analysis

The community situation analysis was the entry point for initiating hygiene promotion activities. The situation analysis was conducted by community members and facilitated by DSK. Through the situation analysis, community people came to realize their present condition and current position for initiating any development/hygiene activities. When people got involved in analyzing their own situation, they explored and realized the gaps, barriers and opportunities related to overcoming their situation. After collecting and analyzing the information, they identified changes necessary for enhancing safe hygiene practices at the personal, household and community levels considering their local conditions, constraints, resources and perceptions.

Step-II: Identify high-risk practices and practitioners

For initiating hygiene promotion, existing practices relevant to water, sanitation and hygiene were identified by the target community as prime activities. Community participants made a list of high-risk practices that increased diarrhoeal diseases.

Step-III: Identify best practices in the community

The community, along with DSK, identified best community level practices for encouraging safe hygiene, as local knowledge and practices, rather than outside messages, offer the best way forward for hygiene promotion.

Step-IV: Message identification for hygiene promotion

Message identification was the most important step for critical awareness building to replace existing high-risk practices carried out by a specific audience. Community members themselves analysis of existing risk factors and practices and DSK disseminates nine important messages.

The message and tools were developed based on the existing best practices at the community level and current knowledge considering the following factors:

- Audience specific
- Local language and easy to understand
- Visualized for easy communication

Step-V: Developing audience specific supportive materials

Behaviour Change Communication (BCC) materials that took different communication methods into consideration were developed tested and promoted as supportive materials for different stakeholders and audiences. Different sets of visual materials were developed for different topics such as safe water, safe sanitation, hand washing, solid waste management and menstrual hygiene management.
Step-VI: Identify and select effective communication Channels
Communication channels are important factors for disseminating the messages effectively and efficiently. Existing communication channels at the community level were identified to ensure effective communication and dissemination of relevant information. Based on the community discussion and available resources, DSK identified the following channels to disseminate information:

- courtyard session for adults (10 members in one hygiene group),
- Child to Child (community and school),
- group discussion targeting adolescent girls,
- tea stall sessions,
- training to food vendors to make and sale safe food,
- training to hygiene risk occupation groups (rag picker, sweeper, garbage collector),
- community campaign (popular theatre, folksong).

Step-VII Initiate participatory assessment of safe hygiene behaviours change
Only when participants are involved in the entire process and are responsible for their own decisions, do they feel ownership, and obligation to accomplish their responsibilities. Participatory follow-up and monitoring mechanisms have been put in place to measure changes in safe hygiene behaviour. Community participants have developed follow-up and monitoring tools and techniques for assessing progress towards improved hygiene practices. After receiving the messages, hygiene groups sit every month to discuss the messages again and assess individual improvement, which is recorded in pictorial sheets.

The Process: Implementing the Hygiene Promotion Programme
1. Formation of Hygiene Group: The households of a particular slum are registered in the project and the slum is divided into small units of ten households. An “Adult Hygiene Group” is formed with representatives (preferably adult female and male) from each of the ten households. Separate Adolescent Groups are also formed with ten adolescents’ girls in each group. A Child Leader Group is also formed with ten children as leaders of Child-to-Child approaches.

2. Key Messages: Nine messages related to hygiene promotion have been developed based on identified risk and community discussions. The messages have been divided into three clusters. The clusters and the messages appear in the table below.
Table 1. Hygiene Promotion Messages

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Key area</th>
<th>Specific messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1</td>
<td>Safe water</td>
<td>1. Use safe water for all household purposes including drinking and cooking.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Safe water collection, storage and handling – protect water from contamination at source and at home.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Preventive messages related to water borne diseases</td>
</tr>
<tr>
<td>Cluster 2</td>
<td>Environmental Sanitation</td>
<td>4. Use sanitary latrine for safe disposal of human excreta (adult and children).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Use sandals during use of toilet.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Disposal of household solid waste and drainage.</td>
</tr>
<tr>
<td>Cluster 3</td>
<td>Personal Hygiene</td>
<td>7. Wash hands at six critical times.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Maintain improved food hygiene during preparation and sale.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Mange menstrual hygiene (adolescent girls and women).</td>
</tr>
</tbody>
</table>

3. Message dissemination: To disseminate the hygiene messages and create awareness among the hygiene promotion group members, three consecutive courtyard sessions are conducted in three weeks. Within a month, all of the messages are delivered. Clusters of messages are discussed in each of the hygiene promotion sessions. The sessions are conducted at the household premises of the groups and take place for at least two hours. The sessions are conducted by trained Community Health Promoters (CHP education level equal or below class ten) who also have been living in the same slum. Series of trainings have to be provided to the CHPs to enhance their skill and capacity to conduct sessions.

A special session for menstrual hygiene management is held with adolescent girls. Four major messages are disseminated to the group — use clean rags, wash rags with soap and safe water, dry rags under sun and store rags in hygienic places. Adolescent girls who receive the messages are to provide the same messages to their girl friends.

Hygiene messages are also disseminated through the Child-to-Child approach. The children leaders are provided with eight messages (messages on menstrual hygiene are not included) through three sessions. Each leader forms a friends group with ten children and disseminates the messages to the friends. Children are also taught to motivate parents on hygiene issues.

Participatory Rapid Appraisal (PRA) tools and techniques are used to disseminate messages. Pictorial cards are used to make the session attractive and interactive. If anyone is absent from any session, the Community Health Promoter visits that family and provides necessary messages.

4. Development of monitoring tools: One month after the delivery of messages, a fourth session is conducted with the same group. The group members discuss the issues again and take part in CHP facilitated development of monitoring tools and indicators.
5. Follow-up and monitoring: Each hygiene promotion group meets on a monthly basis with their monitoring tools. At the beginning of the session, group members further discuss the nine messages to refresh their knowledge and to keep it up to date. Later in the session, each member gives a self-statement about the progress of hygiene practices, which is recorded in the monitoring tools practice documentation. CHP facilitates the session. Based on the monitoring findings CHP also visits households to observe practice levels to reinforce practical implementation. The follow-up and monitoring sessions continue for three to four years to influence habit change, as experience indicates that sustainable behaviour change requires a period of three to four years.

6. Phasing out: After attaining the desired level of reported practice (70-80%), responsibility for monitoring the hygiene practices is handed over to respective Community Based Organizations (slum based WASH Committee). The CBOs themselves determine the methodology necessary for success per options inclusive of indicator tools and intervals for monitoring hygiene practices. Prior to phasing out, the group, CHP and CHW (Community Health Worker) conduct a joint assessment through discussion and observations.

Survey to Assess Improvement of Habits
Subsequent to three years of interventions, DSK conducted a survey on hygiene promotion improvement in its WatSan interventions slums in Dhaka and Chittagong in 2008.

Methods
DSK conducted a cross sectional survey among 100 households in 12 randomly selected slums applying two methods (i) structured interview and (ii) direct structured observation of hygiene practices at key junctures (use and how to preserve safe water, use of hygienic latrines; use of sandals during toilet use; and handwash with soap before eating, after defecation, and after solid waste disposal)

Two types of participants were selected (i) participants directly trained by CHP and (ii) family members of trained participants. Seven major important indicators and basic demographic information was collected for the study. Data was collected using a pre-structured simple questionnaire followed by direct observation at the household level. The progress was compared with baseline information conducted in 2005.

Sampling technique
The study participants were selected through a multi-stage random sampling technique.

1st stage: Slums where three major interventions (safe water supply, hygienic toilet and hygiene promotion) have been running for at least three years were included in the sampling frame. Twelve slums from the sampling frame were selected by lottery for inclusion in the study.

2nd stage – 50 Hygiene Promotion (HP) groups who have completed monitoring session at least 25 times during the assessment period were randomly selected by lottery.

3rd stage – 50 HHs were randomly selected by lottery from identified HP groups.

4th stage - 50 respondents from identified HHs who received hygiene messages through courtyard sessions (direct recipient) and 50 respondents (age > 10 years) from the same HH who received hygiene messages (indirect recipient) from family members were selected.

Results
Out of 100 respondents, 91 were female and 9 were male. Approximately 62 % were housewives, 21% were students, and the rest of the respondents came from different occupations, such as day labour, garment worker, rickshaw puller, small vendor etc. About half of the respondents had no education and
the rest had 1 to 10 years of schooling. The mean age of the respondents was 28 years (with a range of 13 to 48 years)

Survey findings showed that 96% families know about hand washing with soap before eating. As shown in Figure 1, this is an increase from 30% at the time of the baseline survey. Only 8% washed hands with soap at the beginning, and 54% did so after hygiene promotion intervention.

Figure 1. Hand washing with soap before eating.

Knowledge about hand washing with soap before feeding young children was 73% during the study, in contrast to 30-50% at the baseline. Only 5-10% families practiced hand washing with soap before feeding at baseline, and after hygiene promotion interventions, 63% of the families were observed to wash hands with soap before providing food to children.

As reflected in the figure below, before interventions only 41% of the families knew about hand washing with soap after defecation, but after hygiene promotion almost 100% of the families in the sample had this awareness. In 78% of the households, people were observed to wash hands before eating, in contrast to 19% at baseline.

Figure 2. Hand washing with soap after defecation

93% of the respondents know about wearing sandals (slippers) during defecation and at 97%, family members in almost all of the households were observed wearing sandals during use of toilet. Three years earlier, at the baseline, this figure was only 30%.

Figure 3 depicts increased knowledge of safe water practices. Demonstrating an increase from 67% at baseline, 87% of the respondents had knowledge about the use of safe water for all household purposes. Currently, 91% of respondents report that they are using safe water for all household uses. Only 15% reported doing so at baseline.
In contrast to 32% at baseline, 90% of families know about safe water preservation and the practice level improved from 5% at baseline to 74% after intervention.

Knowledge of hygienic toilet has increased from 24% at baseline to 88%. During the study, 72% of households were using sanitary toilets. Only 18% were using sanitary toilets at the time of the baseline.

During observation at the household level, deviation was 5% to 12% at the practice level. Some of the proxy indicators were used in observations to assess the practice level (such as soap at toilet/ or near by toilet, soap at home, sandal at toilet/ home).

It was observed that the level of practice was less than average among households where members had no formal schooling and had poor access to water, sanitation and media. Our experiences show that both knowledge and practice levels increased due to intensive hygiene promotion activities.

Some challenges to the programme have been:

- obstacles to sustainable behaviour change posed by risk of slum eviction;
- household migration from one slum to another;
- difficulty securing participation of men and working women in the hygiene promotion sessions because they were busy with their jobs;
- trained members inconsistency in conveying appropriate message dissemination to other family members;
- inadequate water and sanitation facilities for slum dwellers;
- the need for overall improvement of unhygienic environment in the slums;
- lack of adequate courtyard space for the communication sessions.

**Conclusion**

Continuous community hygiene education along with physical access to water supply and sanitation positively influences change in hygiene behaviour and decreases the prevalence of water borne diseases.

Community participation in the decision making process is the most important determinant for sustainable hygiene promotion.

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Hand washing with soap has been shown to reduce the incidence of diarrhoea by almost one half, and of acute respiratory infections by roughly one third. Yet rates of hand washing with soap remain low— as low as 5% to 15% at important times. Hygiene promotion initiatives have largely focused on motivation, and factors that influence individuals’ opportunities to hand wash have often been overlooked. This article summarizes research findings from the Water and Sanitation Program’s Global Scaling Up Hand Washing Project and other sources, which suggest that access issues, including convenient access to water and soap in pertinent times and locations and having a designated place for hand washing with soap, are important determinants for hand washing. Enabling products, such as hand washing stations, provide such a designated place, as well as an environmental cue to action and a stable context for hand washing— factors that literature highlights as critical for habit formation and maintenance. The Water and Sanitation Program is currently conducting a landscape of enabling products and many identified to date are tippy-taps. Lessons learned from a design consultancy for a hand washing station for rural Vietnamese households, however, suggest, that appearances may matter and design features that take into account user preferences and usual practices are essential. Findings results from planned case studies on selected enabling products and the outcomes from the Scaling Up Handwashing Project in the next 12-18 months will reveal whether mass-produced and commercially distributed products have the potential to scale up and sustain hand washing.

Background

Hand washing with soap has been shown to reduce the incidence of diarrhoea by almost one half and of acute respiratory infections by roughly one third. Yet the rates of hand washing with soap remain low— as low as 5% to 15% (Scott et al, 2003) - particularly at critical times when there is a risk of faecal-oral contamination, such as after having used a toilet or before preparing food.

The Water and Sanitation Program (WSP) of the World Bank is implementing the Global Scaling Up Hand Washing Project (hereeto referred to as the Project) with support from the Bill & Melinda Gates Foundation. The Project is testing whether innovative promotional approaches to behaviour change can generate widespread improvements in hand washing with soap (HWWS) in Peru, Senegal, Tanzania, and Vietnam.

The Project has a significant learning objective, an important component of which is to ascertain the key factors (also known as determinants) that influence HWWS behaviour. Of particular and growing interest is the role of washstands, tippy-taps or other technologies (coined “enabling products”) that facilitate hand washing when and where there is no piped water or conventional sink in close proximity to the latrine or the food preparation area. While sinks in kitchens and bathrooms are the norm in developed nations, they are not in most resource-scarce countries. An emergent Project hypothesis is that if a busy mother needs to spend time looking for soap before preparing a meal or a child does not have easy access to water and soap after using the latrine, the probability of HWWS actually taking place is lower. Convenient and easy access to
both water and soap at critical times is believed to be a key behavioural determinant of HWWS among the Project’s target population of mothers and young children.

The purpose of this article is to share the lessons derived from the Project in the area of enabling products, particularly in their potential role to facilitate the formation of a hand washing habit. This article offers program implementers insight into why integrating a component focusing on increasing convenient access to soap and water may be critical. It also shares practical tips on elements to consider when developing a hand washing station.

Using A Framework To Understand Hand Washing Behaviour

As part of the Project, WSP developed a framework to help understand and analyze why caretakers, children or other segments of the population wash their hands or not. Known as FOAM (Focus on Opportunity, Ability and Motivation), the framework identifies the factors that influence hand washing (Coombes, 2009). The factors are classified under three categories, depending on whether they relate to people’s chance to wash their hands (Opportunity determinants), resources (Ability determinants) or drives (Motivation determinants). WSP has been using the framework presented in Figure 1 to inform the design of its formative research, interventions, and monitoring strategy and tools.

Access and Availability

Access/availability to soap and water, which falls under the Opportunity category of determinants, is particularly relevant to this article. A review of formative research in 11 countries conducted by the London School of Hygiene and Tropical Medicine found that some type of soap was available in almost every household, as was water (Curtis et al, 2009). However, it is not sufficient for soap and water to be present in the home; both must be readily accessible in the right places and at the right times to enable household members to wash their hands. In terms of critical times for hand washing, this means that soap and water must be conveniently placed next to the toilet or food preparation area. If a caretaker needs to fetch the soap from another part of the family compound or from a locked cupboard after using the toilet, then she or he is less likely to wash his or her hands.

Figure 1. FOAM Framework
Source: Coombes & Devine, 2009
Emergent learning from the Project indicates that access/availability is significantly correlated to hand washing. A comparison of Senegalese mothers who wash their hands with soap with those who do not revealed that convenient access to soap and water at critical times may well be the most important determinant. Similarly in Peru, having a designated place for hand washing emerged as a significantly correlated determinant based on a large survey of primary caretakers as part of the Project’s impact evaluation baseline (Delisio, 2009). Project managers in both countries have re-oriented their intervention to strengthen caretakers’ skills to manage soap and water for hand washing purposes within the household and create a designated place for hand washing. The Project’s findings are supported by other studies such as the one in rural Bangladesh households which concluded that interventions that improve the presence of water and soap at the designated place for hand washing could improve hand washing behaviour (Luby et al, 2009).

Enabling Products

Given this emergent learning on the importance of convenient access and availability of soap and water when and where needed, the Project has introduced additional learning activities on Enabling products. Enabling products are some of the external factors that influence individuals’ opportunity to perform a behaviour, regardless of their ability and motivation to take action. Often overlooked in the design of hand washing initiatives, these external factors have been shown to facilitate hand washing behaviour. Biran et al (2005), for example, found an association between increased rates of HWWS after latrine use and ownership of a washstand in Kyrgyzstan.

Enabling products can be found in many fields such as public health. For example, beads (such as CycleBeads) are promoted in some interventions to assist women practicing natural contraception in tracking their menstrual cycle. HIV-positive patients are encouraged to organize their pills in small boxes with compartments labeled by days of the week to facilitate compliance to the prescribed regimen.

With respect to hand washing, enabling products can help do any of the following:

- **Store and regulate the flow of water in sufficient quantity to facilitate hand washing.** Tippy-taps – which are devices made from commonly available materials (such as a jerry can suspended on a stand) - are perhaps the best known example. See Photo 1 for an example of a tippy-tap.

- **Manage or store soap within a household or institution (e.g., school, workplace).** The end purpose is to prevent wastage, theft or spoilage or to facilitate access. Soap nets, soaps on a rope (see photo 2 for an example) and soap dishes are examples.

- **Bring together water and soap in one place.** Enabling products such as hand washing stations provide a designated space to wash hands with soap in the household or in an institutional setting that is, ideally, in close proximity to the toilet or the food preparation area (see Photo 3 for an example of a hand washing station).
Towards a Landscape of Enabling Products

WSP is currently compiling a working resource guide which will be made widely available through its website in early 2010 to provide an inventory of existing enabling products. The resource guide will serve as a “one-stop shopping” online reference that will enable program managers to find key information on the various types of enabling products including but not limited to purpose/benefits, key product features/specifications, pictures or illustrations, cost per unit and contact person for further information. This will assist program managers in selecting options that could be useful to their own program needs. The working resource guide is being developed based on information derived from a review of grey and published literature, informant interviews and input received from emails and postings on list-serves. Users will also be able to submit information on additional products allowing the database to grow over time.

By the end of November 2009, WSP had catalogued some 30 distinct enabling products. Not surprisingly, variations on tippy-taps have been found in almost every continent. The majority of enabling products are DIY (“do it yourself”) in nature.

In the first semester of 2010, WSP will also be conducting two case studies to investigate the process in which some of the enabling products have been developed, what results were obtained and what lessons can be learned. They will inform the water and sanitation, hygiene promotion and public health communities on the potential role, value and limitations of enabling products and provide insights into promising practices to maximize scale and sustainability.

Insights from Designing a Hand Washing Station for Rural Vietnamese Households

In Vietnam, the Project is using an array of interventions to promote hand washing among mothers and children in rural areas, including mass media, community and school-based events and interpersonal communication through the Vietnam Women’s Union (WU), a grass-roots organization which counts some 13 million members nationwide. Prior to project implementation, hand washing rates with water alone were much greater than with soap, despite the fact that all households have some form of soap, whether laundry detergent (100%), dishwashing liquid (88%) or bar soap (60%) (Indochina Research, 2007). The Project is working on changing beliefs and attitudes, which underlie the behaviours. Through the Women’s Union, it is also hoping to strengthen mothers’ capacity to manage soap and water for hand washing and make both easily accessible at a designated place.

Knowing that a hand washing station would greatly facilitate this last objective, WSP contracted a consultant to develop rough design concepts in April 2009. The consultant/designer led a highly participative process involving stakeholders and implementing partners in meetings, field visits and two rounds of prototype building and user field testing based on human-centered design principles. Through the consultancy was too short to arrive at a final design direction, the process yielded invaluable insights into the mechanics of hand washing and user preferences, including the following:

- **Tap design:** Rural Vietnamese people strongly preferred a tap which allows water to run freely over their hands as they rub them together to get rid of soap. Having to continuously depress a lever makes rinsing very difficult. An ability to adjust the flow rate and to control the on-off with the back of the hand or some other clean body part (to keep the tap hygienic) was deemed important.
- **Soap presentation:** Prototypes providing for a bar of soap were well liked, with a preference for a hanging bag (over a covered dish) which would allow for the bar to dry and prevent it from getting misplaced or stolen. A powder shaker which would allow for dispensing of laundry soap tested poorly as did a liquid (dishwashing) bottle nipple dispenser. In the latter case, users were unable to divorce the baby bottle used from its intended purpose, providing an important lesson for future prototyping: avoid using products or materials with strong connotations.
- **Container parameters:** People stated they would mount the station on a wall or post rather than rest it on a stand as it would seem like a more permanent installation, which was desirable. In this respect, a rectilinear container is preferable to a round one. Users stated that they would bring water to the container to refill it rather than the reverse. In this light, a clear container allowing them to see the level of water
and a capacity of 10 to 15 liters (enough for a projected 1-2 days of household use) were other important features. Finally, a flip lid was preferred over a removable lid which could be misplaced.

**Learning Points for Designing Hand Washing Stations**

Though the findings from the Vietnam design process cannot be generalized to other areas, there are some key lessons learned for program managers who wish to embark on the design of a hand washing station. They are as follows:

1. *Test, test and re-test:* Multiple iterations of prototyping and field testing with household members are critical to identify user preferences and hand washing practices. Program managers need to take this into account in their planning and budgeting.

2. *No one model fits all:* Program managers should not transplant technologies from one country to another without prior field-testing. A hand washing station that is currently mass-produced and promoted through partners of the Project in Peru tested poorly in rural Vietnam indicating that a universal design may not be possible.

3. *The mechanics of hand washing are complex:* Field testing revealed that the mechanics of hand washing are more complex than were assumed. The research needs to examine what part of the hand is used to start the water flow (no finger tips in the case of rural Vietnam), the preferred body position (squatting in the case of rural Vietnam) and the hand motion (extensive rubbing in the case of rural Vietnam) to inform feature design.

4. *Appearances count:* Program managers need to keep in mind that hand washing stations may fulfil an aspirational and social status role in addition to providing functional benefits. Users in rural Vietnam expressed the need for something that looked nice and new and would be willing to spend more for a station if installed in a location visible to other villagers.

5. *Size does matter:* Understanding user preferences in terms of how and how often they want to refill the water as well as who in the household would be assigned this task is important to determine the size of the container. As stated earlier, users in rural Vietnam stated they would prefer to bring water to the container rather the other way around; a hand washing station for this population would need to hold enough water for a few days of use.

6. *Hire a real designer:* The enormous learning from Vietnam process could not have been obtained without a qualified and experienced designer who is vested in user-centred processes. Program managers need to budget accordingly and should consider preparing a simple brief as part of their contracting (see Figure 2) which provides an initial guidance to the designer on the context and intended purpose and serves as a platform for discussion.

7. *A station as possible cue to action:* In the Vietnam design process, women freely stated that a well-placed station would help remind them and their family to wash their hands with soap. This cue to action is critical in habit formation and will be discussed in the next section.
Enabling Products and Habit Formation
The ultimate objective of hand washing programs is to instil good habits in the targeted populations. In addition to frequency and consistency of the behaviour in question, habits are characterized by automaticity (Verplanken, Orbell, 2003). Verplanken & Wood (2006) suggest that for a habit to be formed, the behaviour needs to be repeated in a stable context (see Figure 3). In hand washing, this stable context is provided by a sink, or in areas without piped water, a hand washing station or some other enabling product. According to Verplanken and Wood therefore, a habit may not be formed without this stable context, even if the behaviour repeatedly takes place.

Verplanken and Wood (2006) further suggest that although a behaviour is initially conscious and intentional, automaticity sets in if it is repeated in a stable context; eventually the behaviour is triggered by environmental cues. This is another reason why enabling products such as hand washing stations may be critical in fostering good habits: they provide cues. A mother exiting a latrine is reminded to wash her hands with soap when she sees a hand washing station. As mentioned earlier, the potential for hand washing stations to serve as a cue to action was detected in the Vietnam design consultancy.
Future Prospects: Outlook From The Project

In the final year of the Project’s implementation, WSP intends to maximize the integration of these learnings. For Vietnam, WSP is in discussion with the USAID-funded WaterSHED project on how to bring the hand washing station forward, hopefully toward a manufactured product that would be distributed through commercial and mass-organization channels. In Peru, the Project has partnered with a plastics manufacturer, Duraplast, to produce a dispenser. The dispenser can hold two commonly found 3-liter soft drink bottles, one which the household or school fills with water and the other with a soapy water solution. Distribution is currently through government and non-government organizations; however, initial thinking around a branded commercial product has begun. WSP will build in adequate monitoring and evaluation measures to ensure that learning from these initiatives is captured and disseminated.

Conclusion

Factors that influence individuals’ opportunity to hand wash have often been overlooked in hygiene promotion initiatives, with much of the focus having been placed on motivational drives such as disgust and affiliation. Findings from the Project and other research suggest that convenient access to water and soap when and where needed and having a designated place for HWWS are also important determinants. Program managers should strongly integrate a component focused on the target population’s creation of a designated place for hand washing.

Enabling products provide such a designated place. They also provide an environmental cue to action and a stable context for hand washing, factors that literature highlight as critical for habits to form and be maintained.

The landscape of enabling products that WSP is conducting reveals that many found are tippy-taps. However, the learning from the Vietnam hand washing station design consultancy indicates that appearances may matter and that design features that take into account user preferences and usual practices are essential. The results from Peru and Vietnam in the next few years, as well as planned case studies on selected enabling products, will reveal whether mass-produced and commercially distributed products have the potential to scale up and sustain hand washing.
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References


Notes

The consultant recruited was an IDEO designer who happened to be on personal leave working on a low-cost latrine in Cambodia.

For more information on human-centered design, see www.ideo.com.

Keywords
Handwashing, handwashing stations, determinants of handwashing, handwashing habit, cues to handwashing, design

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India's population of 1.17 billion (estimate for July, 2009) represents approximately one-sixth of the world's population; nearly half of whom — women — are mostly neglected, especially in relation to their gender specific needs. On average a woman spends 2100 days of her life menstruating, but accessibility and affordability of menstruation products is largely absent. This restricts women's mobility and affects the development of adolescent girls. Since the SACOSAN 2008 declaration in which the Government specifically committed to menstrual hygiene promotion recognition of this need has increased along with efforts to generate awareness and improve knowledge and facilities for menstrual hygiene management (e.g. incinerators in school toilets, and a manual on Menstrual Hygiene).

In rural India, the problem is exacerbated, as many women are unfamiliar with sanitary napkins and their use. Many poor women menstruate on their skirts or use the same set of cloths for months at a time. WaterAid India, in partnership with local NGOs, has carried out a survey on existing behaviours, misconceptions and the availability and accessibility to menstruation products. WaterAid India and local partners have responded modestly to this need by developing menstrual hygiene communication tools and linking demand to entrepreneurship.

This paper highlights survey findings and interventions, and presents best practices from across the country. It makes a strong case for local initiatives and micro credit programmes which can support sanitary napkin production as an entrepreneurial and livelihood model for women, and in turn facilitate, upscaling and mainstreaming of menstrual hygiene with due emphasis in the larger sanitation programmes.

Introduction

Discussions of cultural and religious taboos related to menstrual hygiene have taken place in recent years in various platforms, but wider understanding of the problems of poor menstrual behaviours and of the need for improved management of menstrual hygiene have yet to be realized. This neglect at both the policy and programme levels calls for a comprehensive approach to menstrual hygiene promotion that should include awareness generation, access to facilities, and convergence of related departments. The purpose of these efforts should be to positively impact women’s health and social status, and to improve their effective functionality during menstruation. India, with its estimated population of 1.17 billion, is home to one-sixth of the world’s population. Women comprise half of India’s population, the majority of who don’t have access to essential sanitary products and facilities during menstruation.

In India, after attaining menarche a high percentage of female students, particularly from rural areas, are reluctant to attend school during menstruation due to the lack of facilities at school and for fear of being teased by boys. This results in a higher dropout rate for girls. The main reason for this situation is lack of sensitivity, at all levels, to this special need of girls. Good hygiene and better health are directly related. Poor menstrual hygiene can cause urinary tract or other infections. Due to the unavailability of female practitioners in rural areas, women refrain from seeking medical remedies or advice and serious infections are often left untreated.
In Chhattisgarh, women generally bathe in ponds. During menstrual periods they avoid taking baths for want of privacy for changing menstrual clothes. Only 36% of households in Chhattisgarh have access to a toilet, and the others defecate in the open. Women often face pain during menstruation and experience great levels of discomfort as they cannot defecate or change during daylight. Poor rural women and girls do not have easy access to sanitary napkins nor can they afford the ones available in the market. A woman is estimated to use an average of 7000 pads up to the time of her menopause. The high cost of sanitary napkins is due, in part, to the taxes levied on them. Poor demand for sanitary napkins discourages rural vendors from maintaining stock of napkins.

This paper draws attention to the situation in rural Chhattisgarh. It highlights women’s beliefs and attitudes towards menstruation, gaps in the supply chain of sanitary products, and how small initiatives such as the provision of facilities for management of menstrual hygiene can restore freedom of mobility during menstruation. This freedom is not only for mobility — it also facilitates the empowerment process.

The Beginning - Initiative in Chhattisgarh

During various visits to villages in Chhattisgarh, WaterAid\(^1\) and partner organizations noticed that many girls and women could not use toilets during menstruation. Women were found to menstruate on clothes without using any absorbent. Absenteeism was also noticed in schools. The WaterAid team managing Chhattisgarh, realised that for its overall WASH effort to be effective, Menstrual Hygiene and its management (MHM) needed to be included in the programme. Initially the civil society partners and their teams, who were predominantly male, had a hard time understanding the importance of menstrual hygiene. Many partners considered topics related to menstruation highly sensitive with difficult cultural, religious and social implications, and rejection by the community was considered likely. The higher proportion of male staff made it difficult for female colleagues to share the challenges of their own experiences managing menstruation at their own work places and while working in the field for more than 7 or 8 hours.

The process began when the first structured training of the partner NGOs’ field workers, including men, was undertaken. The purpose of the training was primarily to impart knowledge related to menstrual hygiene management, remove the traditional inhibitions related to menstruation, and develop participants as trainers. The training included communication skills to help participants understand the issue and to encourage them to discuss the subject without inhibitions. The content of the training included three major topics: 1) all about menstruation with its taboos in the society, demystifying the myths and misconceptions; 2) the why and how of menstrual hygiene management; and, 3) local solutions — production of sanitary napkins. The sessions were participatory and interactive, and participants were encouraged to share their experiences and come forward with suggestions to improve approaches to behaviour change communications.

Understanding the Realities

The training workshop was an eye opener, as it brought to light varied practices and beliefs across the tribal state of Chhattisgarh, as well as the need to carry out a situation analysis and an assessment involving the project team and community volunteers. The field assessment captured the beliefs, behaviours, and related diseases prevalent in the state of Madhya Pradesh and Chhattisgarh. A total of 2579 rural and urban poor women and girl students were identified for interview, using a random sampling method.

The study revealed the following findings related to behaviour and disease:

- 89% of the respondents reported that they use cloth as absorbents, 2% respondents used pieces of cotton, 7% used sanitary napkin, and 2% used ash. In addition, some respondents used paper and some

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1 WaterAid in India has been working in partnership with Civil Society Organizations in Ten States where water and sanitation poverty is quite evident. Since 1986 WaterAid India programme has evolved from a technical emphasis to an integrated WASH focus to ensure water and sanitation for all founded on principles of equity and inclusion. It is only since 2006, that WaterAid programme in India began to recognize the need for menstrual hygiene.
allowed menstruating on their clothing. 10 women did not respond. 38 respondents from Sheopur of Saharia tribe disclosed that they spent their days of menstruation in the cow shed. The majority of the respondents used cloth, which was not always cotton material. Available old synthetic cloth was used for this purpose.

- Sanitary napkins were considered the best absorbent for management of menstruation but it was found that more than 50% of the respondents were not aware of sanitary napkins.
- One in three respondents was not using sanitary napkins because they were costly (33%). More than a third (35%) of the respondents gave multiple reasons (e.g. they were not aware of their use, found disposal difficult, were concerned about chances of staining, felt shy about purchasing sanitary napkins). 26% of respondents reported lack of availability and 6% reported lack of comfort.
- 37% of the respondents did not have access to a household toilet and were compelled to manage menstruation at different places as shown in Table 1.

<table>
<thead>
<tr>
<th>Spots</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathroom</td>
<td>109</td>
<td>11%</td>
</tr>
<tr>
<td>Open Field / Outside</td>
<td>638</td>
<td>66%</td>
</tr>
<tr>
<td>Cow Shed</td>
<td>7</td>
<td>1%</td>
</tr>
<tr>
<td>Community Toilet</td>
<td>55</td>
<td>6%</td>
</tr>
<tr>
<td>Dark Room</td>
<td>153</td>
<td>16%</td>
</tr>
</tbody>
</table>

- Respondents were not open to discussing the diseases they suffered in relation to menstruation. Many of the women were not aware about unhygienic practices and related diseases. Diseases reported were White discharge (48), Leucorrhoea (2), itching / burning (277), ovaries swelling (15), cuts on thighs (9) and frequent urination (4).

**Status of Sanitation facilities in Raipur Schools**

In many cultures in India, during the days of menstruation girls are not allowed to leave home apart from their immediate neighbourhood. This leads to absenteeism and eventually to school dropout. Female teachers face a similar situation during menstruation as they either report themselves sick or go home as early as possible, which limits their attention to children and lessons. The gender–unfriendly school culture and environment, along with the lack of adequate, safe and private sanitation facilities, undermine the right of female teachers and girls to dignity and privacy and create a fundamental breach of human rights.

An assessment conducted in 2008 of the status in schools in relation to water and sanitation facilities in Raipur district confirmed that the education department had been insensitive and had failed to address gender needs. The design of sanitation facilities in schools does not include facilities for changing, cleaning and disposing of menstrual waste. Table 2 describes the status of facilities available in schools in the district.
### Table 2. WASH facilities in schools

<table>
<thead>
<tr>
<th>Blocks</th>
<th>Number of Schools</th>
<th>Separate urinals for girls &amp; boys</th>
<th>Separate toilet for girls &amp; boys</th>
<th>Separate toilet for Staff</th>
<th>Availability of Water in toilet</th>
<th>Hand Washing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Abhanpur</td>
<td>150</td>
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<td>16</td>
<td>14</td>
<td>15</td>
<td>61</td>
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<tr>
<td>Arang</td>
<td>137</td>
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<td>13</td>
<td>13</td>
<td>13</td>
<td>30</td>
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<tr>
<td>Baloda Bazar</td>
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<td>15</td>
<td>14</td>
<td>7</td>
<td>48</td>
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<tr>
<td>Bhatapara</td>
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<td>13</td>
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<td>1</td>
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</tr>
<tr>
<td>Bilaigarh</td>
<td>132</td>
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<td>Chhura</td>
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<tr>
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<td>32</td>
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<td>13</td>
<td>8</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Tilda</td>
<td>147</td>
<td>73</td>
<td>25</td>
<td>4</td>
<td>11</td>
<td>62</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1759</strong></td>
<td><strong>687</strong></td>
<td><strong>225</strong></td>
<td><strong>102</strong></td>
<td><strong>163</strong></td>
<td><strong>484</strong></td>
</tr>
</tbody>
</table>

Apart from the information in Table 2, none of the schools of the Raipur district has a menstrual waste disposal facility or makes sanitary napkins available in schools. The national Total Sanitation Campaign included menstrual hygiene as a component of its concept and plan, but this is not reflected in actual implementation. Specific needs of women and girls have yet to receive adequate focus in programme strategy. The plan document includes only construction of incinerators (for disposal of sanitary napkins), which are completed in just a few schools. In Chhattisgarh State, a few schools of Sarguja district have incinerators, but the female students are not aware of them. Masons have not received any training on the technical design of incinerators, and teachers and students have not been trained on their purpose and operation. The few incinerators constructed are not functional due to lack of understanding and training in their usage.

**Photo 1. Incinerator**  
Source: – TSC Review
Access to Sanitary Napkins

To protect girls and women from menstrual infection and to improve their reproductive health; the general supply chains, especially those with potential to reach remote tribal and rural areas, must be strengthened. This will improve accessibility, affordability and acceptability of sanitary napkins and other protection for menstrual hygiene in rural areas.

An assessment, which covered 62 villages of Pali block of Chhattisgarh State, was carried out to learn about the supply of sanitary napkin or other protection products. The findings are very striking:

- Out of 187 general and provision stores from 62 villages, not one (0%) of them sold or stocked sanitary napkins.
- Vendors reported that there was no demand for sanitary napkins.
- Rural women do not use undergarments, thus they did not feel that napkins were comfortable during menstruation.
- Rural women felt shy about openly buying sanitary napkins as the shops were generally run by men.
- Lack of bathroom and toilet facilities created a disposal problem.

The findings reveal a gap in the sanitary napkin supply chain. To promote increased access and acceptance, and to encourage women to use sanitary napkins during menstruation, it is necessary to ensure that menstrual related sanitary material is introduced in a culturally appropriate manner. Careful planning and involvement of local actors who know the cultural context and have in-depth knowledge of local customs, habits and women’s lifestyle is essential (Vijayan & Sandhaya, 2004).

Experiences from Across the Country

Goonj,3 a civil society initiative, helps women’s groups to recycle used cloth as sanitary napkins. Used cloth is sterilized, sorted, and packaged as simple sanitary cloth pads, which can be disposed of or washed for second use. The program aims to generate awareness and promote livelihood opportunities for women in villages and urban slums. Goonj considers this a first step in the menstrual hygiene ladder.

The Tamil Nadu state Government4, with support from UNICEF, has promoted facilities (such as incinerators) for disposal of sanitary waste in schools and supported women’s groups to produce inexpensive sanitary napkins. On an experimental basis, the Government has installed sanitary napkin vending machines in secondary schools. Other innovative micro and small-scale enterprises5, also engage women in income generation activities to supply low cost sanitary napkins. Initial feedback from this initiative indicates increased school attendance by girls and improved performance6 in their studies. With their impact on health, school retention, studies and the overall well-being of women, such promising developments must be studied and shared. These initiatives offer freedom of mobility to women and girls as they provide better menstrual hygiene at an affordable price. Goonj’s handmade prewashed cotton pads cost two or three rupees for a packet of six. Self Help Groups of Tamil Nadu State are producing sanitary napkins and distributing them to the remote areas where napkins are difficult to obtain. Learning from these experiences, the Haryana state Government has started a programme to subsidise the sanitary napkins manufactured by women’s micro credit enterprise. These best practices must be encouraged and widely disseminated so that they can be replicated in other parts of the country.

This is a disturbing incident but many of our rural women must be facing this situation. In Malwa region girls use wheat/ paddy straw during menstruation. A girl from Dindori district took straws as usual when she got her period, but there was no electricity and she didn’t notice that there was an insect in that straw. The insect entered her vagina and passed through to her uterus. She continued to suffer a stomach ache, even after completing her menstrual days, but she ignored it. The next month she didn’t get her period and her stomach ache increased and soon became unbearable. Her mother finally took her to see a doctor but the doctor said it is too late. The insect had infected the uterus very badly and there was no other option but to remove her uterus. This 19 year old girl had to be operated on and deprived of motherhood…. Mrs. Shanti Verma, Participants of MHM training

3 http://www.goonj.org/not_just_apiece.html
4 http://www.unicef.org/india/health_3623.htm
5 http://www.newinventions.in/downloads/NGOsproposal.pdf
6 http://hopebuilding.pbworks.com/Sanitary-napkin-vending-machine-brings-high-marks-for-girls,-revenue-for-womens-groups-in-India
Self Help Group Initiatives – Demand Generation and distribution in tribal areas

Learning from experiences across WaterAid and the partners, a women’s group was encouraged to manufacture safe, disposable, and affordable sanitary napkins. The study’s assessment of the actual situation in these remote tribal villages has informed development of practical solutions, both in manufacturing and in the adoption of social marketing approaches to create demand. This ensures that the product reaches the target audience through dissemination of knowledge and distribution of materials. Women are the managers, makers and distributors of the sanitary napkins.

The Mahalaxmi Self Help Group (SHG), with the support of WaterAid and guidance of local partner organization Centre for Action Research & Management in Developing Attitudes Knowledge & Skills in Human Resources, (CARMDAKSH), has established a production unit in the interior Navapara village in Pali Block, which is surrounded by dense forest. Initial machinery and raw material support was provided to the group as an entrepreneurial opportunity. Before establishing this unit it was found that sanitary napkins were not available within an area of 15 KM, and that none of the women and girls from the 62 villages ever used sanitary napkins. SHG members shared their experience of using the same set of cloths (not necessarily made of cotton) for two to three years. Girls and women experienced the use of a sanitary napkin for the first time.

Mahalaxmi women’s group members realized that due to their remote location, they did not have access to health centres, and that many of the village women were suffering from infections and itching during menstruation due to repetitive use of cloth pads and their practice of bathing in a pond. The idea of locally manufacturing sanitary napkins came through the education and efforts of CARMDAKSH in relation to menstrual hygiene promotion. The Mahalaxmi Group realized that sanitary napkins are an essential and regular need, and that undertaking the production of napkins would contribute to improved health among women and girls and would help in girls’ overall growth. The initiative would also create livelihood opportunities for their group members. Members of the group took a loan from the bank to modify a room in one member’s house and make it suitable for production of sanitary napkins. Table 3 provides a detailed breakout of investments.

<table>
<thead>
<tr>
<th>Table 3. Cost of Sanitary Napkin Production Unit</th>
<th>Amount (Indian Rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grinder &amp; Autoclave</td>
<td>50,000</td>
</tr>
<tr>
<td>Wood Pulp (350 kg)</td>
<td>14,000</td>
</tr>
<tr>
<td>Non Woven Fabric (50 kg)</td>
<td>10,000</td>
</tr>
<tr>
<td>Packaging</td>
<td>15,000</td>
</tr>
<tr>
<td>Electrical Fittings</td>
<td>3,000</td>
</tr>
<tr>
<td>Sealing Machine</td>
<td>1,350</td>
</tr>
<tr>
<td>Scissors, boxes &amp; tray to handle material</td>
<td>2,000</td>
</tr>
<tr>
<td>Dress code for SHG members</td>
<td>2,000</td>
</tr>
<tr>
<td>Workshop Maintenance</td>
<td>12000</td>
</tr>
<tr>
<td>Dust free / air proofing</td>
<td>5,000</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5,000</td>
</tr>
<tr>
<td>Total</td>
<td>119,350</td>
</tr>
</tbody>
</table>

Round off: 120000
Equivalent to approx 2,700 USD
This is the first initiative in Chhattisgarh State with the mission of providing affordable sanitary napkins to women in the village and neighbouring villages. The Mahalaxmi group is selling the napkins at a low cost of 2.5 rupees. This is in contrast to products from popular brands with a minimum retail price of 3 – 4 rupees per pad. The experimental initiative has ensured the affordability and accessibility of sanitary napkins in this interior area where women had not seen sanitary napkins prior to the program’s inception. Women who were completely unfamiliar with sanitary napkins are now producing them. A dedicated production room was established, and is used exclusively for napkin production. Several actions are taken to maintain quality standards including: not permitting entry of children; requiring washing of hands and feet prior to entry; wearing masks, gloves and head caps; using an auto-clave for sterilizing; and packing the napkins immediately after sterilization. Mahalaxmi Self Help Group members have demonstrated use of sanitary pads along with proper use of toilets to promote safe disposal methods. Women dispose of napkins in sanitary pits where they take about three months to decompose. Women also dispose of napkins by burning them in homemade incinerators.

The Changes – New Experience and New Way of Life
The initiative has opened up the path to women’s empowerment by providing freedom of mobility during menstruation, which totals approximately 6 years of a woman’s lifetime. Improved gender friendly hygienic facilities and affordable sanitary products have provided stress free menstruation to women and girls of Pali and Mohala Blocks of Chhattisgarh State. Through their efforts, the women have embarked on a new way of life in which women and girls are able to manage their menstruation with dignity and safety through locally made sanitary napkins at an affordable price, and benefit from an opportunity for income generation and economic independence at the same time.

In the short span of nine months, the production unit has caused significant changes. Previously women never discussed menstrual hygiene due to the pressure of established customs. Women have now initiated this discussion, and the work of the self-help group is a hub of discussions on menstrual hygiene and women’s health. Tribal women have taken the lead on improving their health and the health of future generations.

During assessment of the availability of napkins, many local vendors stated that tribal women would never use sanitary napkins because health is not their priority. In this same area, adolescent girls and newly married women have come forward in large numbers to use sanitary napkins and to change old unhygienic practice. The experience has led to the design of a strategy to promote menstrual hygiene, which includes:

- linking sanitary napkin production to women’s livelihood;
- empowering women by restoring their dignity and freedom from embarrassment during menstruation, as well as their economic independence;
- disseminating knowledge to the entire community – men and women, local government and other institutions;
- facilitating development of girls through improved menstrual hygiene and school attendance.

A long way to go
Stages proposed for up-scaling and sustaining the success are:
I Stage - provide education and make sanitary napkins available in schools;
II Stage - promote affordable napkins through Self Help Groups;
III Stage - upscale by mainstreaming through convergence of different streams such as the Women and Child Welfare Department and the Health and Family Welfare Ministry;
IV Stage - wider dissemination through display, dissemination and promotion at exhibition, mela (a gathering of community for celebrating events);
V Stage - enhance supply chains by sensitizing local vendors for marketing of locally produced products.
Translating Learning into Action
Mohala is the block where Halba tribes are predominant. During menstruation, many women of this area use leaves as an absorbent. Panchayat Motivator Pramila attended training on MHM where she learnt the skill of preparing sanitary pad at the household level. Material provided during the training was not available in her block or at district headquarters. Pramila applied the basic technique, but used local material to prepare sanitary napkin. She used white cloth and cotton to make the pad and stitched it in a standard size, then sterilized it with an iron. Her pads were successfully tested by adolescent girls and self-help group women at a local level training. Girls from about ten villages learnt this skill, and women from about 25 villages have started using these affordable and readily accessible homemade pads. By making use of locally available materials, Pramila has shown the path of innovation in promoting affordable sanitary napkins.

Conclusion
Denial of human rights and huge development losses result when the absence of menstrual hygiene management facilities prevents girls from attending school during menstruation. Lack of awareness of menstrual hygiene has an adverse impact on health. To address these issues, the following must occur:

- Transfer locally applicable technology so that women can establish businesses which manufacture and distribute sanitary napkins to rural women.
- Train teachers and students on menstrual hygiene management.
- Foster investment that enables female entrepreneurs to start small-scale businesses for sanitary napkin manufacturing. Regular demand should ensure that the sustainability of each unit.
- Establish a link between schools and local producers of sanitary napkin to create awareness about sanitary products and their use among girls. These producers can also ensure regular supply of sanitary napkin in schools.
- Identify reliable and effective local partners for promotion of MHM and distribution of products to reach out to excluded areas. This will also help reduce the cost.
- Adopt a convergent approach in the Government’s school sanitation and health programs, which includes facilities for menstrual hygiene use and safe disposal, access to sanitary napkins, and systems to dispense sanitary napkins at an affordable rate to girls. The plans should be adequately financed at all levels. Mobilization of civil society organizations is needed to provide impetus to the programme and exempt local products from tax.
- Build entrepreneurial skills among local self-help groups to encourage them to undertake production and distribution of affordable sanitary napkins in the most under served area.
- Build capacity among local actors such as Accredited Social Health Activist (ASHA), Auxiliary Nurse and Midwife (ANM), SHG leaders and Aganwadi workers to sensitize all stakeholders and users, and to motivate them to promote sanitary napkin use.
- Establish more extensive awareness programs and monitoring mechanisms to ensure that commitments made under SACOSAN are implemented effectively.

Acknowledgements
The author would like to extend thanks to Navapara Panachayat Mahalaxmi Self Help Group Members and to Mrs. Pramila Sharma, Panchayat Motivators of Lokshakti Samaj Sevi Sanstha, whose Menstrual Hygiene Promotion efforts have paved the previously neglected path to ensuring better health to tribal women. This paper is the outcome of their initiative in the villages of Chhattisgarh.

The Author would like to thank Partner NGOs – CARMDAKSH, and the Centre for Environment Education and Lokshakti Samaj Sevi Sanstha for their detailed study of supply chain assessment, WATSAN Status of Raipur schools, and local leaders for their support, which helped the author bring greater clarity to the work.
in order to convey field experiences in this paper. Similarly, the commitment and efforts of Chhattisgarh and Madhya Pradesh Partners to undertake the study for assessing the beliefs, behaviour and practices of Menstrual Hygiene contributed towards development of this paper.

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Hygiene promotion is fundamental to the success of Water, Sanitation and Hygiene (WASH) interventions. To maximize health benefits and produce evidence of the reduction of WASH associated diseases, an effective monitoring system and framework for the different WASH stages is crucial. This paper reports on operational experiences from monitoring of various projects in the field during the period of January 2007 to March 2009. **Rapid-assessment** provides for a quick appraisal of expected project areas and is also instrumental for gathering and identifying high-risk behaviours and areas. A **Baseline** is crucial for describing the status and trends of the existing situation, against which predicted changes can be compared and evaluated, and actual change can be realized by monitoring. **Progress Monitoring** is instrumental to tracking changes in people’s knowledge, attitude, and behaviour after programme implementation, and helps to initiate necessary actions for further improvements using the **Rapid Convenient Survey** tool. The **Community based monitoring** system is used by the community members themselves to self-monitor their hygiene behaviour change. **Impact-assessment** is important for measuring the success of the hygiene promotion against the baseline. Finally, **Long term sustainability monitoring** explores the potential of hygienic behaviour, institutional mechanisms and availability of water and sanitation facilities to sustain the outcomes and impact of hygiene programme. A systematic monitoring mechanism for the different stages is imperative, and monitoring indicators applied from baseline to impact assessment should be consistent and coherent. Full-phase monitoring of hygiene practices with backup by programme is the only evidence-based means to show the attributable contribution from WASH for reducing associated diseases and improving health status.

**Background**

Improvement of water, sanitation and hygiene promotion provides an array of benefits for people’s well-being, particularly the poor and marginalized. Improved sanitation and promotion of hygienic behaviour reduce health risks, and eventually contribute to the socio-economic development of the nation. The Government of Nepal has acknowledged the importance of the health and well-being of its people and has set a goal of providing access to safe drinking water and basic sanitation facilities for all by year 2017. Ninety percent of urban households and 80% of rural households have access to a source of drinking water, and 46% have access to improved sanitation facilities in Nepal (NDHS, 2006). The growth trend of water coverage (46% in 1990 and 82% in 2006) and the increase in sanitation achievements (6% in 1990 and 46% in 2006) indicate that Nepal is progressing toward its MDG target. Nonetheless, achievement of universal coverage is still in question. It is obvious that to reduce infant and child mortality, improve quality of life, and reduce poverty, greater efforts and investment are needed to increase safe water, affordable hygienic sanitation, and adequate hygiene promotion. Nepal has made significant progress in reducing the child mortality rate (162 in 1990 to 61 per 1,000 live births in 2006) as per NDHS, 2006; however, basic indicators of better health, such as hygiene and sanitation, are still in a critical state in Nepal. Among WASH associated diseases, skin diseases, Acute Respiratory Infections (ARI), and diarrhoeal diseases are the top three leading preventable diseases reported in Nepal. WaterAid in Nepal highlighted during the year 2009 through various reports that, ARI and diarrhoeal diseases remain the leading causes of child deaths (10,500 diarrhoeal deaths among children under 5 years of age and younger per year) in Nepal.

Hygiene promotion is widely acknowledged as one of the most cost-effective public health interventions. The investment in hygiene promotion, together with sanitation and water, increases health impact. A study by Curtis (2003) found that the simple act of hand washing with soap could reduce the risk of diarrhoeal disease by 42-45%, and interventions that promote hand washing ‘might save a million lives’. Evidence is now also mounting that hand washing can significantly reduce the other ‘major killer of the developing world’ including ARI.
The hygiene component is barely visible within WASH initiatives in the sector. It is often suppressed by technology and finance driven approaches. Involvement and investment in hygiene is significantly low due to its low priority as a sector. Hygiene investments are perceived to be risky because hygiene depends on what local people know, do and want to change in personal behaviour, which is often considered to be beyond the control of service providers. To remedy this situation, WaterAid Nepal (WAN) is increasingly prioritizing hygiene promotion together with water and sanitation in its overall WASH sector development initiatives. Hygiene encompasses personal, domestic, and environmental hygiene practices and any action or initiative taken to erect barriers to disease. Hygiene promotion includes strategies that encourage or facilitate a process whereby people assess, make considered choices, demand, effect, and sustain hygienic and healthy behaviours. Ultimately, behaviour change is the major focus of hygiene promotion. WaterAid Nepal and its partners promote hygiene interventions focusing on high-risk behaviour and the prevalence of WASH related diseases as identified through different assessments. Hygiene issues are addressed through a wide range of promotional activities, tools and methods including cluster education, hygiene promotion campaigns, focus group discussions, community health awareness and camps, information, education and communication (IEC) materials distributions, wall painting, tole rally, video-show, street drama, school health education programme, child health clubs and mothers group mobilization, household health and hygiene education and counselling. All hygiene promotion elements need to be monitored and should be in line with the expected outcomes of the hygiene promotion initiatives. Similarly, hygiene promotion is fundamental to the successful impact of WASH interventions. In order to maximize the health benefits and produce evidence of the reduction of WASH associated diseases, an effective monitoring and framework for the different stages is crucial.

Since the hygiene programme is being implemented through partners in different geographical locations, the procedures adopted by the partners and how they relate to WAN’s broader policy and approaches on hygiene promotion need to be monitored. Although the procedures adopted for implementing the activities will necessarily vary from project to project and area to area depending upon local circumstances and need, all procedures need to be guided by certain principles, strategies and tools. In order to show the operational progress as well as the hygiene programme impact on people’s behaviours, WAN initiated consolidated hygiene monitoring tools based on the operational learning from the field. This will guide WAN, its partners and wider stakeholders in monitoring hygiene promotion programmes. Monitoring hygiene promotion initiatives ranges from planning through outcome, impact, and sustainability measurement. It is more complex than simply monitoring water and sanitation facilities, and it usually requires multiple approaches, techniques, methods, and tools, including triangulation to assure the results. Monitoring can be done at various levels including inputs, outputs, outcomes, and impact levels. In light of these complexities, WaterAid Nepal, tried to gather the operational experiences from various projects in the field to frame the different stages of hygiene monitoring in a way that reflects the visible impact of the hygiene programme.

**Objectives**

The overall objective of this paper is to share operational experiences related to the use of different levels of consistent and coherent monitoring tools for hygiene promotion. The specific objectives are as follows:

- to consolidate the overall hygiene monitoring tools and define different stages of monitoring
- to draw operational learning from each stage while monitoring hygiene
- to promote consistent and coherent hygiene monitoring tools in WASH sector.

**Methodologies**

WAN has been implementing a water, sanitation and hygiene improvement programme in both rural and urban Nepal. The WASH related programme activities in rural and urban areas are being implemented through its five implementing partners, Nepal Water for Health (NEWAH), Lumanti (support Group for Shelter), Environment and
Public Health Organization (ENPHO), Urban Environment and Management Society (UEMS) and the Centre for Integrated Urban Development (CIUD), as one of the major components of their programme. WAN has produced this paper in order to establish effective hygiene monitoring mechanisms among the partners and to use defined and comprehensive tools. This is a practice paper from the country WASH programme of Nepal for the period of January 2007 to March 2009. It reflects the practical experiences of hygiene monitoring both in implementation of the hygiene promotion programme, as well as its outcomes and impact monitoring at different stages. A retrospective analysis was done to draw out the lessons. The methodology adopted to produce this paper varies across the different stages of hygiene monitoring. Learning was drawn from the various projects; hence a brief methodology is included in each of the following hygiene monitoring stages. Stage 1 and 2 are considered prerequisites for situation monitoring that occurs in stages 3 to 6 and are essential to the monitoring of any change as follows:

- Stage-1: Rapid assessment,
- Stage-2: Baseline monitoring,
- Stage-3: Progress monitoring using different tools including Rapid Convenient Survey (RCS),
- Stage-4: Community based monitoring,
- Stage-5: Impact monitoring, and
- Stage-6: Long term sustainability monitoring.

The process of developing the data collection tools and comparing different aspects of hygiene against baseline data has yielded several lessons. Some indicators have been defined based on our knowledge of hygiene and some indicators have been added based on field learning. Generally, indicators were used to measure whether or not a project achieved defined objectives. Both qualitative and quantitative indicators were used to ensure the relevancy of the monitoring tools. Table 1 below identifies indicators used to ensure consistent hygiene monitoring at different stages (stage 2 to 6).

<table>
<thead>
<tr>
<th>Hygiene Areas</th>
<th>Key indicators (Outcomes and Impact level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal hygiene</td>
<td>% of respondents (especially women and children) who can communicate the critical times for hand washing when asked % of respondents practiced washing hands with soap or ash by all family members of household in at least three critical times. % of children (&lt;5yrs) whose faeces are disposed in a hygienic manner % of adolescent girls practicing appropriate menstrual hygiene</td>
</tr>
<tr>
<td>Domestic hygiene</td>
<td>% of households that reported adoption of at least three key hygiene measures. % of households (HH) with knowledge and practice of proper food hygiene % of households that reported hygienic handling and consumption of safe water % of households that reported hygienic use and maintenance of latrines by all</td>
</tr>
<tr>
<td>Community hygiene</td>
<td>% of HH with either an appropriate solid waste disposal or waste water disposal system % of HH that actively participated in community cleaning campaign % of households that adequately demonstrated the process of preparing Oral Re-hydration Solution (ORS) Proportion of households / institutions that participated in hygiene promotion weekly campaigns / events (community cleaning, quiz, weekly campaign).</td>
</tr>
<tr>
<td>Visible impact of hygiene promotion</td>
<td>% of households that reported reduction in the point prevalence rate of diarrhoea, skin diseases, trachoma, typhoid diseases in the targeted areas by XX% respectively with respect to the baseline status as appropriate. % of trained hygiene promoters that remained active in the Village Dev. Committee /Municipality % of trained hygiene volunteers that remained active in the Village Dev. Committee/Municipality % of projects with established coordination with local health institutions for hygiene promotion</td>
</tr>
</tbody>
</table>
WAN takes primary steps to monitor the hygiene behaviour status within the country and to broadly understand the effectiveness and efficacy of the hygiene programme. Table 2 identifies the different stages of WAN’s hygiene monitoring using various tools.

<table>
<thead>
<tr>
<th>Monitoring stages</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage-1: Rapid Assessment</td>
<td>Field observation and assessment checklist, key stakeholders assessment checklist</td>
</tr>
<tr>
<td>Stage-2: Baseline Monitoring</td>
<td>Household questionnaires survey, key informant checklist, secondary information collection checklist, community mapping, checklist to conduct focus group discussions (FGDs) and observations.</td>
</tr>
<tr>
<td>Stage-3: Progress Monitoring</td>
<td>Pre test and post test for immediate progress monitoring, review of documents, monitoring checklist, Rapid Convenient Survey (RCS), Checklist to conduct focus group discussions (FGDs) and observations.</td>
</tr>
<tr>
<td>Stage-4: Community based monitoring</td>
<td>Field observations and or observation checklist, household interview checklist, focus group discussions, use of symbols</td>
</tr>
<tr>
<td>Stage-5: Impact monitoring</td>
<td>Questionnaires survey in the form of exploratory study / operational study / impact study, key informants checklist, field observation and or observation checklist, secondary information collection checklist</td>
</tr>
<tr>
<td>Stage-6: Sustainability monitoring</td>
<td>Sustainability monitoring procedures and tools, criteria and factors, sustainability ranking.</td>
</tr>
</tbody>
</table>

**Operational experiences from each monitoring stage**

1. **Rapid assessment**

Before selection of the project sites, an identified team including a health and hygiene focal person visits the project site to observe the location and to understand the general health and hygiene situation of the community. This assessment is done in a holistic manner that includes consideration of hygiene, water and sanitation. The rapid assessment visit ensures the feasibility of the programme in the project area. Coordination with different key community stakeholders is an essential part of this visit, which certainly helps to build rapport with them. During the assessment different formal and informal meetings are held with government and non-governmental organizations working in the field of health, including local health institutions, VDCs and municipalities, the district (public) health office, the district development coordination office, community based organizations, and non-governmental organizations. These meetings help to establish linkages and identify areas for future collaboration to implement the programme. Rapid assessment is instrumental to setting some of the preliminary key objectives and indicators. Findings obtained from the assessment are the basis upon which the project concept is drafted and developed. This assessment allows partners to identify and prioritize the high-risk diseases associated with WASH from secondary information obtained from health institutions. For the most part, rapid assessment is conducted using a defined and valid checklist, which ensures that all relevant information is gathered and analyzed effectively. Before producing detailed project plans, all WAN service delivery partner organizations perform a rapid assessment. The key hygiene related elements that are monitored while doing rapid assessments using various tools and methods are:

- epidemic of WASH associated diseases (diarrhoea / cholera, typhoid, hepatitis, scabies, trachoma etc),
- open defecation close to unprotected water sources or in the surrounding environment,
- excreta and sewage in open drainage, uncollected garbage, etc.,
- information on other social determinants from secondary sources,
- personal hygiene practice through observation and secondary information,
- presence of sector and cross-sector stakeholders to promote hygiene education.
Table 3 identifies the tools used while collecting the above information during rapid assessment.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Methods / Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field observation</td>
<td>Walk through, random sampling of targeted areas, purposive inspections of the most</td>
</tr>
<tr>
<td></td>
<td>vulnerable areas and a few households too</td>
</tr>
<tr>
<td>Assessment checklist</td>
<td>Standard checklist to collect health and hygiene information (through secondary</td>
</tr>
<tr>
<td></td>
<td>information source), questionnaires of an open ended nature, formal and informal</td>
</tr>
<tr>
<td></td>
<td>discussions, documents, reports, chart reviews</td>
</tr>
<tr>
<td>Key stakeholders</td>
<td>Purposive sampling, group and or individual discussions among sector and cross sector</td>
</tr>
<tr>
<td>assessment checklist</td>
<td>stakeholders using guiding checklist</td>
</tr>
</tbody>
</table>

Based upon experiences gained, the following are the key findings related to Rapid Assessment:

- The assessment checklist and or guiding checklist need to be more concise and specific in order to capture the essential information within limited time period.
- Rapid Assessment provides the appropriate basis to design projects, and to formulate and design hygiene education and promotion programmes and activities.
- Rapid Assessment provides in-depth information on sector and cross-sector stakeholders working in the field of hygiene promotion.
- Rapid Assessment provides a general overview of disease patterns, ideas about the hygienic environment of the working areas, and initial insight into the personal hygiene of the people in the community.
- Based on the secondary information on disease patterns, if proper mapping is done, rapid assessment can be instrumental to identifying high risk areas.

2. Baseline Monitoring

Baseline refers to the collection of background information on hygienic practices and socio-demographic settings of proposed project areas. Determination of a baseline allows for detection of actual change once a project has been initiated. It provides a description of the status and trends of existing situations against which predicted changes can be compared, monitored and evaluated in terms of importance. In many cases, baseline information for hygiene promotion is gathered together with information on water and sanitation, and an identified focal person from health and hygiene promotion and sanitation is responsible for gathering and compiling the information related to hygiene. In the collection of baseline information, community involvement has been found to be crucial. It empowers and facilitates community members to identify their own problems and needs, to find out the solutions for meeting them, and to capture the real background information. Through various methods and procedures, information is gathered related to the following: existing health; hygiene practices (personal, domestic & community hygiene); problems related to WASH including associated diseases and their mitigation practices; community people’s level of awareness and understanding; socio-demographic and economic factors and status; and factors influencing behaviour change. All baseline information requires segregation by social characteristics including socio-economic, geography, gender, education, occupation, ethnicity, illness, disability and relevant excluded groups. The baseline findings are a monitoring tool to support future assessments of the impact of the project activities in the selected areas. The baseline findings are also a programme planning and resource allocation tool.

WaterAid Nepal regularly emphasizes to its partners the need to gather and monitor baseline information. NEWAH, a rural partner NGO of WaterAid Nepal, has long standing experience in gathering baseline information. The urban partners (Lomenta, ENPHO, UMES, CIUD) gradually started gathering baseline information for health and hygiene. Once gathered baseline information is transferred in the form of different analytical reports. Table 4 presents recommended tools and methods for gathering baseline information.
Table 4. Baseline monitoring tools and methods / process

<table>
<thead>
<tr>
<th>Tools</th>
<th>Methods / Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household questionnaire survey</td>
<td>Random sampling/stratified sampling/oother sampling as appropriate; use of closed</td>
</tr>
<tr>
<td></td>
<td>and open ended questionnaires; interview with household head, preferably women</td>
</tr>
<tr>
<td>Key informant checklist</td>
<td>Purposive sampling, guiding checklist to collect relevant information</td>
</tr>
<tr>
<td>Secondary information collection checklist</td>
<td>Purposive sampling, guiding checklist to collect other relevant information from</td>
</tr>
<tr>
<td></td>
<td>reports, guidelines from any other organizations etc.</td>
</tr>
<tr>
<td>Community mapping</td>
<td>Mapping based on high risk behaviours and burden of diseases</td>
</tr>
<tr>
<td>Checklist to conduct focus group discussions (Fads) and observations</td>
<td>Purposive sampling for certain group’s for focus group discussions, checklist for field verifications and household observations</td>
</tr>
</tbody>
</table>

The reflections of baseline information in the form of documents/reports vary across the WAN partners in Nepal. For water, sanitation, hygiene and other information, few WAN partners make baseline information in the form of a “Water, Environmental Sanitation Improvement Plan (WESI)” and “Water Use Master Plan (WUMP)”, and most have yet to produce baseline reports. Within the assessment period, this report analyzed the various baseline information collection system tools and procedures adopted by partners with the assistance of WaterAid Nepal. Since the baseline is one of the crucial elements of a project or programme, a systematic approach to conducting baselines is needed. In order to accomplish this, the baseline is designed in four phases including i) designing phase, ii) implementation phase, iii) data entry and analysis phase, and, iv) report writing phase. A phased approach to the baseline information collection system itself allows partners to monitor progress against each phase, and to complete the task on time in a systematic manner.

Each phase has value. The **designing phase** is comprised of identification of hygiene problems; decisions on use of tools/methods; identification of major variables or indicators; decision on instruments (questionnaires or checklist etc); decision on timing, sampling strategy, finalization of the instruments, and field test; and training of data collectors. The **implementation phase** includes interviews and/or discussions with individuals, group or focus group discussions, discussions with stakeholders, field visits, observations, and mapping along with photographs/videos, case studies, and review and/or assessment of secondary information (reports, cards, guidelines etc). The next important phase is **data entry and analysis**, which includes checking for consistency and validity and scientific storage of the data. Most of the WaterAid Nepal partners analyzed data either in Microsoft Access and or in Excel based data sheet. After proper entry, data was transformed into information in the form of tables, charts, and graphs as per defined variables or indicators. The **report** stage is the last stage, during which the data is represented in the form of a report that describes the overall hygiene scenario of the project / programme areas. The suggested outline of the report is: background, methodology and sample used, instruments used, implementation procedures, data analysis, and analytical report based on defined variables and indicators. The key lessons derived from the experiences and retrospective analysis related to baseline are:

- Baseline is instrumental to showing progress against the actual scenario at the beginning, particularly with regard to the behaviour change aspect. It helps demonstrate the change effects.
- Identification of key variables or indicators is essential to development of the baseline. Similarly, monitoring selected indicators provides directives for the design of the hygiene programme.
- While conducting the baseline, the temptation is to measure / collect a variety of interesting information, but large scale baseline ends up being very expensive and generates unnecessary information. Small scale baseline is similarly problematic because, though very cost effective, the small scope of information gathered ends up being insufficient to support comparisons of the result in later stages. To be effective, the baseline should be kept simple yet informative.
- Unlike water and sanitation, hygiene practices are very difficult to measure, and multiple instrumental tools are needed to capture relevant information.
- Within the project areas, it is ideal to collect information from each household. This is often impossible due to cost and resource issues, so scientific sampling methods need to be applied.
- Proper recording of baseline information and its interpretation is very essential.
The baseline report needs to be simple, clear and relevant. The report should include both quantitative and qualitative information. Although analyzing and documenting qualitative information presents challenges, it is worthwhile because it demonstrates the *emic* (inside view of respective personnel) view of respondents as well as the project as a whole.

### 3. Progress monitoring

Progress monitoring of the hygiene promotion programme is essential to improve ongoing performance. Monitoring hygiene promotion interventions and their outcome is a difficult job, which requires multiple techniques, methods, and tools. WAN started hygiene progress monitoring since its inception when it recognized the need for comprehensive hygiene monitoring initiatives. WAN developed various monitoring tools. Health and sanitation staff or independent practitioners from the central, regional and local level are responsible for monitoring hygiene on a weekly, monthly, quarterly and annual basis as appropriate.

As a result of operational experiences within this period, WAN realized that it is always wise to set progress monitoring objectives before starting monitoring visits. Before starting the progress monitoring, the responsible team or persons need to have a clear understanding of the objectives. Progress monitoring is being practiced using participatory monitoring processes. This emphasizes the process of individual and collective learning and capacity development to increase awareness and consciousness about strengths, weaknesses, social realities, and varying degrees of participation from different types of stakeholders with a process of negotiation between people’s different needs and expectations. It is adapted to the specific circumstances and needs of the local project, and provides immediate feedback for the improvement of the programme. Table 5 presents the tools used and recommended for progress monitoring.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Methods / Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test and post test for immediate monitoring</td>
<td>Questionnaires, case studies, pictures / photos</td>
</tr>
<tr>
<td>Review of documents</td>
<td>Purposive selection of planning documents to review the progress against plan (including MoU, project plan, WESI, WUMP etc). Random selection of IEC, guidelines, hygiene messages to identify the technical aspects of hygiene promotion</td>
</tr>
<tr>
<td>Monitoring checklist</td>
<td>Purposive sampling and or random sampling. Discussion with local partners and staffs, field &amp; household visit, discussions with users committee, discussions with stakeholders, discussions with users, observations</td>
</tr>
<tr>
<td>Rapid Convenient Survey (RCS)</td>
<td>20 household surveys in clusters, random and or stratified sampling to select survey areas, use of defined checklist, data analysis in a defined Excel based data sheet.</td>
</tr>
<tr>
<td>Checklist to conduct focus group discussions (FGDs) and observations</td>
<td>Purposive sampling for certain group’s for FGDs, checklist for field verifications and household observations</td>
</tr>
</tbody>
</table>

In hygiene progress monitoring two aspects were monitored – the immediate aspects of hygiene promotion efforts and their effectiveness in changing people’s hygiene behaviours. Hygiene promotion efforts were assessed based on the following elements: whether hygiene education had been conducted, whether and how the education was tailored to needs and findings from baseline, the number of sessions/meetings held, the results of these sessions/meetings (pre and post test), the number of people who attended the hygiene promotion awareness programme, demographic information on participants (male/female/girls/boys/disabled persons, marginalized people etc.) before starting the progress monitoring, distribution of educational materials (types, of materials, manner of distribution and recipients), number of hygiene promotional events organized, number of weekly events celebrated, etc. Since hygiene programmes are broadly designed to change human behaviours; progress monitoring was also designed to measure the progress in changing peoples’ practices. In order to measure this progress, WaterAid Nepal designed the Rapid Convenient Survey (RCS) tool in late 2008. The RCS was piloted by all urban and rural service delivery partners. The RCS monitoring tool was used to monitor change in people’s knowledge, practices and behaviour; and to identify reductions in disease prevalence rates. The RCS tool can be quickly deployed in 20 households of the project cluster by administering objective types of questions. Information obtained from the field can easily be entered in an RCS spreadsheet, which
automatically generates results in graphic form. The overall outcomes of the hygiene programme’s progress can be further mapped to see the high risk areas and prioritize areas for further hygiene promotion. As an example of the outcomes of the RCS, the findings from the ongoing project areas implemented by the WAN rural partner in Sirise, Udayapur and by the urban partner in Biratnagar Municipality are summarized as follows:

- The overall hygiene performance of the targeted communities was 84% in rural areas and 66% in urban areas. The reported practice of hand washing with cleaning agents during critical times was 90% in rural areas and 87% in urban areas. The reported coverage of hygienic use of latrines by all in rural areas was 100% and was 74% in urban areas. The safe disposal practices of children’s excreta were 60% in rural areas and 69% in urban areas. The adequate personal hygiene practice was 90% in rural areas and 73% in urban areas. The safe use of drinking water was 57% in rural areas and 46% in urban areas. The proper management of solid and liquid waste was 92% in rural areas in contrast to 42% in urban areas. The reported practice of proper food hygiene in rural areas was 100%, and in urban areas the practice was 95%. The point prevalence rate of diarrhoea by HH was 10% in rural areas. In urban areas this rate was 28% (in reduction trend).

The key lessons to emerge from the retrospective analysis with regard to progress monitoring are:

- Progress monitoring is the cornerstone for deriving information about immediate progress against inputs provided and can provide immediate feedback for better programme management.
- The use of appropriate instruments and methods to monitor hygiene behaviour is important and requires development of a concise but informative monitoring checklist. For process monitoring, the activity outputs can be monitored, but an appropriate sampling is necessary to monitor outcomes.
- Hygiene practices are very difficult to measure; hence multiple tools are needed to capture all relevant information. RCS tools designed by WaterAid Nepal turned out to be effective tools for monitoring hygiene behaviour.
- Proper recording of baseline information and its comparison with the existing performance is central to progress monitoring.
- The monitoring reports need to be brief, to the point, and supportive. Reports should include quantitative as well as qualitative information, including photos etc.

4. Community Based Monitoring

Community Based Monitoring (CBM) is focused on participatory monitoring, and this underpins the process of individual and collective learning. During the course of delivering hygiene promotion and education activities with the assistance from WAN, partner’s organizations developed CBM for monitoring the effectiveness of the hygiene programme.

Community involvement is premised on participation of people for their ownership in the programme, and on community based activities that help people become aware of the need for sustained hygiene behaviour practices. Based on this principle, partners adopted different means to measure progress after the delivery of the hygiene education and promotion programme. This includes measuring levels of participation (in terms of population, ethnic groups, gender age etc.), understanding, and adoption (practicing). CBM was recently developed by WAN and its partners. It has been adopted gradually for monitoring the effectiveness of the programme by regularly assessing hygiene related behavioural practices. The monitoring focuses on the following key areas for reduction in the prevalence of the diseases related to water and sanitation: i) hand washing in critical times, ii) management of human excreta, iii) hygienic use of water through safe storage and practices of Point of Use (PoU) treatment options at HH level, iv) personal hygiene including safe food hygiene practices, and v) Household and environmental hygiene including solid waste management.

While piloting the CBM concept, which places the community at the central thrust of the entire process, WAN’s partners use CBM tools to collect information through the different means and tools presented in the table below. Partners have practiced CBM that is based upon the signs of well-being table, the activity monitoring table, and the output observation table for behaviour/practice change; and have included the following core set of tools at different points in time:
Table 6. Community based monitoring tools and methods / process

<table>
<thead>
<tr>
<th>Tools</th>
<th>Methods / Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field observation and or observation checklist</td>
<td>Random sampling of targeted areas, walk through, inspection of most vulnerable areas</td>
</tr>
<tr>
<td>Household interview checklist</td>
<td>Random sampling of HHs, group as well as individual interview</td>
</tr>
<tr>
<td>Focus Group Discussion</td>
<td>Area/ward/cluster (community) group discussions and, key informant discussions</td>
</tr>
<tr>
<td>Use of Symbols</td>
<td>Tagging vulnerable area using warning boards for further improvement</td>
</tr>
</tbody>
</table>

Partners who had adopted their own different means of community based monitoring before CBM was in place, now develop uniform and consistent CBM tools in urban and rural contexts with WAN’s support. All of the WAN partners have piloted the CBM concept, and they have put these tools into use for monitoring hygiene education programmes. Partners’ initial reflections on their field based observations and experiences, indicated that the use of these CBM concepts and the piloted tools helped them to initiate hygiene awareness and education programmes with relative ease when compared to their past experiences. The following are the key lessons from CBM:

- CBM helped the users committee and users themselves assess, measure and rank the outputs and outcomes of the hygiene education and promotion programme based on improvement and sustained practices of hygiene behaviour.
- CBM makes it possible to identify strengths and weaknesses that require further continuity and improvement to ensure improved hygiene behaviour practices and their sustainability.
- CBM, from its initial phase of piloting, helped to ensure transparency, accountability, responsiveness, ownership and competitiveness, as multiple actors are involved in this type of initiative- at least at the community level.
- CBM provides the appropriate basis and evidences necessary to bring insights and issues for sustained and improved hygiene behavioural practices amongst the communities up for debate at the local and national levels.

5. Impact Monitoring

Immediate evaluation of the programme upon completion does not allow sufficient time to measure impact. Therefore, it is necessary to carry out an impact study after a few (two-three) years when the follow-up phase is also completed. Impact assessment can be done based on the indicators set or agreed upon while designing the projects determined through baseline monitoring. Changes in people’s behaviour impacts disease rates and the overall reduction in the prevalence rate of the WASH associated diseases (waterborne, water-washed and water-based diseases) can be measured during the impact study as compared to baseline study / findings. Concerned partner organizations or WaterAid Nepal itself independently conducted the impact assessment study in the areas where the project was implemented. While conducting the impact study, outcome level indicators were monitored and overall impact of the programme was assessed together with other Water and Sanitation related interventions. There may be many confounders in supporting the impact results; these need to be controlled while analyzing the data. Table 7 presents the tools, methods, and process used and recommended while conducting impact monitoring.
Table 7. Impact monitoring tools and methods / process

<table>
<thead>
<tr>
<th>Tools</th>
<th>Methods / Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaires, survey in the form of exploratory study, operational study, impact study</td>
<td>Simple random, systematic / stratified sampling/ and other methods as appropriate. Interview with individuals using close, open-ended questionnaires. In-depth interview.</td>
</tr>
<tr>
<td>Key informant checklist</td>
<td>Purposive sampling, Guiding checklist to collect relevant information.</td>
</tr>
<tr>
<td>Field observation and or observation checklist</td>
<td>Random sampling of targeted areas, walk through, inspection of most vulnerable areas</td>
</tr>
<tr>
<td>Secondary information collection checklist</td>
<td>Purposive sampling, guiding checklist to collect other relevant information from reports, guidelines, and any other organizations etc.</td>
</tr>
</tbody>
</table>

The following are the examples of recent impact studies conducted by WAN partners in both settings:
- an exploratory study (questionnaire survey) in Bharatpur Municipality among 309 households,
- an exploratory study (questionnaire survey) in Butwal Municipality among 141 households,
- an exploratory study (questionnaire survey) in 14 rural projects from 13 districts among 157 households.

All impact studies mentioned in the table above were exploratory in character. Primary and secondary data were the sources of the information for the assessment. The respondents were heads of households, and sample units (i.e. Households) were selected on a random sampling basis. For hygiene in particular, the data on the changes in improved hygiene behaviour practices was carried out to test the three elements of behaviour change (knowledge, skills and practices). Key indicators have been identified to measure the improvement in hygiene knowledge and practices. Despite encouraging results from these impact studies of the hygiene education and improvement programme integrated with Water and Sanitation services delivered by the partners, some grey areas remain. Partners and the project need to focus on and increase efforts to strengthen and institutionalize the system so as to improve future monitoring activities. This is particularly true with regard to hygiene discipline, as ensuring sustained hygiene behaviour practices would allow partners and communities to reap the benefits of hygiene interventions, which are more cost effective than water and sanitation delivery to the community. The following were visible qualitative outputs of the impact studies:
- Many people reported sustained practices of hand washing at critical times. Almost all study areas had made progress towards declaring themselves a “No Open Defecation Zone”.
- A large proportion of respondents knew about the household level water treatment (PoU) options and reported practicing them. Similarly, most of them also appeared to be using their own toilets properly.
- A majority of the people were aware of water borne diseases, vector borne diseases, and orally transmitted diseases, and were able to communicate the key hygiene messages.
- Findings show that providing access to water and sanitation are not sufficient to bring about changes in hygiene behaviour and should be integrated with hygiene education, awareness and capacity development to ensure the changes in the behaviour practices are sustained.
- All impact studies reported reduction in the prevalence rate of diarrhoea.
- The studies revealed that the people of the community constructed their latrines to ensure the safety and cleanliness of their household and neighbourhood environment, so that they could lead healthy and dignified lives.

From the three impact studies mentioned above, we have learned the following:
- Improper documentation of baseline data/information hindered the proper analysis of project impact on the health and hygiene of the community beneficiaries. This made it difficult to assess the impact of the project compared to the past. Ultimately, this has hindered understanding of health impact and hygiene behaviour practices within the communities.
- It is essential to have representative samples in the study, while conducting the impact study.
- Only impact studies can measure the attributable contribution of hygiene promotion in terms of disease reduction and changes in social life.
- Impact study also reveals the outcomes based on social determinants, thereby providing further inputs about project inclusiveness.
6. Long Term Sustainability Monitoring

WAN has supported a range of projects in the past, including stand alone projects or different combinations of water, sanitation, and hygiene components in a single project. The WASH related activities are usually implemented together in a project; however, their technical and management aspects are quite different than those of water and sanitation. Therefore, assessments of the Long Term Sustainability (LTSM) of these facilities need to deal with each component separately, even though they have more impact on people’s health and livelihoods when used collectively. In this light, the LTSM tool adopts a multi criteria based framework for sustainability analysis and management decision support. For water supply and sanitation facilities, technical, socio-environmental, financial and institutional monitoring criteria are used. In the case of hygiene, however, water, sanitation facility, hygiene behaviour and institutional aspects are taken as the key sustainability criteria. These key criteria are further segregated into many contributing factors and sub-factors with certain values. As per the principles of multi criteria approaches, each set of criteria is rated depending upon its potential contribution, or its significance in making the case sustainable. The comparative weights given to criteria, factors and sub factors were determined through participatory methods involving sector professionals and field workers. Figure 1 presents the weight-age (importance) given to criteria and factors (sub factors not shown).

Figure 1. Weighted importance of hygiene criteria and factors

WAN and partners use a specially designed field visit checklist to collect the information. Information is collected at sub-factor level, which is also considered as the lower level indicators or, the lowest level contributors. Sub-factors are the contributing elements for factors; for instance if hygiene behaviour is a factor, the hygiene practices for hand washing, food hygiene, menstrual hygiene etc. are sub-factors. Therefore, classification, measurement and ranking system is done manually at this level. Depending upon the definition of the particular sub-factor, it is measured through a measurement system of grade points as shown in Table 8 below. Using different tools, guidelines and judgments, the enumerator classifies each and every sub-factor in the field in terms of excellent (E), very good (VG), good (G), fair (F) and poor (P). For the analysis, this information is fed into the WAN long-term sustainability monitoring tool, which is excel based software. The sustainability ranking is made using the following definitions.

- **Sustained project:** The project obtains 70% score (or more) in core factor and in all 4 sustainability dimensions.
- **Sustained but at risk project:** The project obtains 70% score (or more) in core factor, but fails to obtain 70% score in any one of the sustainability dimensions.
- **Not sustained project:** The project fails to obtain a 70% score in core factor/s
Table 8. Sustainability ranking

<table>
<thead>
<tr>
<th>Classification of sub-factor</th>
<th>Range for measurement</th>
<th>Sustainability ranking of sub-factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Five points</td>
<td>Four points</td>
</tr>
<tr>
<td>Excellent</td>
<td>80-100%</td>
<td>70-100%</td>
</tr>
<tr>
<td>Very good</td>
<td>70-79%</td>
<td>70-79%</td>
</tr>
<tr>
<td>Good</td>
<td>50-69%</td>
<td>50-69%</td>
</tr>
<tr>
<td>Fair</td>
<td>30-49%</td>
<td>30-49%</td>
</tr>
<tr>
<td>Poor</td>
<td>&lt;30%</td>
<td>&lt;30%</td>
</tr>
</tbody>
</table>

Out of 26 WASH projects monitored thus far, none were found to be fully sustained, 85% were found to be sustained but at risk, and 15% were found to be projects that were not sustained from the perspective of hygiene. The factors found to be affecting the sustainability of hygiene projects were the poor institutional mechanism (96% of projects), improper sanitation facilities (50% of projects), improper hygiene practices (19% of projects), and improper water facility (15% of projects). The sustainability status of hill projects (S-0%, SR-89%, NS-11%) was found to be slightly better than that of Terai (low land areas) projects (S- 0%, SR-75%, NS-25%).

The projects monitored and the operational experiences yielded the following lessons on sustainability monitoring:

- An important outcome of sustainability monitoring is that it helped rank the sustainability status of previous projects (conducted by ecological regions, service types, settlement types, etc.) into a single framework.
- The multiple criteria participatory framework for sustainability monitoring was found to be instrumental in identifying areas of project strength and weakness, which is significant in terms of project sustainability status.
- The pilot work developed a framework for sustainability monitoring of existing projects into the future. The LTSM tool proved helpful in identifying to the community areas in which long and short term supports were needed.
- Long term monitoring provides a basis on which to judge ‘value for money’ of the past investment, and formulate appropriate programme implementation approaches and evidence to bring sustainability monitoring issues up for debate at national and international level.
- Although it was piloted in a considerable number of projects, the system needs further improvement in terms of technical, intellectual, contextual and methodological aspects in the future.

Conclusion

A systematic monitoring mechanism for the different stages of a hygiene promotion programme is imperative to monitor the programme’s effectiveness. Tools, methods and processes that are applied to monitor indicators from baseline to impact assessment should be consistent and coherent. Full-phase monitoring of hygiene with backup by programme is the only evidence-based means to show the attributable contribution from WASH for reducing associated diseases and improving health status. Operational lessons from different stages of hygiene monitoring can be replicated, but they need to take the local context into account when selecting tools and instruments and designing the framework. As the tools and instruments are contextualized, the local cultural and social values, rooted practices, and power relations among different groups need to be kept in mind. Some of the tools used for hygiene monitoring adopted by WAN and its partners, including CBM, RCS and long-term sustainability are still new. While time is still required to consolidate, fully replicate and generalize the findings, the preliminary results seem very encouraging and significant. Despite encouraging results from use of these monitoring tools, the partners and the project still need to focus on some areas. Much more effort is needed to strengthen and institutionalize the system so as to improve future monitoring activities, particularly in hygiene discipline. This will help ensure that the benefits of this hygiene intervention are fully realized in the form of sustained hygiene behaviour practices. Further improvements also require comprehensive operational learning from the programmes of other countries.
Acknowledgement
The authors would like to thank all WAN partner organizations including NEWAH, Lumanti, UMES, CIUD and ENPHO for their support and work in the hygiene domain. We are indebted to all WAN colleagues and others involved in the project work for the support that they provided. Last but not least, we are grateful for the support provided by the people of the communities where WAN and its partners implemented the projects.

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Keywords
Hygiene, water, sanitation, monitoring, diseases

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SOUTH ASIA HYGIENE PRACTITIONERS’ WORKSHOP

Contributions of Village WASH Committee in Breaking the Cycle of Unhygienic Behaviours in Rural Bangladesh

Babar Kabir PhD, Milan Kanti Barua, Rezaul Karim, Md. Bodiuazzaman, Mizanur Rahman and Md. Hasan Ali Mia

This paper summarizes the BRAC-WASH Programme’s experiences in hygiene promotion through village WASH Committees (VWCs) established in each village, and their contributions in changing unhygienic behaviours and practices. Due to its potential for the greatest impact, hygiene promotion has been recognised as the “backbone” of the WASH programme, which seeks to ensure equal (bottom-up) participation to achieve the following:

- break the contamination cycle of unsanitary latrines,
- eliminate the use of contaminated water,
- prevent unsafe hygiene behaviours.

The VWCs have been playing a pivotal role in improving the overall WASH situation in their respective villages, and in achieving these objectives. They are disseminating key hygiene messages through community cluster meetings. The main emphasis of this approach is to focus on changing people’s hygiene behaviour by strengthening existing “good” behaviour and changing unhygienic behaviour. This approach ensures that all factors that contribute to healthy hygiene behaviours are being addressed on three key aspects: knowledge (knowing), practices (doing), and attitudes (feeling). The results to date indicate that VWCs are the key drivers in ensuring a positive WASH programme outcome by eliminating unsafe hygiene behaviours within a community through a collective concerted effort.

Introduction and Background Information

Bangladesh faces multiple challenges in its water, sanitation and hygiene sector. According to the Joint Monitoring Programme of WHO and UNICEF, the latrine coverage in Bangladesh increased from 33% in 2003 to 36% in 2006, and the safe drinking water supply coverage increased from 75% in 2003 to 80% in 2006. The water picture in rural areas changed significantly with the discovery of arsenic in the early 90s, the depletion of the ground water table in many areas due to massive extraction for agricultural purposes, intrusion of saline water into fresh water sources, and other problems. The Government’s target for sanitation, 100% coverage by 2013, goes significantly beyond the Millennium Development Goal (MDG) 7. Currently, only roughly one in four (26.7%) people reportedly wash their hands with water, soap or ashes after defecation (only 7% of those who wash their hands use soap). Hygiene-related diseases in Bangladesh cost 5 billion taka (US$ 80 million) each year for treatment alone. Moreover, Bangladesh strives to realize its relatively ambitious targets of achieving 100% sanitation and water supply coverage for a population of over 144 million by the year 2013. Several critical challenges towards achieving its goals, such as reaching the poorest people and hard to reach areas, must be overcome.

1 MDGs 7: (Target 10) halving the number of people without sustainable access to safe drinking water and basic sanitation by 2015.
2 S.A. Ahmed, Water & Sanitation Program, personal communication April 2002, based on “Health Care Expenditures in Bangladesh” in “Health Situation and Health Care Expenditures in Bangladesh, Evidences from Nationally Representative Surveys”, BBS, April 1999
Impact of improved hygiene

Hygiene can make an important contribution to the improvement of the lives of the poor. It also can improve the health status of women, and children, reduce the burden of disease, and ultimately enhance their livelihoods. Evidence shows that the simple act of washing hands at critical times – after defecation, before eating, etc – has the potential to reduce the incidence of diarrhoea by approximately 40%. Several studies have shown that consistent hygiene behaviours can have an immense positive impact on health and well-being and related research findings include:

- The simple act of washing hands with soap and water can prevent more than one in three cases of the diarrhoeal diseases. Roughly 1,000,000 deaths from diarrhoea a year could be averted by consistent hand washing.³

- It is estimated that about 1 in 3 children in Bangladesh suffer from helminthes infestation. Consistent use of toilets, wearing shoes, covering food and hand washing could prevent much of the worm infestation.

- Recent literature has highlighted that roughly half the bacterial contamination of water comes from unsafe carrying of water from the well, unsafe storage and unsafe dipping/usage.

- Having, maintaining and using a toilet are issues of personal dignity as toilets provide privacy and, particularly for women, a greater measure of safety. Access to toilets also reduces urinary tract infections as women drink and eat at more regular intervals during the day.

BRAC-WASH Programme

BRAC⁴, the largest development organization in the southern hemisphere, has been working since 1972 on poverty alleviation and the empowerment of the poor. Since its inception, BRAC has brought an exceptionally strong and consistent dedication to improving the quality of life and empowering women and poor families through a holistic approach of development. Aligned with other interventions, BRAC launched a comprehensive intervention on Water, Sanitation and Hygiene (WASH) in May 2006. This effort aims to improve the health situation of the rural poor and enhance equitable development through: (1) provision of access to sanitation services for 17.6 million people, (2) promotion of safe hygienic behaviour through an education campaign for 37.5 million people, and (3) provision of safe drinking water for 8.5 million people (1 million through new supplies & 7.5 million through repair of existing facilities). Indeed, the overall strategy is centred on hygiene and behavioural change. Thus, creating the conditions for behavioural change and sustaining these new behaviours is the main focus of the programme.

A baseline survey was undertaken in the BRAC-WASH area in 2006-2007. It sampled 45,000 households in 50 sub-districts to record benchmarking information. Interventions that result in sustained change in hygiene behaviour are one of the major components of the programme. The baseline survey presented an interesting insight into the hygiene awareness and practice of the women studied. Personal hygiene levels and sanitation practices were found to be poor. Awareness about the cycle of disease transmission was vague, as demonstrated by the fact that very little importance was given to the contamination potential of children’s stool or to hand washing at critical times. The baseline survey study (75,000 samples) revealed the need to build up community knowledge and awareness about the cycle of disease transmission, including the importance of washing hands with soap. The study found 32% of the households surveyed were using sanitary latrines, 39% were using latrines with broken water seals, and 29% defecated in the open. In the majority of existing latrines (66%), the smell of foul odour and/or contained visible faecal

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³ Curtis, Val and Sandy Cairncross. Effect of washing hands with soap on diarrhoea risk in the community: a systematic review. THE LANCET Infectious Diseases Vol 3 May 2003 http://infection.thelancet.com 275


⁴ BRAC stood for Bangladesh Rehabilitation Assistance Committee (1972-73) and Bangladesh Rural Advancement Committee (1973-94). From 1994, it is called only BRAC. More information about BRAC is available at: www.brac.net
matter were present. It was also ascertained that huge knowledge gaps existed about the use of sanitation facilities. The water and sanitation conditions of the hardcore poor households were worse than those of the rest of the village. In response to the need for knowledge and awareness building, BRAC adopted a community-based approach to behaviour change communication.

**Key Behaviours and Indicators**

The programme set out key hygiene standards, which appear in Table 1. These standards also serve as a set of indicators.

**Table 1. Hygiene Standards and Indicators**

<table>
<thead>
<tr>
<th>Water</th>
<th>Latrines</th>
<th>Hand-washing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Safe water sources are used for all cooking and drinking</td>
<td>• All households have their own or a shared sanitary latrine</td>
<td>• Hand washing of both hands with soap and enough water is practiced by everybody after defecation, before taking food, and after cleaning child/baby excreta</td>
</tr>
<tr>
<td>• Safe water storage: clean storage pot, covered pot, do not dip fingers in pot</td>
<td>• Use of hygienic latrines by all, irrespective of age</td>
<td>• Soap (preferably non-abrasive) is available and used for hand washing and personal hygiene in half or more of the poor households</td>
</tr>
<tr>
<td>• Maintain water source used for drinking/cooking: cement platform, no cracks, pump with closed, etc.</td>
<td>• Dispose of infant/child excreta in latrine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Maintain latrines: pit not filled up, no visible faecal matter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Water for personal cleaning is provided in or near latrines</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Use of an adequate amount of water after defecation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Everybody wears sandals inside latrines</td>
<td></td>
</tr>
</tbody>
</table>

BRAC WASH Programme has given high priority to hygiene promotion and education within the community to preserve and promote the health of the individual and the community, and to improve personal hygiene and the cleanliness of the community. Hygiene has recently been emphasized as the ‘most economically sustainable prevention strategy’ (Stanwell-Smith, 2003), and also as a cost-effective intervention for child survival in developing countries that costs only a fraction of water supply and sanitation (Larsen, 2003). WASH recognises that safe water and sanitation facilities can contribute to improvements in the reproductive health of women. Therefore, the programme has been designed in a way that breaks the cycle of traditional attitudes and unsafe hygiene behaviours. Mothers, wives and sisters are often the best teachers, and women’s contributions are crucial in enhancing knowledge, skills and experience and ensuring safe water and sanitation practices. Impacts of the programme are outlined in Table 2. Table 3 outlines programme outputs.
Table 2. Impact/output indicators of the programme

<table>
<thead>
<tr>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Impact on morbidity and mortality from water/faecal-borne diseases</td>
</tr>
<tr>
<td>• Sustainable access to safe drinking water &amp; basic sanitation</td>
</tr>
<tr>
<td>• Behavioural change with regard to hygienic practice</td>
</tr>
</tbody>
</table>

Table 3. Main outputs (October 2009) of the programme

<table>
<thead>
<tr>
<th>Sanitation</th>
<th>Households (Average 4.5 persons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of total latrines under WASH programme (January 2007-October 2009)</td>
<td>24,34,056 (~11 million people)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction of Deep Tube well by BRAC WASH</td>
<td>2,222 (~299,970 people)</td>
</tr>
<tr>
<td>Loan support to construct TW platform under BRAC WASH</td>
<td>31,567 (~426,155 people)</td>
</tr>
<tr>
<td>Piped Water Supply System under BRAC WASH</td>
<td>4 (~5,400 people)</td>
</tr>
</tbody>
</table>

VWC: Mainstay/Nucleus of the Programme

A Village WASH Committee (VWC) has been established in each programme village. VWCs, which include 11 members (six of whom are female) for an average of 200 households, stimulate bottom-up participation and planning. The VWC members represent the entire village, including the poorest people and the various (socio-economic) groups present in the community. Two elected Union Parishad members, or local community leaders, are selected as advisors. By following a community participatory process, BRAC-WASH Programme has formed 39,870 VWCs throughout the programme area.

After formal orientation, each VWC undertakes a needs assessment through participatory exercises and social mapping (PRA). The VWC uses the information gained through this process to develop a Village WASH Plan to improve the overall hygiene situation. The VWCs have been doing advocacy work at the level of the Union Parishad to secure financial support for latrine installation for the hardcore poor. They also place a strong emphasis upon women’s participation in the decision-making process. Above all, the VWCs serve as the focal point of all WASH activities and act as a catalyst for the community by involving all the different stakeholders as depicted in the photographs below.

The VWCs have now moved on to achieving the goal of improving the community hygiene situation for all. By undertaking different actions and activities, the VWCs have been creating an enabling environment that contributes to achieving WASH objectives and sustaining positive behaviours through constant self-monitoring and corrective works where necessary. Development literature recognizes that empowerment in the context of water and sanitation is the best way to ensure sustainability of the programme.

Evidence shows that women benefit considerably from an effective and integrated WASH intervention.
Women’s pivotal role in hygiene promotion has a tremendous effect on improving the health status of women and children and on reducing disease burden, which ultimately enhances the livelihoods of their families. This potential role is being played by women in WASH, in alignment with other interventions within BRAC (such as, microfinance, social development, specially targeted ultra-poor, adolescent development and health) and special focus has been placed upon empowerment of the poor, especially women. The poor, particularly poor women, are seen as the active participants in all stages of the implementation of the programme. Building latrines helps enormously in terms of health, safety, privacy, dignity, convenience and increased productivity. Similarly, well located water sources reduce women’s burden, ensure safety and increase privacy. Photo 4 shows poor women participating in a VWC meeting.

### VWC, as driver for hygiene promotion

BRAC places high priority on hygiene. Since the VWCs are working to empower the poor and marginalized groups, they have the potential to be drivers for ensuring equal participation irrespective of age, sex, gender, economic class ethnicity, and religious beliefs. They are also playing pivotal roles in promotion and awareness building in relation to hygiene. In setting up a VWC in each village, BRAC-WASH is focusing on breaking the contamination cycle by inducing behavioural change for all individuals, households, and the entire community. The VWCs focus on hygiene education for:

- men
- women
- adolescent girls
- adolescent boys
- children (9-11 years)
- local community leaders
- religious leaders
- saving/micro-credit groups, and
- health volunteers, and other social groups.

The VWCs have been cooperating to organise community cluster meetings with the above mentioned groups to disseminate the following five key/core hygiene messages on hand washing during critical times, nine core basic messages relating to sanitation and hygiene, and five core basic messages on safe drinking water to build their knowledge base or “knowing”. Table 4 presents these messages in full.
Table 4. Key WASH Messages

<table>
<thead>
<tr>
<th>Hand washing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wash hands by rubbing both hands with soap before preparing food.</td>
</tr>
<tr>
<td>• Wash hands by rubbing both hands with soap before serving food.</td>
</tr>
<tr>
<td>• Wash hands by rubbing both hands with soap before eating and feeding the baby.</td>
</tr>
<tr>
<td>• Wash your left hand first and then wash both hands thoroughly with soap after defecation.</td>
</tr>
<tr>
<td>• Wash your left hand first and then wash both hands thoroughly with soap after baby’s defecation and disposing the faeces in the latrine.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safe water</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use the arsenic free water from the tube well, marked green for cooking and drinking purposes.</td>
</tr>
<tr>
<td>• Collect water in a clean container.</td>
</tr>
<tr>
<td>• Cover the water container with a clean lid while carrying the container.</td>
</tr>
<tr>
<td>• While storing the water, the container should be clean and kept in a clean and dry place which is slightly elevated.</td>
</tr>
<tr>
<td>• Use the water by pouring from the container instead of dipping into it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Always keep the latrine clean.</td>
</tr>
<tr>
<td>• Pour water in the pan before defecation.</td>
</tr>
<tr>
<td>• Keep sufficient water in or around the latrine and pour enough water in the pan after defecation.</td>
</tr>
<tr>
<td>• Make soap available in / or around the latrine for use.</td>
</tr>
<tr>
<td>• Use a pair of sandal specified for latrine while going to the toilet.</td>
</tr>
<tr>
<td>• Use your right hand for carrying the water pot while going to the latrine and after using latrine.</td>
</tr>
<tr>
<td>• Wash both hands with soap after using the latrine.</td>
</tr>
<tr>
<td>• Everyone in the family including children has to use sanitary latrine.</td>
</tr>
<tr>
<td>• Baby’s faeces should be disposed in the latrine and the latrine should be cleaned subsequently with enough water.</td>
</tr>
</tbody>
</table>

After VWCs complete the first round of information dissemination, which takes approximately 2.5 months with the emphasis on different aspects of the Programme, they reinforce the messages in the same community. The VWCs have also helped to organise a popular theatre show and folksong sessions (e.g. Gomvira) in different areas to make learning fun and effective.

Box 1. The Foot Soldiers

The community WASH workers, or Programme Assistants (PA), are the foot soldiers of BRAC-WASH programme and play a critical role in hygiene education and promotion. Going door to door, the PAs are the first point of contact for the community members, VWCs and Shasthya Shebika, community health volunteer of the BRAC health programme. All Shasthya Shebikas are members of both (BRAC) Village Organisation and the VWC. Each PA is assigned to on average 2,500 households, and goes door-to-door to educate and raise awareness. PAs conduct cluster meetings for women and adolescent girls in their catchment areas to increase awareness. The PAs provide hygiene education, collect basic WASH information, and conduct follow-up and monitoring visits to observe the water and sanitation facilities on a regular basis.

The PAs work to educate and mobilize women and adolescent girls regarding critical hygiene matters. For example, they provide information on hand washing during critical times such as during the menstruation cycle to educate and encourage the use of latrines and tube wells in a hygienic manner. They also provide other essential information regarding water, sanitation, and personal hygiene.

The collective work of the PAs and VWCs serve as a backbone for all activities and aspects of the BRAC-WASH programme. The PAs work to improve the health of their communities, and they also gain respect and income as active and knowledgeable community members. The activities of these dedicated community WASH workers reflect BRAC’s philosophy that basic door-to-door services have an immense potential to improve the health of the poor, especially in hard to reach areas.

5 BRAC’s Shastho Shebika or community health volunteer is the foot soldier of BRAC Health Programme. Each Shastho Shebika is assigned to on average 300 households. She provides health education, sell essential health commodities, treat basic ailments and collect basic health information.
In addition, the VWCs also help in delivering hygiene messages that are based on the sayings of Al-Quran and Al-Hadith in the mosque during the jumma prayer. The chairpersons and other general male members also remain present in the mosque and enhance the discussion on WASH aspects. The VWCs have also been ensuring the establishment of water and sanitation facilities through provision of loan support to the poor for installation of new latrines, construction of tube well platforms, and grants for the installation of sanitary latrines for the hardcore poor families. This has helped shift mindset and change attitudes of the people towards better health and hygiene conditions, including the testing of water quality in arsenic-affected tube wells. The VWCs are also enhancing the commitment of the community to build awareness on safe water, and other bacterial contamination. The active VWC members check whether community members are properly maintaining their latrines in a hygienic manner, have a supply of safe drinking water, and practice hand washing properly with soap. They work together to ensure the hygienic use of water and sanitation facilities. They also undertake some monitoring work as follow up on Operation & Maintenance (O&M) activities. Through collective efforts, VWCs develop the knowledge base, build community confidence, and mobilise local resources/funds for enhancing conditions in their locality. Another important aspect of their input is undertaking special works to convert unhygienic latrines into hygienic ones through the addition/changing of water-seals.

Evidence from the community
The VWCs have been undertaking a massive campaign to promote hygienic behaviours in order to achieve programme targets. After phased formation of the VWCs, all programme area households have been provided with the key hygiene messages. In close coordination with VWCs, the Programme Assistants and Programme Organisers of the BRAC-WASH Programme have been discussing different aspects of WASH including: water safety plan (source, collection, transportation, preservation & use), sanitation (use and maintenance), hand washing (critical times), personal & menstrual hygiene for women and girls, waste disposal at household, dumping facilities for girls, operation & maintenance of water and sanitation hardware facilities and improvement of drainage system (village & individual). Moreover, Musullies (Muslim believers) have been provided with 12 key hygiene messages during jumma prayer by a trained Imam in 18,500 mosques (approx. 3.6 million people, i.e. average 200 Musullies/mosque) using the khutba materials produced by BRAC with the aid of imams. In every village, the students and teachers of primary, non-formal primary schools (BRAC and other NGO), secondary schools and madrasas (Islamic educational institutions) have been orientated on key hygiene messages including personal hygiene with support from the VWCs.

Box 2. Nurjahan’s new life
Nurjahan Begum (50), a moderately poor widow, lives in Khilhinguli village in Mirsharai Upazila. Along with her 3 children, she used to defecate in the bushes before WASH intervention. When she learnt about the importance of using a hygienic latrine, she applied to VWC for support. She installed a hygienic latrine through a BRAC-WASH programme loan of taka 1,000 that was administered through VWC amounting.

Subsequent to introduction of the WASH programme, her family is well aware of hygiene promotion and hygiene practices regarding operation and maintenance of sanitary latrines and tube wells. She, along with her children and neighbours, did not always wash her hands before serving food, eating food, and feeding children and after defecation and cleaning baby excreta. Over time, Nurjahan found that her family members have been adopting the new hygiene practices (regular hand washing, hygienic use of safe water and sanitation, personal hygiene maintenance). They are now also aware of transmission of germs, reduction in waterborne diseases and water safety issues. Now she feels very happy and proud. Practicing hygienic behaviours has impacted their finances and their social situation, and improved their personal health and the cleanliness of the surrounding environment. The possibility of stepping in, seeing or smelling human excrement has now been eliminated.

Based on the Village WASH Action Plan (VWAP), mostly the VWCs undertook special projects to break the cycle of unsafe hygiene behaviours through installation of hardware facilities (latrines, tube well platforms, water seal changes). As of October, the Programme has increased the sanitation coverage
tremendously over the baseline (31%) at the initiation of the programme. In order to create hygienic water and sanitation facilities, in cooperation and coordination with the VWCs, the WASH Programme has achieved the following as of October 2009:

- constructed 2,222 deep tube wells for approximately 299,970 people, 4 rural piped water supply systems for approximately 5,400 people, 1 pond sand filter, 2 rain water harvesters and 1 water treatment plant for the people of arsenic affected areas, and provided 202 water filters to provide arsenic affected families with access to safe water supply for drinking and cooking purposes;
- provided loan support to construct 31,567 cemented platforms to convert unhygienic tube wells into hygienic status through loan support for approximately 426,155 people;
- provided loan supports to 103,454 moderate poor families to install sanitary latrines for approximately .46 million people;
- installed 274,963 latrines with superstructure for hardcore poor families for approximately 1.23 million (1,237,333) people;
- ensured proper distribution of Union Parishad to provide subsidy (latrine materials) to 535,378 hard core poor families to install sanitary latrines for approximately 2.4 million people;
- helped to distribute 187,826 latrines to the hardcore and poor families by BRAC other socio-economic development programmes for approximately .84 million people;
- helped other organisations/agencies distribute 239,438 latrines for approximately 1.1 million hardcore poor and poor people;
- mobilized people to install 1,092,997 sanitary latrines for approximately 4.9 million people;
- converted 1,568,862 unhygienic latrines into hygienic through changing and repairing water seals of the latrines for approximately 7.06 million people;
- installed 4,640 sanitary latrines in 2,320 secondary schools to create separate facilities for girls for approximately .46 million (average 200 girls per school) students.

In some villages, the Programme has initiated initiatives to introduce home garbage disposal mechanisms at the household level. Some of the families installed separate urinal facilities in their houses. The VWCs have been doing advocacy at the Union level to collect latrine materials from Union Parishad (ADP block grants) for provision to hardcore poor families. The VWC members, WASH staff and Shasthya Shebikas are monitoring all the latrines and tube wells on a regular basis. Through these initiatives, the village has undertaken a massive campaign to significantly improve the sanitation, safe water and hygiene behaviour. Of the latrines created through the collective efforts of VWCs, a high portion are still operating after 2 years, and the majority are kept clean. Soap and water are easily available and are located near each other for hand washing in each household. Sandals for use in the latrines are also available in most of the households. Most of the tube well platforms are cleaner than they were in the initial stage. Most mothers dispose of infant/child excreta in latrines rather throwing it outside, as was the previous practice. Most people use adequate water for personal cleaning. Moreover, open defecation has been stopped in most of the areas due to VWC intervention.

**Conclusions**

Experience shows that hygiene, especially behavioural change, receives limited attention in traditional interventions. The success of any hygiene promotion effort involves changing habitual practices. With this in mind, BRAC formed community based VWCs to empower the community to improve its hygiene situation in an integrated manner. The VWCs have combined different types of actions, approaches and channels to reach out to the whole community with the appropriate hygiene messages. The key lesson learnt through the WASH Programme, is that knowledge and awareness building interventions need to adopt a community approach to ensure community participation and yield maximum results. BRAC has adopted this community participation approach by setting up VWCs in each village. Evidence shows that unsafe hygiene behaviours can be changed through a community approach and scrutiny. BRAC, in close cooperation and coordination with VWC, has taken various steps to stimulate improved behaviours and we hope to meet and surpass all targets by the end of the intervention or the programme. To reveal the impact and change in practice, research will be undertaken at the end of 2010.
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Keywords: hygiene promotion, hygiene behaviour, hygiene practice, and community participation

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The Role of Imams and different Institutions in Hygiene Promotion of BRAC WASH Programme

Dr. Babar Kabir, Sharmin Farhat Ubaid, Mahjabeen Ahmed, Mahidul Islam, Mizanur Rahman and Md. Hasan Ali Mia

The BRAC WASH (water, sanitation and hygiene) programme aims to reach 37 million people with hygiene education and promotion. This paper describes three community-based aspects of hygiene education. The first involves cooperation with Imams and the Masjid Council for Community Advancement, to deliver 12 Khutba (sermons) on hygiene, sanitation and the position of women over time in the mosque. The second strategy is school hygiene promotion including construction, school brigades (health clubs), training, and school committees. The third strategy is promotion of improved hygiene practices through folk media carried out by the theatre groups in BRAC’s own Social Development Department and by local folk media groups in the areas where the WASH programme is active.

Introduction

To assist the Government of Bangladesh in achieving the Millennium Development Goal (MDG) on water and sanitation, BRAC has started a WASH program that builds on its long experience in providing water-sanitation services in the community. It is the largest integrated approach in Bangladesh that aims to deliver a package involving hygiene education and promotion, safe water facilities and sanitary latrines (BRAC 2008). The program aims to ensure access to sanitation services for 17.5 million people, hygiene education for 37.5 million people, and safe water services for 8.5 million people in 150 sub-districts of Bangladesh. The goal of the program is to provide sustainable and integrated WASH services in the rural areas of 150 sub-districts; induce safe hygienic behaviour to break the contamination cycle of unsanitary latrines, contaminated water, and unsafe hygienic behaviour; and ensure sustainability and scaling-up of WASH services. The WASH program has taken a holistic approach to attain its objective. The program has targeted people from households, different institutions, community, administration, corporate sectors and local government institutions along with media and communication for its success. The program is motivating and assisting the community to provide access to safe drinking water through installation of tube well and piped water supply along with providing loan support or grant support to the poor for construction of sanitary latrines. In order to reduce disproportionately high dropout rates among adolescent girls, the program along with the school authority is providing separate latrines for girls with water sources and dumping facilities for menstrual hygiene in secondary schools. Since better water and sanitation infrastructures do not necessarily improve health, hygiene promotion activities play an important role in promoting healthy behaviours. To this end, the BRAC WASH Programme has taken a number of approaches to hygiene promotion activities.

Background

Good hygiene is an aid to good health, comfort and social interactions. It directly contributes to disease prevention. In and of itself, hardware does not ensure improvements; what matters is the way it is used and the ways in which it may promote changes in hygiene-related behaviour.
A study in Bangladesh showed that the simple practice of hand washing with soap after defecation is sufficient to reduce the secondary attack rates of dysentery within participating families by 85 percent (Khan, 1982 / Ahmed et Al, 2006). A recent review of the evidence found that twelve hand washing interventions in 9 countries achieved a median reduction in diarrhoea incidence of 35% (Hill, Kirkwood and Edmond, 2001). Realizing this, BRAC initiated a WASH Programme using a holistic approach, i.e. integrating safe water, sanitation and hygiene. The programme mainly focuses on breaking the contamination cycle by inducing behavioural change for individuals, households, and the entire community. Hygiene promotion is the backbone of the entire programme (BRAC, 2005). Programmes that do not ensure promotion of hygienic practices are not usually sustained. In this programme, both promotional and educational approaches are being used.

Hygiene promotion includes strategies that encourage or facilitate a process whereby community members assess, make considered choices, demand, effect, and sustain hygienic and healthy behaviours. To promote hygiene messages, BRAC WASH has developed strategies based on people’s socio-economic and geo-hydrological condition, culture, and existing practices.

The community is made up many different groups. For maximum efficiency and impact, audiences and unsafe practices have to be carefully targeted. Each group may need to be addressed separately. Primary target audiences are those people who are carrying out the risk practices e.g. children, mothers handling babies’ faeces, adult men and male adolescents. Secondary target audiences are those who influence the primary audience and who are in their immediate society, e.g. fathers, mothers-in-law.

There is a third target audience that is very important: people who lead and shape opinion, e.g. schoolteachers, religious leaders, political leaders, traditional leaders, and elders. These people have a major influence on the credibility and hence on the success or failure of the programme (IRC, 2005).

**Objective**

The aim of the paper is to describe the role of imams (leaders of the Muslim religious institutions) and other different institutions such as schools and local folk media in hygiene promotion within the context of the BRAC WASH Program.

**Figure 1. Hygiene Promotion**
Role of different Institutions in Hygiene Promotion

Role of Imams in Hygiene Promotion

Religion holds unique importance in people’s lives and also plays a significant role in the social and cultural life of individuals. Several studies showed that the involvement of religious leaders and faith organizations in health-related interventions improved the level of acceptance, participation and positive health outcomes within the faith communities. The success of health-related interventions correlates directly with the attitude and commitment of the religious leaders to the project. In a telephone survey to assess barriers and motivators to blood and cord blood donation in young African-American women, 17% of the participants reported they would donate blood if encouraged to do so by their religious leaders (Toni-Uebari et al. 2009).

Bangladesh has a Muslim majority and the character of the country is strongly marked by Islam. In rural areas, where the majority of the population resides, religious leaders or imams are considered as opinion makers; so BRAC-WASH decided to involve Muslim religious leaders or Imams in the hygiene promotion activities. The involvement was fostered in a structured way from the very beginning. The program has involved MACCA, (Masjid Council for Community Advancement) which is a faith-based development, humanitarian and campaigning organization working for human security, sustainable integrated development, peace, and communal harmony. MACCA has a country wide interfaith network in Bangladesh with trained Imams and leaders and followers from different groups (MACCA website). MACCA provided consultancy service to WASH and developed the following: the Khutba Guide based on the verses of Al-Quran and Al-Hadith, a training curriculum, and necessary reference material. A 3-day long Training of Trainers (ToT) on the Khutba Guide have been conducted to strengthen the capacity of facilitation and communication skills for 200 imams. These trained Imams have provided training to 18,552 imams in 150 Upazila who are responsible to deliver Khutba at Friday special prayers. The venues of the training were the well-resourced BRAC Training And Resource Centers (TARC). These Imam trainers then delivered one-day orientation at the upazilla level. Twelve imams from twelve mosques from each union received orientation. A total of 18,000 union-level Imams are now delivering sermons (khutba) to their assigned mosques not only to provide hygiene messages but also to ensure men’s role in domestic chores to reduce women’s work burden. The mosques were selected according to the number of Muslims present in the Jummah prayer (weekly prayer on Fridays). Mosques that usually accommodate more than two hundred Muslims in the Jummah prayer were selected for the orientation. The Khutba guide is divided into twelve chapters and each month the imam preaches on one chapter. The chapters of the guide appear below.

Sermon or Khutba 1: Using safe water for drinking and cooking
Sermon or Khutba 2: Sources and preservation of safe water
Sermon or Khutba 3: Not to defecate in open place and installation and use of sanitary latrine
Sermon or Khutba 4: Use and maintenance of sanitary latrine in healthy way
Sermon or Khutba 5: Children and sanitary latrine
Sermon or Khutba 6: Women and family safety and dignity
Sermon or Khutba 7: Importance and rule of hand washing with soap
Sermon or Khutba 8: Personal hygiene, equal distribution of household chores among family members
Sermon or Khutba 9: Covering food and avoiding stale/decayed food
Sermon or Khutba 10: Kitchen and family waste disposal in a designated place and keeping the environment clean
Sermon or Khutba 11: Teaching children about using latrines
Sermon or Khutba 12: Helping women in their household chores and taking into account their views on family matters.

Table 1 presents information about the reach of Khutba training activities.

Table 1. Training and forum on Khutba (up to October 2009)

<table>
<thead>
<tr>
<th>Activities</th>
<th>No. of sessions</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religious Training on Khutba Guide Book</td>
<td>669</td>
<td>14978</td>
<td>-</td>
</tr>
<tr>
<td>Mosque Forum to disseminate Khutba on WASH</td>
<td>4331</td>
<td>350984</td>
<td>-</td>
</tr>
</tbody>
</table>

Considering the necessity of monitoring and follow up by a faith-based organization, WASH authorities hired the Masjid Council as a partner to implement another project titled, “Monitoring and Follow up Initiatives for Religious-institution based Component of BRAC-WASH Program”.

Role of schools in hygiene promotion

Children are far more receptive to new ideas and are at an age when they can be influenced to cultivate the good habits of personal hygiene. Thus, the promotion of personal hygiene and environmental sanitation within schools can help children to adopt good habits from the formative years of their childhood. The schoolteacher is held in high esteem by the students and is respected not only within the school but in the community as well. The students can develop hygienic habits by emulating the teacher as a model. Also, the schoolteacher can influence parents and community members on issues related to sanitation (UNICEF, Tajikistan).

Bangladesh houses 82,218 primary schools that enrolled 16 million students, with a net enrolment rate of 90.8% in 2008. There are 18,770 secondary schools, which enrolled 6.4 million students in 2008. There are 9376 madrasas (religious schools) as well (BANBEIS, 2008). There is a school in almost every village of Bangladesh. A large number of families can be reached through the children if schools are involved in hygiene promotion.

To provide hygiene education among school children, BRAC WASH has conducted hygiene education sessions in all schools (i.e. from primary through secondary level). WASH staff designated as Program organizers have been disseminating hygiene messages with hand washing process demonstrations in each school. In addition, they also oriented teachers before conducting the student sessions. Table 2 show the number of hygiene education sessions conducted in schools and Table 3 shows the reach of teacher orientation.

Table 2. Hygiene education sessions conducted in different schools (up to October 2009)

<table>
<thead>
<tr>
<th>School Meeting/Hygiene session</th>
<th>No of sessions conducted</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary school meeting</td>
<td>21341</td>
<td>1632154</td>
<td>1808478</td>
<td>3440632</td>
</tr>
<tr>
<td>Government primary school meeting</td>
<td>16699</td>
<td>1393632</td>
<td>1590652</td>
<td>2984284</td>
</tr>
<tr>
<td>Non-government primary school meeting</td>
<td>13167</td>
<td>688527</td>
<td>746244</td>
<td>1434771</td>
</tr>
<tr>
<td>BRAC school meeting</td>
<td>72689</td>
<td>806291</td>
<td>1229617</td>
<td>2035908</td>
</tr>
<tr>
<td>Other School meeting</td>
<td>10875</td>
<td>202487</td>
<td>235375</td>
<td>437862</td>
</tr>
<tr>
<td>Madrasa meeting</td>
<td>3478</td>
<td>228207</td>
<td>249859</td>
<td>478066</td>
</tr>
</tbody>
</table>
Table 3: Orientation of schoolteachers (up to October 2009)

<table>
<thead>
<tr>
<th>Orientation of different schoolteachers</th>
<th>No of sessions conducted</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation of Teacher (BRAC schools)</td>
<td>227</td>
<td>29</td>
<td>2176</td>
<td>2205</td>
</tr>
<tr>
<td>Orientation of Teacher (Primary schools)</td>
<td>38</td>
<td>335</td>
<td>145</td>
<td>480</td>
</tr>
<tr>
<td>Orientation of Teacher (Secondary schools)</td>
<td>1479</td>
<td>19883</td>
<td>5061</td>
<td>24944</td>
</tr>
<tr>
<td>Orientation of Teacher (Others)</td>
<td>774</td>
<td>8057</td>
<td>7836</td>
<td>15893</td>
</tr>
</tbody>
</table>

Before starting implementation of the WASH program, BRAC found a high demand for separate latrines for girls and boys in secondary schools. Girl students were not attending classes during menstruation due to lack of menstrual hygiene facilities. All secondary school students are adolescents, whereas this group is comparatively smaller in primary schools (standards one to five, usually ages 5 to 9/10 on average). Selection of this target group was the result of a series of discussions. Based on the reality and practical need, BRAC decided to provide support to the secondary schools. Moreover, Government has a provision in primary schools and UNICEF has already provided support for latrine facilities. So, WASH along with the support from the school authority is constructing separate sanitary latrines with menstrual hygiene facilities in three secondary girls’ schools or co-education secondary schools from each union.

To make the approach sustainable, WASH encourages the schools to conduct sessions on health and hygiene education through schoolteachers on a regular basis. For this purpose, teachers in BRAC WASH Upazillas receive orientation on WASH issues and methodology on teaching children. In addition, a training guidebook, flipchart and posters have been developed for use in the sessions. A training team has been formed to provide orientation to the schoolteachers. BRAC-WASH staff in Upazillas have developed a session schedule (lesson plan) along with the teachers to assist them. The objective of the session is to provide hygiene knowledge to the students and encourage them to take their knowledge to their families and to the communities.

In addition, in each WASH school where construction of latrines has been completed the teachers and WASH personnel are forming all School Brigades. The brigade is a group of 24 students who are selected from Class Six to Class Nine. They are responsible for proper use and maintenance of latrines as well as the total cleanliness of the school premises. For better management and sustainability, a School WASH Committee, consisting of 14 members, is being formed in each school. The Head Master is the Chairperson and a female teacher is the member secretary of the committee. To ensure equal representation at all levels, in addition to the representatives of the School Management Committee, guardians and students are selected as members of the committee. The committee meets once or twice a month to review the activities including session and latrine use and maintenance. The teachers have developed an action plan for the effective implementation and follow-up of the activities. While the program realizes that WASH may not be able to cover all schools and latrine support may in some way be inadequate, the rationale is to create a model, generate demand and, most importantly, build a relationship with the schools in the 150 Upazillas. Where no latrines existed in the past, there are now at least 2 per school.

WASH messages are also being delivered to both Government and BRAC non-formal primary school students through orientation of teachers as part of hygiene promotion. School students are also involved in hygiene promotion through rallies, popular theatres, debate competitions, essay and art competition and celebration of special days such as “Hand Washing Day”, “National Sanitation Month” etc.
Role of local folk media in hygiene promotion

Folk media is an integral part of Bangladeshi cultural heritage. Every part of the country has its own distinctive features. The appeal of folk media is quite personal and intimate because it has direct influence on people. As in the case of colloquial dialects, the familiar format and content of mass media gives much clarity in communication. The folk media are flexible and can accommodate new themes. Their familiarity, personal contact, common language, intelligibility, credibility and acceptance make folk media universally acceptable among rural folks. Folk media is also an inexpensive media that allows for effective delivery of a message to a large number of people. Realizing this, the BRAC-WASH project has coupled with the popular theatre group of the BRAC Social Development Programme. “The performers of the group are recruited locally who are sensitive to indigenous heritage and socio-economic context of the region” (BRAC 2008). The theatre groups deliver messages to the community by incorporating messages about basic hygiene into their scripts. The resulting storylines range from a funny sketch to serious dialogue. The plays are staged in the evenings in the courtyards, and draw 250-400 people including women and children who are often deprived of such entertainment. The plays also provide a platform for contributory discussion. Three plays have been staged in each union in the WASH areas. Up to October 2009, 4638 plays have been staged in 150 upazillas under the BRAC WASH Program.

In addition to popular theatre, WASH has also involved a local NGO that deals with the famous duo named “Gambhira”, which is a very popular folk group in the Northern part of Bangladesh. They have performed in eight sub-districts in Northern Bangladesh and delivered WASH hygiene promotion messages. The program has also involved the local drama group of the BRAC Adolescent Development Program. The group members are adolescent boys and girls who perform in the school premises in the afternoon. They also incorporate messages about basic hygiene into their scripts and thus convey hygiene promotion messages into the community.

Conclusion

Religious institutions, schools and folk media all offer effective delivery systems for hygiene promotion.

Involving religious institutions in the promotion of hygiene messages appears to be effective as they are influential in their respective communities. A large number of young people and adults come to social and religious institutions for prayer, education, and training. Field assessments show that teaching children the importance of hand washing and other good hygiene habits promotes increased knowledge and positive behaviour change, especially when the schools are equipped with an adequate number of safe toilets or latrines and sufficient water for washing. Folk media is a useful means of message dissemination that ensures community participation where people willingly come and join for a recreational purpose without restriction in terms of class, religion and age.

It is very important that gender issues be considered in order to make the WASH programme more effective, sustainable and equitable. Religious leaders, teachers and students can properly address gender issues through hygiene promotion. The involvement of imams for hygiene promotion has been very positive. Many like to be involved in social issues and help to advocate for appropriate WASH during the Friday prayers in mosques. Women in the community report that this has helped to convince their husbands to invest in latrines. In addition, when the imams or religious leaders explain changes in gender roles on the basis of belief, people are influenced to change.

Some reports indicate that School Sanitation and Hygiene promotion has increased girl’s attendance in school when teachers and school management committees are responsible for hygiene education sessions and for changing students’ safe hygienic practices with gender sensitive participation.
Different needs of men, women and children, rich and poor, violence against women and cultural barriers to sanitation can be expressed by popular theatre shows. Mass audiences enjoyed the theatre shows, which included relevant WASH information and hygiene messages. These highly popular folk-media events are meant to improve the sustainability of hygiene information, because the real life situation depicted on the stage easily influences people in an enter-educate manner.

These three types of institutions reach different groups and work to ensure sustainable hygiene behaviour among the community after the withdrawal of the programme.

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http://www.masjidcouncilbd.org/aboutus.php


Keywords  
*Hygiene practices, behaviours, religion, Islam and hygiene education, school hygiene and sanitation, folk media*

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Assessing and Addressing Hygiene Issues of Internally Displaced Persons of Swat, Buner and Dir

Syed Shah Nasir Khisro, Altaf Ur Rahman, [Pakistan]

The goal of hygiene promotion in Swat, Buner, and Dir is to help the Internally Displaced Persons (IDPs) understand and develop positive attitudes toward good hygiene practices that prevent diseases. This paper describes the steps and measures taken by The Integrated Regional Support Program (IRSP) to handle unhygienic conditions in camps and in host family settings. Trained and qualified hygiene promoters were inducted to carry out the proposed hygiene promotion activities. The staff carried out a rapid assessment and needs survey of the camps and areas where IDPs were residing with relatives and friends. The findings were developed into an action plan designed to educate and create awareness among IDPs about important hygiene issues. Leaders and activists (both men and women) from within the IDP population were identified and trained. Corner and broad based meetings were held to sensitize and educate the communities about best practices and their adoption and impact on health and environment. During the process, bath soap, dish washing soap, detergents, towels, water purifier tabs, sanitary cloth, toothbrushes and toothpaste were provided. In an emergency situation when delivery of IEC hygiene materials was not possible, hygiene quizzes, puppet shows, walks, debates, and traditional and local sports were arranged to attract IDPs and convey hygiene messages. Female hygiene promoters demonstrated how to efficiently fasten, untie and clean the menstrual cloth, and then arranged a competition among IDPs. Local FM radio services were hired to air programmes regarding hygiene promotion.

Background
Two and a half months of the conflict in the tribal agencies left a trail of heavy infrastructural damage, human losses, and a severe economic crisis in the war affected region. The ongoing crisis in north western Pakistan has led to the displacement to neighbouring villages of individuals from Swat valley and the surrounding areas of Buner, Bajur, and Malakand. According to reports verified by the National Database and Registration Authority (NADRA) and the Government of Pakistan, a total of 289,251 families are displaced with 23,951 families residing in camps and 265,300 families residing off camp. A total of 2,024,757 individuals have been displaced (Government of Pakistan and WHO).

Problem Statement
Hygiene considerations were not a priority for IDPs because most of the family members were in search of food, drinking water, medicines and shelter. The lack of water, soap, washrooms, medical facilities and awareness complicated the situation and posed a threat to the IDPs. It was probable that the unhygienic environment and overall situation would cause another disaster in the form of a health disaster. Adults and children were not washing themselves, nail clipping and hair cutting were out of question due to sudden displacement and lack of facilities, and some of the children and adults were suffering from diarrhoea, dysentery, typhoid and eye infections due to the unhygienic conditions in camps and host family settings.
State of Hygiene in Swat, Buner and Lowe Dir (prior to the crisis)
The districts of Swat, Buner and Dir resemble other parts of rural North West Frontier District in terms of hygiene and health. Lack of education, awareness, and resources impede development of hygienic practices in the communities living in these areas, and poor hygiene has the potential to lead to disease outbreaks. The climate itself, with its ruthless winter season, presents an additional challenge and prevents frequent washing or bathing by women, children and men. Residents don’t cut their nails and hair regularly. Women and children often graze animals in the hills, and they lack the time necessary to look after their personal and environmental hygiene.

Hygiene conditions in camps and host family settings
The high influx of IDPs to registered camps and to host families over-burdened all the basic facilities required for healthy living. The IDPs left their homes in hurry and were preoccupied with quickly finding safe places for their family members to live. Their next big challenge was to find enough food, clean drinking water and medicines. Given these circumstances, attention to good hygiene practices was not their priority. Limited accommodation space also made it difficult for IDPs to maintain cleanliness as numerous family members were often living in a crowded room or tent. It was difficult for humanitarian agencies to act quickly and provide IDPs with the basic means for maintaining personal and environmental hygiene.

Hygiene conditions in camps and host family settings were deteriorating daily, and outbreaks of contagious diseases were recorded in camps and by host families. Family and personal hygiene practices that were not particularly strong before the emergency, further endangered families in the difficult circumstances they encountered upon fleeing their homes.

Hygiene Needs of IDPs
Maintaining personal and environmental hygiene is as essential as food and water for living beings. The rapid needs assessment survey carried out by the IRSP noted that IDPs need to be educated, mobilized and sensitized to adopt minimum hygiene standards necessary to protect themselves from infectious diseases. They need soap, water purifier tablets, mosquito repellents, dish washing soap, detergent soap, and nail clippers. Menstrual hygiene was given special attention, as women shy away from talking about this concern. The female hygiene promoters successfully arranged sessions for women in camps and host families to educate them about the complications they may face if they don’t pay attention to the issue. Women traditionally use the sanitary cloth and menstrual cloths were provided along with guidance in their use. Children and adults were educated about how washing their hands with soap before meals and after using the latrine can save them from many diseases.

Hygiene Programme
IRSP undertook a comprehensive five step process to identify and effectively address the hygiene needs of IDPs in the region.

Step 1 Assessment
Conduct a rapid assessment to identify unsafe hygiene practices and determine what the community knows, does, and understands about hygiene. Identify specific practices that allow diarrhoeal microbes and other diseases to be transmitted, and determine which practices are the most harmful.

Step 2 Inventory Needs
Consult women, men, and children to determine the contents of a hygiene kit and identify specific hygiene needs such as sanitary towels for women, razors for men, etc

Step 3 Planning
Select practices and hardware for intervention (define objectives and indicators). Determine which risk practices are most widespread, which will have the biggest impact on public health, which risks are alterable, and what can be done to enable change of risky practices.
Step 4 Identify Audiences
Define target audiences and stakeholders by determining who employs particular practices and who influences the people who adopt these practices.

Step 5 Target
Define the preliminary mode of intervention by determining initial key messages and channels of communication, identifying available methods, (e.g. 60% of people have radios but they are often used only by men) and ascertaining which methods the target audience trusts (e.g. traditional healers, discussions at women’s group meetings).

Role of Integrated Regional Support Programme
The humanitarian programme was developed after Concern World Wide trained IRSP staff on disaster management, and after Oxfam Great Britain launched a project in Mardan to carry out activities to address issues impacting IDPs of Bajur.

IRSP also responded to health challenges in the earthquake-affected area of Batagram. During the project, IRSP provided relief to 2000 families in the form of hygiene promotion, hygiene kits, and water and sanitation facilities.

A flood hit Peshawar city in August 2008. IRSP responded to the situation by promoting hygiene among all families.

Upon request of the District Government of Mardan, in August 2008 IRSP responded to Bajuar and Mohmand Agency IDPs in Sheikh Yasin “IDPs Camp” in Mardan by providing water and sanitation facilities and hygiene promotion.

Funded by Oxfam Great Britain, the project “Response to IDPs Situation in Mardan & Swabi” covers 15,000 IDP families living in registered camps, spontaneous camps, schools and host family settings in Mardan and Swabi. During the project, in addition to hygiene promotion, 640 Latrines, 419 bathing spaces, laundry spaces, soakage pits and solid waste collection points were constructed for IDPs.

Hygiene promotion of the IDPs in Camps and Host families
Qualified hygiene promotion staff were hired by IRSP to educate, raise awareness mobilize and sensitize the IDPs in camps and host family settings including children, women and men with regard to environmental hygiene, personal hygiene, domestic hygiene and awareness about diseases as follows:

Environmental Hygiene
- the cleanliness of houses and tents, latrines, disposal of animal wastes if any, etc.,
- stopping defecation in open fields,
- proper disposal of children’s faeces,
- cleanliness of latrine and bathing places,

Personal Hygiene
- washing hands with soap after defecation, especially before eating meals and feeding children,
- disposing of waste,
- use of washed clean clothes,
- taking a bath regularly,
- keeping nails cut,
- keeping hair cut,
- proper use and fastening of menstrual cloth,
Domestic Hygiene & Cleanliness
- use of washed and clean kitchen utensils for cooking and eating,
- drinking of clean water,
- use of PUR Sachet or Aqua Tabs for cleaning water,
- ensuring that meal is not under cooked or over cooked,

Awareness about Diseases
- contaminated soil, water and air spread germs of various diseases such as cholera, diarrhoea, acute respiratory infection, pneumonia, typhoid, hepatitis, intestinal disorders, and vomiting,
- some of these illnesses are caused by dirty utensils and spoiled food,
- benefits of balanced diet, properly cooked food and some light exercise for ensuring good health.

Hygiene sessions were conducted with both male and female audiences. Traditional sports competitions, debates, walks, and a puppet show were arranged to bring the IDPs together and sensitize them to these issues. The service of local FM Radio was hired to disseminate messages regarding hygiene promotion. Female hygiene promoters conducted special sessions on menstrual hygiene, provided women with cloths for this purpose, and staged unique competitions where the IDPs raced to quickly and safely fasten and untie the menstrual cloth. Table 1 provides an inventory of hygiene related activities conducted by hygiene promotion staff.

<table>
<thead>
<tr>
<th>Table 1. Hygiene related activities delivered through IRSP</th>
</tr>
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<tbody>
<tr>
<td>No. of beneficiaries of Hygiene Kit</td>
</tr>
<tr>
<td>No. of Hygiene Sessions Male</td>
</tr>
<tr>
<td>No. of Hygiene Sessions Female</td>
</tr>
<tr>
<td>Total Hygiene Sessions</td>
</tr>
</tbody>
</table>
Photos 1 through 4 show IDPs participating in hygiene related education activities.

The staff monitored the supplies in the hygiene kit and continued to provide IDPs with materials. Figure 1 identifies the contents of a hygiene kit.

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detergent Soap</td>
<td>2</td>
</tr>
<tr>
<td>Cloth Washing Soap</td>
<td>4</td>
</tr>
<tr>
<td>Bath Soap</td>
<td>9</td>
</tr>
<tr>
<td>Soap Case</td>
<td>1</td>
</tr>
<tr>
<td>Sanitary Cloth</td>
<td>1</td>
</tr>
<tr>
<td>Towels</td>
<td>2</td>
</tr>
<tr>
<td>Lota</td>
<td>1</td>
</tr>
<tr>
<td>Comb – Large</td>
<td>1</td>
</tr>
<tr>
<td>Comb – Small</td>
<td>1</td>
</tr>
<tr>
<td>Nail Cutter</td>
<td>2</td>
</tr>
<tr>
<td>ORS Sachet</td>
<td>8</td>
</tr>
</tbody>
</table>
Conclusion
Emergent activities aimed at promoting hygienic practices were performed in multiple IDP settings, including government established camps, spontaneous camps and host families. With human safety in mind, the IRSP responded and tackled issues of water born diseases in relation to IDPs. The outcomes and results of these activities are:

✓ distribution of hygiene kits to all IDPs;
✓ observation of hygienic practices by school children in camps;
✓ women have a clear understanding of hygiene practices and apply them in their daily lives;
✓ a decrease in open defecation;
✓ reduced incidence of water born diseases especially diarrhoea (resulting from decreases in open defecation);
✓ increased IRSP staff capacity to create awareness and educate IDPs on hygiene promotion and to distribute hygiene kits to large number of IDPs during natural and human crises;
✓ developed coordination with WASH cluster organizations and government agencies that helped IRSP to avoid duplication of (non food items) and hygiene kits distribution;
✓ sanitary cloths included in the hygiene kits, resulted in 100% usage among pertinent IDPs including young girls and women;
✓ sanitary volunteers are performing their duties (latrine and washroom repair and maintenance, solid waste collection and dumping dirty water) in camps;
✓ practice of washing hands before food and after latrine popularized among IDPs.

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Keywords IDPs, Hygiene, Promotion, Challenges, Time Constrains

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Effective hygiene promotion reduces the main risky hygiene practices and conditions for women, children and men. A consensus exists among those working on hygiene promotion that for hygiene promotion efforts to be effective, each member in the community should be involved. The benefits of inclusive hygiene promotion are widely recognized: all groups, women, children and men should be included in hygiene promotion activities. Despite this consensus, most hygiene promotion programmes focus on women only. Specific examples on how men are targeted are difficult to find. Involving men and encouraging their responsibility in hygiene and sanitation improvements is important for many reasons. Men have a key role in decision making, often control finances, have an important role to play in family and community health improvement, can help reduce the burdens borne by women, and can be role models to others in the community. Men who are well informed on the benefits of hygiene improvement for their family are more likely to support their wives and children and to change their own behaviours. In this paper we use the experience of NEWAH, a national NGO based in Nepal, as a case to describe the challenges, but also the benefits and the lessons learned while focusing hygiene promotion on men.

Background and Context
The behaviour of women and men, girls and boys impacts community development. Identifying key risk behaviours, priorities, roles and responsibilities can help field staff to understand how to target hygiene promotion activities more effectively. Adopting a participatory approach helps community members understand key risks and possible corrective actions. Although this has been recognized for many years (see, for example, Wijk-Sijbesma, 1995), few programmes have approaches and tools to target men specifically. Many donors want to see impact on women and children, and are less concerned with involving men in hygiene promotion. As a result, NGO’s and other implementers are less likely to actively focus on men in hygiene promotions. Assistance to Vulnerable Groups and Communities Most Affected by the Internal Conflict (VCP-EU) is an EU-funded programme that has provided an opportunity to address this issue. The NGO Nepal Water for Health (NEWAH) is one of the first organizations to take up this challenge.

The three year project, which is in its final year, includes three major components: ensuring access to basic services, rebuilding livelihoods for the poor, and strengthening community-based organizations. Hygiene promotion for men was a small but important element in the overall water and sanitation intervention. Health and sanitation facilitators are community members who are hired for the project to carry out hygiene promotion activities and support the rehabilitation of basic services. The project covers four districts: Doti and Achham of the Far West region and Dailekh and Surkhet of the Mid West region.

For many years, the Mid and Far West regions of Nepal were not priorities of development initiatives due to geographical features and the low level of awareness of the developmental challenges in the region. Working in the area is challenging because of the rough terrain, limited infrastructure, and scattered habitation; as well as the effects of the government-Maoist conflict in the past. Compared to more accessible areas there is lack of transportation, infrastructure, and access, which are significant barriers for development. Many inhabitants, mostly men, are involved in seasonal work, which often means working
abroad in India for about six months a year. As will be discussed in greater detail, this is one of the barriers confronting the village health and sanitation facilitators.

**Health education or hygiene promotion**

Many organisations include health education for community members in their water and sanitation projects. However, health education is not the same as hygiene promotion. Health education often implies instruction: telling people what to do or what not to do. We believe that successful programmes do not instruct people, but instead interact with people to jointly find solutions (Appleton, 2005). In this paper we deal with hygiene promotion.

**What is hygiene promotion for men?**

Effective hygiene promotion reduces the main risky hygiene practices and conditions for women, children and men. A consensus exists among those working on hygiene promotion that for hygiene promotion efforts to be effective, each member in the community should be involved. The benefits of broad based hygiene promotion are widely recognized: all groups, women, children and men should be included in hygiene promotion activities. This notwithstanding, most hygiene promotion programmes focus on women only. It is hard to find specific examples of how men are targeted.

This may have to do with the way hygiene promotion activities are set up. First, hygiene and sanitation behaviours that form a risk for health are identified within the community. Secondly, the groups most at risk are identified. In most of the communities these are the mothers. Often they are the ones preparing the food, cleaning the children after defecation, and feeding the children. In addition, it is assumed that if you reach the women you will reach the whole family. This appears to reduce the urgency of targeting men.

Hygiene promotion for men means that men are explicitly targeted in hygiene promotion activities; however, it does not mean that other groups are excluded. We will use the experience of NEWAH, a national NGO based in Nepal, as a case study to describe the challenges, benefits and lessons learned while focusing hygiene promotion on men.

**Why is it important?**

It has been recognized for years that women and men have different roles, responsibilities and interests in hygiene and sanitation. Involving men and encouraging their responsibility in hygiene and sanitation improvements is important for many reasons; namely because men:

- play key roles in decision making within the family and community,
- often control finances,
- have an important role to play in family and community health improvement,
- can help reduce the excessive burdens of women,
- can be role models to others in the community.

Men who are well informed on the benefits of hygiene improvement for their family are more likely to support their wives and children and to change their own behaviour. “Exclusion of husbands and fathers from hygiene education programmes also does not take into account their feelings of responsibility and pride in their families and children.” (Burgers et al, 1998).

Until two years ago NEWAH’s hygiene education activities primarily targeted women and children through community meetings and household visits. NEWAH staff indicated that men are often absent during the household visits. Local health and sanitation facilitators, along with other Nepal-based organisations with whom experiences were shared during the project, all asked, “Why target men when they are not around?”

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**NEWAH**

NEWAH is a national NGO based in Nepal that focuses on hygiene and sanitation improvements. They have been active in promoting hygiene practices among community members, particularly women and children. However, as mentioned, they have not traditionally targeted men in their hygiene promotion efforts. This has been questioned by health and sanitation facilitators who have observed that since men have started receiving health education, they have become aware of its importance and no longer need convincing from their wives. NEWAH, Man Bahadur Bhujel, a male community worker in the village of Phaperthum, reported that since the men in the community have started receiving health education they have become aware of its importance and no longer need convincing from their wives.
This triggered something at NEWAH, as their extensive experience with gender and poverty approaches convinced them of the importance of explicitly targeting a group if you want to be sure to achieve the goal of hygiene for all, not only for women and children. Targeting men is expansive not reductive. Targeting men does not preclude targeting women, as women remain a very important target group.

Explicitly targeting men, however, seemed difficult to carry out in reality, in both the family and the community, and health workers at the community level, as well as the regional staff at the district level, faced many challenges.

**Challenges**

**Turn theory into practice**

Health and Sanitation Facilitators (HSFs) were hired to act as hygiene promoters in the villages. In phase one of the EC project seventeen health workers were hired: thirteen women and four men. Phase two included eleven health workers: seven women and four men. All HSFs received a small salary during a 12-month period. Before they started their work on hygiene promotion in the villages, the HSFs received elaborate training by NEWAH on 18 important health issues. The training addressed issues that ranged from faecal-oral diseases, transmission routes, safe handling of water, family health and practical use of teaching materials to monitoring and supervision and key components of hygiene promotion. The scope of the training resulted in significant information overload that made it difficult for the HSFs to translate this course into practical action at the village level.

The regional support staff of NEWAH also faced difficulties in implementing the adapted approach on the ground. They received questions from HSFs on how to incorporate a specific focus on men into their regular activities, and on how to translate the training on hygiene for men into practical guidance they can use in their daily work. The focus on men was new to the regional staff, so it is not something for which they had ready-made answers.

**Get in contact with men: location and time**

The female HSFs emphasized that while it was possible to reach men, it was more difficult than reaching the women. For example, if a female HSF was related to male and senior relatives in the village, such as a father or brother in law, she could not talk to them directly. One of the HSFs also mentioned that she felt intimidated by (elderly) men while doing her job.

The HSFs found it difficult to encourage men, adolescent boys, elderly men and elderly women to attend hygiene promotion meetings. Many community members were busy with farm work or were abroad for seasonal work, which made it difficult to include them in regular hygiene promotion activities. Time constraints posed a specific challenge to this programme as community members’ time was already consumed by the programme’s water construction activities, so attending hygiene promotion activities was experienced as an additional burden and given less priority.

**Knowing what motivates men**

Initial reactions of men towards the attempts of the HSFs to include them in hygiene promotion activities ranged from indifference to aggression. The HSFs found it difficult to identify what would motivate men to change their behaviour for improved sanitation and hygiene. This complicated decisions about which tools to use to convey hygiene messages to men.

**Support**

Some of the HSFs said they felt demotivated by the lack of interest among community members. They had many roles to perform within the project, but support from the regional office was irregular due to the large distances to cover, frequent roadblocks, and high fuel prices. Some HSFs in very remote areas were never visited in their own community. Lack of support seems to be a structural challenge. A few years ago, male community health workers also indicated that they “face problems in trying to gather other men (given their time constraints) and to overcome the resistance they face from these other men in the community” (James et al. p.11, 2003).
At the regional level, NEWAH staff supports the HSFs in reaching community members. Nonetheless, the HSFs face challenges that are common in other countries too. In Ethiopia for example, WaterAid states that the role of the health facilitator is “hard for many reasons: it can be lonely, involves walking long distances in all conditions, and can involve coming into direct daily contact with many of life’s harshest realities.” (Matthewson et al., 2005). The HSFs of NEWAH have a heavy workload, since they also work on the implementation of water supply structures. The situation is further complicated by the fact that NEWAH staff work on many projects concurrently, and the time left for support is very limited.

**Possible Improvements**

**From theory to practice**

To bridge the gap between theory and practice, the HSFs were introduced to six steps of hygiene promotion using participatory methods with community members:

1. identify the key risk behaviours in your community;
2. link risky behaviours to groups of people within the community, that is, identify the target groups;
3. find out the reasons for their current practices, that is, determine their motivation;
4. identify the benefits they see in changing their behaviour;
5. formulate messages for the target group(s) and decide which ones to use. It is important to limit the number of messages to one or two;
6. select and/or adapt tools to use and people to support.

This training helped the HSFs improve their fieldwork. They started targeting the different groups within the village, but realized that they did not reach the adult men and the elderly (men and women). Knowing the importance of including all community members in hygiene promotion motivated them to actively focus on men in their activities. This did not, however, solve the problem of how to reach them. Experience with the Gender and Poverty Approach helped NEWAH recognize that it is sometimes difficult for women to involve men. For this reason, NEWAH recruited some male community health facilitators. Table 1 highlights strategies for involving men in hygiene promotion.

As early as 1985 men were involved in sanitation training in Nepal: “Water technicians were trained in disease transmission [and] personal and home hygiene [...]. The initial resistance to the new training changed. […] By appealing to their interest in improving their

---

**Table 1. Getting men involved**

Some suggestions on how to involve community members, especially men, in hygiene promotion

1. Inform men (and women/children) about the benefits for the whole household: sanitation and hygiene is not just for women!
2. Focus on technical aspects of sanitation.
3. Involve men in construction.
4. Give a specific role: information sharing, leadership role.
5. Focus on economic benefits: reuse of manure and wastewater for kitchen gardening, health savings from improved hygiene and sanitation.
6. Choose suitable times: evening, specific days, season, festival.
7. Choose suitable locations: go to where the men already are (tea stall, market, household compound).
8. Use short messages: focus on part of a tool (like one part of the F diagram, 1 or 2 flashcards), or on one risk behaviour.
9. Focus on small, achievable steps: stepwise improvement to existing practice or to existing sanitation facility.
10. Involve key opinion leaders: health workers, tea stall owners, religious leaders, teachers, and storytellers.
11. Involve village leader(s), WSUC, caretakers, CBO, youths.
own health, they saw greater relevance for the project and its integrated approaches.” (Burgers et al., 1998).

According to the male HSFs, it is indeed easier for a man to reach the men in the community. Hygiene and sanitation issues can openly be shared among men. In an assessment of the NEWAH gender and poverty approach in 2003, James et al reached this same conclusion: “Male community health workers can be extremely effective in fostering change with men where female CHVs cannot make any headway.”

**Reaching men: location and time**

In order to reach the men, the HSFs started to choose new, different public locations for their hygiene promotion activities, such as tea stalls, the community building, and areas where work takes place for the rehabilitation of water supply. Timing of the hygiene promotion activities was adapted to the availability of the community members at the public places.

**Motivation**

Having more possibilities to reach men leads to the next set of challenges to be addressed: determining which issues interest men, how to motivate them, and how to stimulate behaviour change for improved sanitation and hygiene. Factors that motivate men often differ from those that motivate women. The HSFs found, for example, that giving men specific roles in hygiene promotion activities can attract their participation. Men prefer an active role to being passive audience members, so the possibility of giving men information sharing or leadership roles should be explored.

**Support of HSFs**

Involving men in hygiene and sanitation improvement requires finding people or organizations that are able to help change men’s attitudes and behaviours. HSFs in remote areas of Nepal found that it helps if hygiene issues are discussed in the Water and Sanitation User Committee meetings before reaching out to men. The help of the chairperson and active members of the committee made it easier to get the message across. It is unclear whether these strategies are equally relevant everywhere in Nepal or only for the remote areas. At least some of the methods listed in Table 1 should be relevant within and perhaps outside Nepal as well. In any case, including men in hygiene promotion in a systematic and effective manner is an issue that needs more attention at the levels where planning and strategy are developed.

Staff from the regional office tries to support the HSFs through more frequent contact by telephone or in person, and by stimulating closer cooperation between technical and health field staff. Limitations on time to spent in the communities made the regional staff develop alternatives. For example: NEWAH regional staff and/or District Development Committee staff provide support in targeting influential men in the community, as these men may pave the way for increased involvement of men in sanitation and hygiene improvement.

Two key efforts need to be undertaken to improve effectiveness and sustainability of WASH activities after project completion. The involvement of community structures, such as the Water and Sanitation User Committees, in sanitation and hygiene promotion and in monitoring progress and outputs needs to be strengthened; and practical support and motivation of project staff, especially the HSFs, must be provided. Social section staff of NEWAH provide training for facilitation skills by focusing on the six-step approach and a limited number of hygiene issues. According to the HSFs, they could better reach men in at least three project villages: Mathillo Ganma, Jumla Kafal and Dhipintada of the Dailekh district, one of the four districts covered by the project. The HSFs felt empowered by sharing experiences among project staff, by mutual field support for each other, and by more intensive monitoring and support from regional staff in the form of field visits and joint planning.
**Tools Used in the Communities**

Involving men in hygiene and sanitation improvement, requires thinking about which hygiene promotion tools would be most effective. A tool such as body mapping for awareness raising on personal hygiene did not work very well with the elderly people, for example.

Elderly people are not used to these ‘new’ ways of looking at your body, especially the private parts, according to the HSFs.

Some of the tools that do seem to work are the F-diagram, a tool for raising awareness on transmission routes of oral-faecal diseases, and drama.

The F-diagram was adapted from an education tool to function as a promotion tool. Instead of showing people the F-diagram and explaining the transmission routes of faecal matter, community members were encouraged to actively determine for themselves the risks they face.

The HSFs started by asking community members to tell a story about how stool from a person with diarrhoea could get into someone’s mouth. They asked them to draw things to depict their stories, e.g. a plate of food, a water pot, or flies to show food borne contamination. The community members were then asked to depict transmission routes by placing strings from one drawing to another e.g. from flies to food to show how faeces can come into the mouth. Through this exercise, participants showed the link between risky behaviour and faecal-oral illness, became aware of the transmission routes, and increased their understanding of the link between specific actions to reduce risky behaviour and decreased transmission of faecal-oral diseases (e.g. washing hands after defecation).

After this participatory exercise, participants discussed which groups in their community were most at risk. This approach proved effective even in the training session for the HSFs. One of the HSFs said that he only now clearly saw and understood the importance of using a latrine.
Using drama
Theatre is an innovative way of getting the hygiene message across to men who are not easy to target. HSFs covering three villages worked together to convey their hygiene promotion messages through a play that they wrote in collaboration with the project staff responsible for technical support. They started touring the play from village to village to convince men that hygiene is an essential part of the drama of family life.

In many districts, men go to India for six months at a time for work. Often, when they come home, they do not attend meetings organized by health workers. To reach these men, the health workers go from village to village performing a play that shows the importance of having and using a latrine. The moral of the story is that men will not get a wife if they do not have a toilet. These shows are highly popular and attract many villagers, including men. It is hoped they will encourage men to display sustained hygienic behaviour. Getting men to change their behaviour may require additional interventions, but the play, is an excellent first step.

Integrating New Approaches in Existing Strategy
Hygiene promotion that specifically targets men is a valuable add-on to the existing NEWAH approach to hygiene promotion. NEWAH has integrated hygiene promotion for men in their hygiene promotion strategy guidelines, as well as in the existing project cycle. This adapted inclusive hygiene promotion approach is being mainstreamed in all donor funded NEWAH projects. The approach has been integrated into training for new HSFs; in fact the entire existing project cycle has been revised with learning and sharing of experiences taking place from regional level to head quarter level and vice versa.

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References


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Hygiene promotion, gender roles, participatory methodology

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Study on Perception and Practice of Hygiene and impact on health in India

Kumar Jyoti Nath, Barenyo Chowdhury, Anish Sengupta, [India]

This research paper assesses the level of health awareness and hygienic practices and their health impacts in urban vis-à-vis rural areas in five states of Eastern India - Assam, Bihar, Jharkhand, Orissa, and West Bengal. This study attempts to gauge the existing level of awareness of public health and hygiene issues and how it influences the hygiene practices in the community. The correlation of the same with the disease burden of a few selected water and sanitation related diseases is also examined. The study demonstrates that basic socio-economic factors, such as religion, education and level of economic status, play a pivotal role in conditioning the perception and practice of hygiene. Community perception of health and hygiene issues has a strong influence on hygiene practice. Perception and practice, along with provision of sanitation facilities, have significant impact on reducing burden of communicable diseases, such as cholera, diarrhea, typhoid, hepatitis, etc.

Background and Introduction
The impact of inadequate and unsafe water, lack of sanitation, and poor hygiene behaviour on disease burden is a complex issue. During 2006 and 2007, Sulabh International Academy of Environmental Sanitation carried out a WHO supported study to review and analyze regional, national, state and district level data on water supply and sanitation coverage and co-relate the same with selected infectious diseases. In the final report submitted to WHO, the existence of many confounding factors was observed. These factors include inadequacies in both the water supply and sanitation coverage figures at the state and district level, and in health statistics on the disease burden available from the health department. This often creates difficulty in evaluating the health impact of community water supply and sanitation programmes undertaken by the National Government. The study also noted that neglect of hygiene behaviour issues was one of the primary reasons that health benefits are not commensurate with the investments made in the CWSS sector.

The present study is a follow up of the earlier study in the above context. The findings of the present study provide valuable inputs for planning programmes for control and surveillance of water and sanitation related infectious diseases in the rural and urban areas, and their linkages to community water supply and sanitation programmes in India and similar countries. This study also provides an effective tool for advocacy for integration of water safety, sanitation and hygiene issues in the national CWSS programme.

Objectives of the Study
The main aim of the study is to map the perception and practices of hygiene in the community (particularly among women) and its health impact in urban and rural areas in the states of Assam, Bihar, Jharkhand, Orissa, and West Bengal in India.

The main objectives of the study are:
- map the level of awareness and perception of Public Health and Hygiene issues in the community (women) and impact of the same on Hygiene Practices;
- assess the health impact of hygiene perceptions and practices;
- assess the linkage between availability of sanitation facilities and the status of health.

Methodology
Sanitation Coverage and sample respondents
Using government data, villages were randomly selected from each of the following states from three categories of sanitation coverage - 100%, 50%-90%, and less than 50%. Similarly the urban population was categorized in two groups: those with adequate water supply and sanitation, and those with inadequate water
supply and sanitation in terms of availability of water supply and sanitation facility in the cities. A total of 2000 sample respondents were selected from rural and urban areas, as detailed in Table 1.

Two thousand women (housewives) were randomly interviewed from 10 municipal areas and 30 villages representative of these five states. The sampling ensured geographic and socio-economic representation of the target population.

### Table 1. Sample Coverage

<table>
<thead>
<tr>
<th>States</th>
<th>Assam</th>
<th>Bihar</th>
<th>Jharkhand</th>
<th>Orissa</th>
<th>West Bengal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% sanitation coverage</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>400</td>
</tr>
<tr>
<td>50% to 60% sanitation coverage</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>300</td>
</tr>
<tr>
<td>&lt;30% sanitation coverage</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>300</td>
</tr>
<tr>
<td>Rural Households visited</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>1000</td>
</tr>
<tr>
<td>Urban Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adequate WS &amp; S</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Inadequate</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Urban Households visited</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>1000</td>
</tr>
<tr>
<td>Total (Rural +Urban)</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>2000</td>
</tr>
</tbody>
</table>

### Issues and Enquiry Areas and research tools

A structured questionnaire was pre-tested in the field and subsequently finalized. In addition to recording basic information on demographics/socio-economics, and asset ownership and the availability of water and sanitation facilities within the respondent households, the questionnaire consisted of the issues and enquiry areas outlined in the table below.

### Table 2. Queries on awareness and hygienic practices

<table>
<thead>
<tr>
<th>Hygiene perceptions</th>
<th>Hygiene practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issue 1: Upkeep of Personal Hygiene</strong></td>
<td></td>
</tr>
<tr>
<td>1. Unclean / unsafe water on health(^1)</td>
<td>1. Hand washing - visibly dirty</td>
</tr>
<tr>
<td>2. Unclean/unsafe sanitary conditions on health(^2)</td>
<td>2. Hand washing after using toilet or cleaning children’s stool</td>
</tr>
<tr>
<td>3. Hand washing with soap-water</td>
<td>3. Hand washing after handling pets or cattle</td>
</tr>
<tr>
<td>4. Infection on contact with other person</td>
<td>4. Hand washing after touching body fluids</td>
</tr>
<tr>
<td>5. Washing face with soap and water to prevent eye infections</td>
<td>5. Hand washing before applying medication</td>
</tr>
<tr>
<td>6. Contamination from lavatories</td>
<td>6. Hand washing before eating</td>
</tr>
<tr>
<td>7. Contaminated toys</td>
<td>7. Wash towel, face clothes, bath sponges, nailbrushes after use</td>
</tr>
<tr>
<td><strong>Issue 2: Safe storage and handling of drinking water</strong></td>
<td></td>
</tr>
<tr>
<td>8. Uncovered storage and contamination of water</td>
<td>8. Cover drinking water</td>
</tr>
<tr>
<td>10. Food contamination</td>
<td>10. Touch / dip fingers in water during collection</td>
</tr>
<tr>
<td>11. Infant’s food contamination by unclean water</td>
<td>11. Wash cooking &amp; feeding utensils</td>
</tr>
<tr>
<td>12. Food contamination when bought or stored at home</td>
<td>12. Hand washing after handling raw food material</td>
</tr>
<tr>
<td>13. Contamination from old food to fresh food</td>
<td>13. Hand washing before cooking / eating</td>
</tr>
<tr>
<td>14. Fridge temperature maintained between 1-5 degree C</td>
<td>14. Clean chopping board before &amp; after cutting high-risk raw food</td>
</tr>
<tr>
<td>15. Raw water and ice containing dangerous chemicals</td>
<td>15. Clean utensils after preparation of high-risk raw foods</td>
</tr>
<tr>
<td>16. Infants susceptible to contaminated food or water</td>
<td>16. Wash followed by chemical disinfectant / detergent</td>
</tr>
<tr>
<td>17. Food contamination in raw food</td>
<td>17. Regularly clean dish cloths for preparation of high-</td>
</tr>
</tbody>
</table>

\(^1\) & \(^2\) These refer to the perceptions of the communities regarding the impact of unclean/unsafe water and unclean/unsafe sanitary conditions on the health of the communities.
Disease Burden
The incidence of disease and total number of illness days during last six months was recorded for each member in the respondent’s family. Information was sought on each respondent’s recollection of the following water borne diseases: cholera, typhoid/enteric fever, diarrhoea/vomiting, hepatitis, worm infections, and malaria/dengue.

Scoring
Following a primary analysis, a two-stage scoring was adopted to ascertain the overall response score for Awareness and Practice for each respondent in order to sum up findings for all the 106 enquiries (listed in Table 2). Awareness and Practice Scores were calculated for each of the seven issues listed above, then factored into the overall score. Scores were assigned to the variables for awareness and stated practice using the following issue scores:

**Stage 1 - Issue Score - Awareness and Practice**
Individual Respondent’s **Issue Score** by mean value of query scores mentioned below:

**Health Awareness (Perception) Score:** Not Aware -1/ Uncertain -2/Aware-3

**Personal Hygiene (Practices) Score:** Not Practiced -1/ Irregularly Practiced -2/Regularly Practiced-3

**Stage 1 - Overall Score - Awareness and Practice**
Individual Respondent’s **Overall Score** - mean value of all the seven issues scores.

To gauge the other factors influencing perception and practice of hygiene, analysis was performed with respect to religion, education level, household socio-economic status, and sanitation facilities available to the respondent.
Data on the level of the respondent’s awareness and perception were compared with what they stated about their hygiene practice and the recalled burden of selected diseases. Statistical analysis (correlation coefficient and regression analysis) was done to establish correlation between the scores for these factors.

**Findings of the Study**

**Perception of Hygiene**

This section, illustrates the perception level (health awareness score) on hygiene and its impact on health for seven issues across all five states.

**Table 3. Health awareness score in rural and urban areas – scores ranged from 1 (lowest) to 3 (highest)**

<table>
<thead>
<tr>
<th>Issues</th>
<th>Rural</th>
<th>Urban</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe disposal of human excreta score</td>
<td>2.89</td>
<td>2.93</td>
<td>2.91</td>
</tr>
<tr>
<td>Safe storage and handling of drinking water score</td>
<td>2.81</td>
<td>2.93</td>
<td>2.87</td>
</tr>
<tr>
<td>Safe disposal of liquid wastes score</td>
<td>2.66</td>
<td>2.79</td>
<td>2.73</td>
</tr>
<tr>
<td>Sanitation in the community score</td>
<td>2.62</td>
<td>2.77</td>
<td>2.70</td>
</tr>
<tr>
<td>Safe disposal of solid wastes score</td>
<td>2.66</td>
<td>2.49</td>
<td>2.58</td>
</tr>
<tr>
<td>Home and food sanitation score</td>
<td>2.35</td>
<td>2.45</td>
<td>2.40</td>
</tr>
<tr>
<td>Upkeep of personal hygiene score</td>
<td>2.33</td>
<td>2.42</td>
<td>2.37</td>
</tr>
<tr>
<td>Overall score</td>
<td>2.52</td>
<td>2.61</td>
<td>2.56</td>
</tr>
</tbody>
</table>

**Sanitation coverage and perception level**

Overall, the study shows an increasing trend in health awareness scores with improvement in sanitation coverage. Specifically, there was a low but positive correlation found between the sanitation coverage and level of awareness (the correlation coefficient between sanitation coverage and public health awareness score being 0.37).

**Relation between education and perception level**

Awareness of hygiene tended to increase with the educational level of the respondent. More than 90% of the people with formal education had a high level of awareness or perception of hygiene. However, among the people with no formal education, just over 60% had a good level of hygiene perception.

**Perception level across different economic level**

People at higher economic levels were found to be more aware of hygiene and public health issues. The hygiene perception level was 83% for higher economic groups, 82% for middle economic groups, and 76% lower economic groups.

The higher economic group had the highest awareness of ‘safe storage and handling of drinking water’ (97%) and lowest for ‘safe disposal of solid wastes’ (63%). Amongst the middle economic group, awareness was highest for ‘safe disposal of human excreta’ and lowest for ‘home and food sanitation’. Finally, amongst the lower economic group, awareness was highest on ‘safe disposal of human excreta’ and lowest on ‘safe disposal of solid wastes’.

**Practice of Hygiene**

This section, illustrates the hygiene practice level (personal hygiene practice score), and its impact on health for seven issues across the five states as presented in the table below. With the exception of one item (safe storage and handling of drinking water), the urban respondents scored higher than those living in rural areas.
Table 4. Personal hygiene as stated by respondents in rural and urban areas- scoring ranged from 1 (lowest) to 3 (highest)

<table>
<thead>
<tr>
<th>Issues</th>
<th>Rural</th>
<th>Urban</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>(arranged in descending order of overall score)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe storage and handling of drinking water score</td>
<td>2.58</td>
<td>2.49</td>
<td>2.53</td>
</tr>
<tr>
<td>Safe disposal of liquid wastes score</td>
<td>2.23</td>
<td>2.57</td>
<td>2.40</td>
</tr>
<tr>
<td>Home and food sanitation score</td>
<td>2.18</td>
<td>2.59</td>
<td>2.38</td>
</tr>
<tr>
<td>Upkeep of personal hygiene score</td>
<td>2.23</td>
<td>2.47</td>
<td>2.35</td>
</tr>
<tr>
<td>Sanitation in the community score</td>
<td>2.26</td>
<td>2.42</td>
<td>2.40</td>
</tr>
<tr>
<td>Safe disposal of solid wastes score</td>
<td>1.40</td>
<td>1.94</td>
<td>1.67</td>
</tr>
<tr>
<td>Safe disposal of human excreta score</td>
<td>1.50</td>
<td>1.64</td>
<td>1.57</td>
</tr>
<tr>
<td>Overall score</td>
<td>2.11</td>
<td>2.41</td>
<td>2.26</td>
</tr>
</tbody>
</table>

Sanitation coverage and practice of hygiene

The trend in personal hygiene scores increased with the increase in sanitation coverage. Women who had toilets in their households tended to have a higher level of awareness about sanitation and hygiene. There was a very high positive correlation between the sanitation condition and awareness level (correlation coefficient between sanitation coverage and public health awareness score being 0.99).

Relation between education and hygiene practice

With improvement in education level, respondents exhibit better hygiene practices. The practice level was highest among post graduates and graduates. People without any formal schooling and those who were illiterate exhibited the lowest level of hygienic practices.

Hygiene Practice across different economic level

Similar to awareness or perception, the reported hygienic practices also improved with increases in economic level. Higher levels of hygiene practice were recorded for higher economic groups: 51%, 44% and 39% for higher, middle and lower economic groups respectively.

Amongst all the economic groups, respondents reported good hygiene practices on safe storage and handling of drinking water and personal home and food sanitation. For the other hygiene issues, the reported practice levels were not found to be very encouraging.

Impact of Perception on Practice of Hygiene in the Community

In the figure below, level of awareness/perception and the reported practice of personal hygiene for all five states are plotted.

Figure 1. Perception-Practice Analogy
In Table 5, the level of hygiene perception and practice were divided into two categories—low and high. Taking into consideration the seven issues, the perception level and practice pattern were plotted in the four quadrants based on the minimum, maximum and the mean values of perception and practice. The overall perceptions ranged from a minimum of 65% to a maximum of 93% yielding a mean awareness/perception level of 79%. The range for personal hygienic practice was 29% (minimum) through 83% (maximum), with a mean level of reported practice of 52%.

Table 5. Consistency between Perception and Practice of Hygiene

<table>
<thead>
<tr>
<th>Perception on Hygiene</th>
<th>Practice of Hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (65%-79%)</td>
<td>Safe disposal of solid wastes</td>
</tr>
<tr>
<td></td>
<td>• Upkeep of Personal Hygiene</td>
</tr>
<tr>
<td></td>
<td>• Home and food sanitation</td>
</tr>
<tr>
<td>High (80%-93%)</td>
<td>Safe disposal of liquid wastes</td>
</tr>
<tr>
<td></td>
<td>• Sanitation in the community</td>
</tr>
<tr>
<td></td>
<td>• Safe storage and handling of drinking water</td>
</tr>
<tr>
<td></td>
<td>• Safe disposal of human excreta</td>
</tr>
</tbody>
</table>

Table 5 illustrates the relatively low perception and low reported practice for safe disposal of solid wastes. Relatively high levels of awareness/perception and practice were reported for both safe storage and handling of drinking water and safe disposal of human excreta. For two issues, disposal of liquid wastes and sanitation in the community, the level of awareness was high while practice was low. It is hypothesized that this difference may be related to the fact that the household may not have complete control over these variables. For the remaining two practice issues, personal hygiene and home/food sanitation, awareness was low while practice was high. It is hypothesized that this occurred because some personal and home hygiene behaviours are customary and are being sustained as usual practices for traditional or other reasons that are not necessarily related to hygiene awareness.

Overall, when aggregated, the seven issues showed a strong correlation between hygiene perceptions and hygiene practices as shown in the figure below (Regression Analysis). In general, women who were aware of hygiene issues also reported that they practiced these behaviours.

Impact of Hygiene Perception on Disease Burden in the Community

The following table shows negative correlation between the hygiene awareness score and the incidence of the water borne diseases mentioned below. Although the relationship is not very strong, it does depict a trend. Thus, women who were more aware of hygiene practices tended to report fewer diseases in their households over the six months before the data collection.
Table 6: Correlation between health awareness score and disease burden *

<table>
<thead>
<tr>
<th>Correlation with Public Health Awareness Score</th>
<th>Cholera</th>
<th>Typhoid / Enteric Fever</th>
<th>Diarrhoea / Vomiting</th>
<th>Hepatitis</th>
<th>Worms infection</th>
<th>Malaria / Dengue</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.23)</td>
<td>(0.19)</td>
<td>(0.28)</td>
<td>(0.41)</td>
<td>(0.24)</td>
<td>(0.27)</td>
<td></td>
</tr>
</tbody>
</table>

* Figures within parenthesis indicate negative value.

A regression analysis was made to compare the level of hygiene awareness/perception to the number of days reported for illness in the household. As illustrated by Figure 3, it shows a moderate relation as women with greater awareness tended to have fewer days of illness in their households. This corroborates the findings mentioned above that suggest a correlation between decrease in days of illness due to water borne diseases and increases in awareness level.

**Figure 3.**

**Impact of Practice of Hygiene on Disease Burden in the community**

The table below shows negative correlations between hygiene practices and incidence of various diseases, as households with higher levels of reported hygienic practices tend to experience fewer days of illness. This implies that incidence of diseases decrease with adoption of better hygiene practices, which is conditioned by the perception level of the community.
Table 7. Correlation of incidence of diseases (in last six months) with personal hygienic practice score *

<table>
<thead>
<tr>
<th></th>
<th>Cholera</th>
<th>Typhoid / Enteric Fever</th>
<th>Diarrhoea / Vomiting</th>
<th>Hepatitis</th>
<th>Worms infection</th>
<th>Malaria / Dengue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation with Personal hygiene Practice Score</td>
<td>(0.20)</td>
<td>(0.38)</td>
<td>(0.19)</td>
<td>(0.17)</td>
<td>(0.34)</td>
<td>(0.15)</td>
</tr>
</tbody>
</table>

The trend line in the graph depicted in Figure 4 also shows the decrease in total illness days with better practice of hygiene in the community.

Figure 4

Impact of Sanitation coverage and perception / practice level on health

The table below shows the level of hygiene awareness and reported hygienic practices and incidence of diseases among different sanitation categories.

Table 8: Hygiene awareness score on incidence of disease and sanitation coverage

<table>
<thead>
<tr>
<th>Sanitation coverage</th>
<th>Incidence of disease</th>
<th>Public Health Awareness Score</th>
<th>Hygiene Practice Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cholera</td>
<td>Typhoid / Enteric Fever</td>
<td>Diarrhoea / Vomiting</td>
</tr>
<tr>
<td>100%</td>
<td>4</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>99% to 50%</td>
<td>8</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Less than 50%</td>
<td>10</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>Overall</td>
<td>22</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>Correlation with sanitation coverage*</td>
<td>(0.34)</td>
<td>(0.04)</td>
<td>(0.27)</td>
</tr>
</tbody>
</table>

*Correlations within parentheses () are negative.

The correlation of incidence of water and sanitation related diseases with sanitation coverage show a negative trend. Figures 5 and 6 depict the level of hygiene perception and practice in “Nirmal Grams” (100% sanitation coverage) vis-à-vis in those with lower sanitation coverage. It has been found that hygiene perception and practice levels were higher in “Nirmal Grams”, due to the IEC activities undertaken by Panchayeti Raj Organizations and NGOs.
Thus higher sanitation coverage and better awareness seemed to have a positive impact on the incidence of disease in the study areas. The figures below show the regression analysis for sanitation coverage with respect to disease burden. This depicts a very strong relationship between sanitation coverage under the total sanitation campaign, which integrated hygiene behavior issues, and reduction of disease burden in the community.
Figure 7

Regression Analysis: Sanitation coverage vs Cholera cases

Regression Analysis: Sanitation coverage vs Typhoid / Enteric Fever cases

Regression Analysis: Sanitation coverage vs Diarrhea / Vomiting cases

Regression Analysis: Sanitation coverage vs Hepatitis cases

Regression Analysis: Sanitation coverage vs Worms infection cases

Regression Analysis: Sanitation coverage vs Malaria / Dengue cases

Equations:

- Cholera: $y = 2.9871x - 12.288 + 3.63$  
  $R = 1$

- Typhoid / Enteric Fever: $y = 16.316 - 26.94x + 5.997$  
  $R = 1$

- Diarrhea / Vomiting: $y = 11.496 - 20.15x + 7.71$  
  $R = 1$

- Hepatitis: $y = 10x - 2x + 31$  
  $R = 1$

- Worms Infection: $y = 10.67x - 10.95x + 39.26$  
  $R = 1$

- Malaria / Dengue: $y = -5.8x - 2x + M$  
  $R = 1$
Conclusions
The study findings indicate emphatically that to optimize health benefits from community water supply and sanitation, the hygiene behaviour issues should be integrated with the programmes undertaken by the National Governments for provision of water supply and sanitation hardware in the developing countries. The perception of the community, particularly the women, regarding the public health and hygiene issues is an important influencing factor in conditioning the practice of hygiene in the community. The disease burden related to community water supply and sanitation could be significantly reduced if provision of sanitary toilets in individual houses is accompanied by appropriate health and hygiene education campaigns.

References

Keywords
Hygiene, Sanitation, Perception, Practice, Health Impact

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Since 2006, the Viet Nam Ministry of Health and the Viet Nam Women’s Union, with support from the World Bank’s Water and Sanitation Program, have been carrying out an evidence-based, comprehensive behaviour change communications program to promote hand washing with soap among women aged 15-49 and schoolchildren aged 6-10 throughout Viet Nam. The ultimate objective of the Viet Nam Hand Washing Initiative is to reduce the incidence of diarrhoeal diseases in children under five. The program has reached over 1.8 million people in the first phase, with a target of 30 million to be reached in phase II. The same process was employed in developing communications campaigns for both groups, which included: use of a framework to analyze formative research findings, design of campaign concepts for pretesting and adjustment, production and implementation of communications activities, and development of a monitoring system based on the communications campaign objectives. This process resulted in complimentary campaigns: one for caretakers that taps into mothers’ aspirations to ensure the health and development of their children; and a children’s program that promotes hand washing with soap through games, contests and a cartoon series shown on media channels targeting children. While an end line impact evaluation is planned for the end of 2010, there has already been significant demand from other donor and government programs for integration of hand washing with soap messages into their water and sanitation programs using the materials developed by the Hand Washing Initiative. The paper concludes with practical recommendations on behaviour change programs for program managers and includes examples of the communications materials developed for the Viet Nam Hand washing Initiative.

Introduction

Although Viet Nam has experienced rapid economic growth within the last ten years and is now positioned to achieve the Millennium Development Goals for water supply, progress toward the targets set for sanitation and hygiene is lagging. In 2006, the Ministry of Health estimated that only 18% of households in Viet Nam had access to hygienic latrines (Vietnam Ministry of Health 2006). As in other developing countries, acute respiratory infections and diarrhoeal diseases are the leading causes of mortality and morbidity in children under five in Viet Nam. The country has suffered from reoccurring outbreaks of Severe Acute Respiratory Syndrome, Avian Flu, cholera, and, most recently, H1N1. Hand washing with soap (HWWS) has been proven to reduce the incidence of diarrhoea by up to 47% and acute respiratory infections by up to 34% (Curtis & Carincross, 2003, Luby (2005).

While most water and sanitation projects in Viet Nam include a hygiene component, competing demands, lack of interest, and insufficient experience in developing behaviour change communications campaigns results in use of materials that are merely cut and pasted from previous communications materials rather than on materials developed based on formative research findings. In addition, the majority of communications materials promoting improved hygiene focus mainly on improving knowledge and rely heavily on the threat of disease to motivate changes in behaviour.

Recent epidemics and shortcomings in the way hygiene promotion has been carried out in Viet Nam, highlight both the immediate and long term need for development of behaviour change communications
initiatives that move audiences beyond knowledge towards adopting and maintaining new behaviours. These initiatives should emphasize the benefits of improved hygiene rather than the threat of childhood illnesses. This would allow beneficiaries to reap the full health benefits of investments in water and sanitation infrastructure.

**Project Objective**

The Viet Nam Hand Washing Initiative aims to reduce morbidity and mortality in children under the age of five from diarrhoeal diseases through a strategic communications program to promote HWWS among women aged 15-49 and among primary school children aged 6-10. Viet Nam is one of four countries (the others are Tanzania, Senegal and Peru) involved in a large global Scaling Up HWWS Behaviour Change project by the Water and Sanitation Program (WSP) that aims to test whether innovative behaviour change approaches can generate widespread and sustained changes in hand washing with soap habits in target populations.

To help both adults and children improve hygiene habits, the Viet Nam Hand Washing Initiative developed two complimentary communications campaigns targeting caretakers of children under five (primarily mothers but also grandparents) and primary school children. The campaigns integrate:

- national mass media;
- community-based interpersonal communications activities via Women’s Union members, Youth Union members, teachers and health workers;
- high-impact community marketing events; and
- public relations and advocacy aimed at national policy makers.

**Campaign Development Process for the Caretaker’s Program**

The process of developing both campaigns included the following steps: 1) audience research; 2) development of a behaviour change framework to analyze research findings, guide the formation of the communication campaign, and track changes in behavioural determinants throughout the life of the project; 3) development of the creative approach including messages and tactics; 4) pre-testing and adjustments of the messages based on audience feedback; and 5) production of materials and roll out of the activities.

The Viet Nam Hand Washing Initiative began in January 2006 and the first activity undertaken was a formative research study to understand the barriers and motivations to HWWS and to determine the best channels of communications for caretakers of children under five in rural Viet Nam. The study was completed in early 2007, and a behaviour change framework identifying the barriers to HWWS that could be addressed through a communications campaign was developed in early 2008. The process resulted in the generation of a campaign brand and logo, several media products, and a comprehensive training module and materials for interpersonal communication activities between health workers and Women’s Union members and caretakers.

The campaign was launched by the Ministry of Health, along with a number of other partner institutions, in June 2008 and included the elements that appear below.

**Audience research**

**Research objectives:** investigate hand washing behaviours among mothers of children under five; examine availability of sanitation, water and soap products in and around households; understand motivating factors and barriers to HWWS at critical junctures (after contact with faeces, before contact with food); and document channels of communication.
Methods used included:
• focus group discussions with caretakers;
• in-depth interviews with caretakers;
• structured observations within households to observe actual HWWs rates;
• product trials where caretakers were provided soap for use within a week followed by an in-depth interview.

Summary of research findings:
• 92% of caretakers reported washing hands at critical junctures - but only with water.
• 60% of caretakers who washed their hands did not feel that soap was important or necessary.
• Caretakers were most concerned with ensuring that their children meet developmental milestones so that they are able to keep up with their peers.
• Smell is the most salient product attribute of soap.
• Many caretakers reported that “soap was too expensive”, yet most households had at least one type of soap.
• Television is the best way to reach caretakers, but Women’s Union members and health workers are the most trusted sources of information.

Developing a behaviour change framework
To design a program that effectively changes HWWs behaviour, it is critical to understand why caretakers do not, or cannot, wash their hands with soap. When the formative research study was completed in Viet Nam, there was no pre-existing framework for HWWs. WSP developed a framework titled FOAM to help guide WSP program staff in the four focus countries in the design and monitoring of their hand washing communications programs (Figure 1). The framework provided a way to analyse the determinants, or factors, that can facilitate or hinder HWWs behaviour (e.g. access to soap, beliefs regarding the cause of diarrhoea, knowledge of the link between HWWs and diarrhoea, etc.) FOAM stands for:

Focus: who is the target audience and what is the behaviour we want adopted?
Opportunity: is the target audience able to carry out the behaviour?
Ability: is the target audience capable of carrying out the behaviour?
Motivation: does the target audience want to carry out the behaviour?

Figure 1. FOAM Framework
After analyzing the research findings in Viet Nam using the FOAM framework, several behavioural determinants were selected as targets to be addressed through the communication campaign. Specifically, following the campaign, caretakers of children under the age of five in rural areas of Viet Nam will:

- know that even clean-looking and clean-smelling hands can have germs;
- believe that hand washing with water alone is not enough — soap is needed;
- be reminded to wash their hands with soap at four critical junctures (before preparing food, before feeding children, after using the latrine and after cleaning a baby’s bottom);  
- feel empowered that HWWS is something they can do to ensure the well-being of their children.

**Campaign development**

Based on the HWWS formative research findings, as well as other consumer research studies on mothers in Viet Nam that confirmed the top priority for Vietnamese mothers was caring for their children, a campaign was developed based on the idea of promoting “good motherhood.” HWWS was positioned as an easy way for mothers to help ensure the health and well-being of their children. Using this platform, six campaign concepts were developed and pretested throughout the country. The target audience chose a final concept that is based upon the popular song “Five Clean Fingers”, which is often sung by mothers and teachers when teaching young children how to count. The campaign uses the song to point out that, “Hands are not clean if you wash only with water, soap is needed.” The campaign’s final products included two television commercials, two posters and a logo with the tagline, “Wash your hands with soap for the health and development of children.” In addition, a comprehensive interpersonal communications manual was developed for health workers and Viet Nam Women’s Union members to use in different situations (e.g. leading group meetings with mothers, grandparents and teachers; conducting household visits; and organizing market meetings, club meetings and community contests). A series of high-impact community marketing events was also held to reinforce the positive messages about HWWS through games, quizzes, contests and glo-germ demonstrations to illustrate that clean looking hands can still have germs. The glo-germ demonstration involved participants rubbing their hands with a powder that was detectable only under ultra violet light; their hands still appeared clean because the powder was invisible to the naked eye. When participants put their hands under an ultra violet light, however, they could see that the powder remained on their hands and could be completely washed off when they washed with soap.

**Activities completed thus far**

In total, over 1.8 million people have been reached through interpersonal communications activities alone from May 2008 to May 2009 via health workers and Viet Nam Women’s Union members. The activities included:

- 9,160 health workers, teachers and Viet Nam Women’s Union members trained in HWWS
- 5,400 mothers meetings
- 3,400 grandparents meetings
- 125,000 household visits
- 350 market meetings
- 280 Viet Nam Women’s Union club meetings
- 634 teacher meetings
- 10 community marketing events
- 48 cooking contests.

During Phase II of the program (June 2009 – October 2010), it is expected that an additional 28 million more people will be reached through the Viet Nam Women’s Union activities via interpersonal communications activities combined with mass media and community marketing events.

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1 The objective of the Hand Washing Initiative is to reduce and measure the incidence of diarrhoea in children under five, thus, the program does not focus on the before eating juncture for adults.
Campaign Development Process for the Children’s Program
The development of the children’s campaign began in January 2009 and followed the same process used in developing the caretaker’s program. The process and outputs from each step are highlighted below.

Audience research

Research objectives: Understand the school context within which hand washing promotion will take place, including social dynamics, roles and responsibilities of staff members; a typical school day and access to water, sanitation and soap; and gain insight into the minds and realities of children aged 6-10 to better understand the barriers and motivations to washing hands with soap.

Methods used included:
• in-depth interviews and focus group discussions with headmasters, teachers and caretakers;
• daily diaries to uncover what children do from morning to evening;
• family structure diagrams to understand who children are closest to, spend the most time with, fear most, etc.;
• use of pictures and stories about hand washing to uncover children’s motivations to wash their hands with soap;
• discussion of role models and future careers to understand who children admire and what children want to do when they grow up.

Summary of research findings:
• Children know that they need to wash their hands with soap but do not know when,
• Smell is the most salient product attribute of soap,
• The desire to prevent others, especially younger siblings, from getting sick is a leading emotional motivator for HWWS.
• The Ho Chi Minh’s Pioneers’ Union represents a desirable group to belong to. They meet before class once a week to organize extracurricular activities and are led by one teacher from each school,
• Role models reflect greater societal values: education, hard work and altruism.
• School days are long and highly regimented with limited opportunities for play.
• Access to soap (and sometimes water and sanitation) is very limited at schools.
• Management of soap is also a major challenge in schools with HWWS facilities.
• Teachers have a full load and HWWS is already part of the curriculum.
• Hygiene lessons are often limited to theory as a lack of facilities prevents children from practising HWWS at schools.
• The most likely opportunity to hand wash with soap in schools is after using the latrine as almost all rural school children return home to eat their mid-day meal.
• TV is a child’s window to the wider society.

Developing a behaviour change framework
As with the mother’s program, there was no pre-existing behaviour change framework to guide the development and analysis of formative research on children and HWWS. Figure 2 depicts the FOAM Ecological Model (FOAM EM), which was derived in order to address this need. Determinants that were applicable for both children and adults (blue boxes), such as access to water, knowledge, etc., were taken from FOAM. These determinants overlapped with the Socioecological Model, which recognizes the influence of relationships between an individual and their environment, including within the family, at school and in society at large (pink, yellow and green circles below) – and were combined to form the FOAM EM.
After analyzing the research findings in Viet Nam using the FOAM EM framework, several behavioural determinants were selected as targets to be addressed through the communication campaign. Specifically, following the campaign, children in semi-urban and rural school ages 6-10 will:

- know that even clean-looking and clean-smelling hands can carry germs;
- believe that hand washing with water alone is not enough — soap is needed;
- believe that HWWS is an important behaviour to demonstrate in front of peers and family because it will protect themselves, their family and friends;
- be reminded to wash their hands with soap at two critical times (before eating and after using the latrine);
- be motivated and feel excited about HWWS and want to practice HWWS.

**Campaign development**

The research findings from the HWWS study with children revealed that altruism is highly valued by children, as is the desire to protect their younger siblings from illness. Thus, the campaign for children was developed based on the platform of children as the “pride of the family”. HWWS was positioned as an easy, fun and smart behaviour with the tagline “Wash your hands with soap for your own health and the health of others around you.”

Vietnamese children have little free time in their daily lives, so WSP supported its partners to work with an advertising agency to develop a program based on an entertainment/education approach aimed at generating interest and enthusiasm and promoting the practice of HWWS. The resulting campaign focused on colourful, attractive and positive characters developed around a superhero that acquires special powers by hand washing with soap in order to help his family and others. One concept depicted a fictional cartoon rabbit character and another featured a more realistic depiction of a rural schoolboy named “Bi”, who becomes a superhero. The character of Bi was more acceptable among children, and was further refined and pretested several times before the final production.

Rather than a top-down education approach, the interactive campaign combined mass media and interpersonal communications activities, including a series of ten cartoon animations printed in the weekly national children’s magazine Nhi Dong beginning in September 2009 and aired on a popular nightly children’s television show Good Night Baby in March 2010. In addition, popular children’s games were modified for use in schools along with singing of the “Five Clean Fingers” song used in the caretaker’s program. Simple guidelines and an instructional DVD were created for training teachers in the application of the games as a supplement to existing lessons on HWWS. Each school within the supported program areas
will carry out five extracurricular activities throughout the year, including participation in a national HWWS drawing contest through the Nhi Dong magazine.

**Activities completed to date**
HWWS promotion activities have been carried out in 512 rural and semi-urban schools throughout Viet Nam and these activities will continued through May 2010. Activities that have been completed thus far include:

- training for over 670 teachers
- 512 Global Hand Washing Day school events
- 260 “My Superhero” contests
- 512 school HWWS launch events.

To address the challenge of insufficient access to hand washing facilities at schools, guidance on developing low cost HWWS stations is provided to teachers and headmasters during the training courses listed above. Rather than waiting for large-scale investments to improve their water and sanitation facilities, teachers, headmasters or the parents associations can purchase plastic buckets and plastic water dippers, which are affordable and available for purchase anywhere in Viet Nam, for immediate application of HWWS in schools. Teachers are advised to put soap bars inside porous fabrics such as mesh so that the soap remains inside a container at all times and can be more easily managed.

**Lessons Learned and Recommendations**
Several of the key lessons learned thus far have to do with ensuring high quality in the design and implementation of a behaviour change communications campaign. To capitalize on the private sector’s experience in designing appealing advertising campaigns, under the Viet Nam Hand Washing Initiative, a market research firm was hired to carry out the adult formative research study and an international advertising agency was contracted to design both communications campaigns. Although both firms had significant experience in these respective areas, they still required a significant amount of oversight and management from WSP and its partners. The main lessons learned and recommendations that may be helpful for program managers in developing behaviour change programs are discussed below.

**Consumer research**
- Policy makers and program managers are often under pressure to quickly roll out a communications campaign, especially if they are stretched in terms of time or financial resources, and they may be tempted to skip or shortcut the consumer research stage. Based on our experience in Viet Nam, however, this first step is the most crucial in designing an evidence-based campaign as the research findings are critical to identifying behavioural determinants, which subsequently guide the development of the communications campaign objectives. The campaign objectives will then be used as the basis for a monitoring and evaluation system.

- Because behaviour change communications programs need to extend beyond simply changing consumer brand preferences, research agencies need to develop detailed research tools to uncover the individual, familial and larger societal factors that may constrain HWWS (e.g. knowing the distance, on average, between the latrine and the hand washing area, understanding who within the household (mother or father) can buy soap or who is in charge of or manages soap in households and schools (adults or children), etc.)

**Campaign development and pretesting**
- Advertising agencies do not always base their creative ideas on evidence and research data. Although WSP provided the advertising agency with a brief that included guidelines and full versions of the adults’ and children’s research reports, in many cases the creative ideas developed were inconsistent with the guidelines provided. Although the creative ideas were visually appealing, WSP and its partners often had to refer the firm back to the agency brief and research studies to ensure that the creative ideas reflected the research findings. The agency brief serves as an important tool to guide and measure the creative ideas of the agency. Although a creative concept may be very attractive, if it does not reflect the requirements of the brief it should be sent back to the agency. It is important to stipulate in the agency brief criteria against which the agency will be measured and then hold the firm accountable to those specifications.
During pretesting, it is crucial to pretest at least two different campaign concepts to ensure that audiences are offered a chance to respond to alternative concepts as opposed to commenting on variations of the same concept. Ideally, there should be at least two rounds of pretesting. The first round helps to determine which concept merits further development and the second round is used to fine-tune the concept in terms of phrasing, layout, colour, etc. In actual practice, we had to carry out at least three rounds of pretesting in the development of each of the above campaigns.

Conclusion
WSP’s experience in supporting the Ministry of Health and the Viet Nam Women’s Union to implement the Viet Nam Hand Washing Initiative has demonstrated that there is a need and demand for behaviour change communications using multiple channels to improve hygiene in Viet Nam. The health and education ministries have endorsed all communications products developed by the initiative, and teachers and school administrators have been particularly keen to adopt the informal and participatory games developed for children. In addition to national institutions, WSP has responded to requests for support from provincial health and education departments, as well as from several World Bank investment projects in water and sanitation to integrate HWWS into their existing programs. Most recently, in December 2009, the Viet Nam Women’s Union signed a Memorandum of Understanding with the World Bank agreeing to mainstream HWWS activities into Women’s Union activities within all 63 provinces in Viet Nam without additional financial support from WSP. This shows that our Vietnamese counterparts value HWWS activities and are committed to seeing activities sustained even after the end of the project in 2011.

Looking ahead, we anticipate seeing increases in HWWS rates and hope to quantify the health impact of the behaviour change once the end line impact evaluation has been completed in late 2010.
Final Materials

Program Logo

“Remember to wash your hands with soap for your health and the health of others around you”

Adults Program

Main Poster

“Remember to Wash Your Hands with Soap for Children’s Health and Development”

Four Critical Times to Wash Your Hands with Soap Poster and Flyer

“Remember to Wash Your Hands with Soap for Children’s Health and Development at These Four Important Times - Before Preparing Food and Feeding Children and After Using the Restroom and Cleaning a baby’s Bottom”

Children’s Program

Poster

“Remember to Wash Your Hands with Soap for Your and Other’s Health”

Instructional Video

Stickers

“Remember to Wash Your Hands with Soap for Your and Others’ Health”
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Keywords
Hygiene, hand washing, Viet Nam, behaviour change communications, evidence-based communications

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South Asia (with the exception of Afghanistan) is showing an ongoing ‘general improvement’ in terms of both child mortality and adult mortality. In the period since 1990 the regional under-five mortality rate has decreased by 39% (from 124 to 76 probable deaths by age 5 per 1,000 live births) and the adult mortality rate has decreased by 24% (from 320 to 244 probable deaths between 15 to 60 years per 1,000 population). This is an encouraging sign for the hygiene sector, but much improvement is still needed. This background paper focuses on hygiene promotion, the subject of the South Asia Hygiene Practitioners’ Workshop held in Rajendrapur, Bangladesh in February 2010. This paper gives an overview of hygiene and behaviour change approaches and experiences in the sector and describes the hygiene and behaviour change approaches used in South Asia. Hygiene practitioners in South Asia face an array of challenges in implementing programmes and projects. This paper describes some of these challenges, the appropriate measures and actions that have been taken to meet them, and lessons learnt in the process. Drawing from the 17 papers submitted by practitioners, this paper presents important emerging issues for discussion at the workshop. These include how to increase hygiene’s profile on the political agenda; how to scale up hygiene approaches, projects and programmes; how to verify and demonstrate that hygiene promotion is cost-effective; how to convert high levels of hygiene-knowledge into practice; the importance of menstrual hygiene management; and the benefits of and opportunities for linkage to other sectors. In conclusion, the paper identifies a shortlist of easy to replicate ‘common elements of success’ derived from hygiene promotion programmes.

Introduction

The international community, through the Millennium Development Goals (MDG), is committed to reducing deaths among children under the age of five by two-thirds by 2015\(^1\). Whilst progress has been made, a recent publication by UNICEF/WHO (2009) reports that nine million children under the age of five die each year – nearly three million of them in South Asia (UNICEF ChildInfo, 2009). Compelling evidence exists to suggest that improved hygiene behaviours amongst critical populations are essential to address this situation and achieve the MDG for reduced deaths in children under five.

The conduct of this workshop is therefore timely, as it provides participants a space to share their experiences of effective and less effective practices relating to hygiene behaviour change. Discussions of this field-tested knowledge can help to create an environment in which progress can be made at a faster pace.

The aim of this paper is to raise issues that need to be confronted across the broad range of topics in the hygiene sub-sector in South Asia. Whilst it cannot be fully comprehensive, it is intended to trigger questions that may then form part of a list of issues for participants at the workshop to consider as part of their decision making process when choosing an ultimate course of action.

\(^1\) There being no MDG specifically for hygiene, MDG 4 is commonly acknowledged by hygiene practitioners as being the most relevant to the sub-sector and of providing a robust indicator of progress. The target is to reduce under-five deaths worldwide from 93 in 1,000 children to 31 in 1,000 children by 2015.
A Definition of Hygiene

At the outset it is important to be clear about precisely what we mean by the terms “hygiene” and “sanitation” — a surprising number of definitions exist for these two terms and they can mean different things to different people.

For the purposes of this paper (and for the workshop) the term “hygiene” is used to refer to the behaviours and measures used to break the chain of infection transmission in the home and community, including but not limited to the management of human faeces. The term “sanitation” is used to refer to the management of human excreta². Whereas most people recognise that hygiene includes hand washing, there is some confusion as to what else is involved. In reality, all of the following contribute in some measure to reducing the burden of infectious diseases circulating in the community:

• hand hygiene and personal hygiene,
• menstrual hygiene,
• food hygiene (cooking, storing, preventing cross contamination),
• ensuring safe water at “point of use”,
• respiratory hygiene,
• safe disposal of faeces (both human and animal),
• general hygiene (laundry, surfaces, toilets, baths, sinks), and
• disposal of solid waste, control of wastewater and rainwater.

Amongst the various diseases caused by poor hygiene practice diarrhoeal disease is the most deadly, especially for children (see Prüss-Üstün et al, 2008), and consequently the WASH sector’s primary focus is on reducing its spread. Respiratory tract infections such as colds and flu result either from inhalation of infected mucous droplets or rubbing the nasal mucosa or the eye with mucous-contaminated hands. Data now shows that good respiratory hygiene (safe disposal of nasal mucous and hand washing) can reduce the risks of respiratory infections. A study by Luby et al (2005), for example, showed associations between hand hygiene and Acute Respiratory Infections (ARI) in children under five — when children’s hands were washed at the recommended times significant reductions in ARIs were noted. The association between hand hygiene and ARIs is very topical with worldwide concern over the spread of SARS (severe acute respiratory syndrome) in 2003 and more recent attention to Influenza A H1N1 (commonly known as swine flu).

Although establishing the relative impact (and thus relative importance) of different interventions is difficult, a review of various resources (current literature, electronic websites and networks, anecdotal opinions etc.) and, significantly, the papers submitted for this workshop, suggest that hand and personal hygiene, safe disposal of faeces and ensuring safe water at the point of use (HWTS) are the key hygiene interventions that will break the chain of infection. Some papers also refer to the introduction of other hygiene practices (such as improved food hygiene and solid waste management) once these three essential practices are established.

For many years hygiene practitioners in South Asia have been at the forefront of the struggle to improve hygiene practices and effect sustained behaviour change; this paper focuses on the experiences gained within the region. Before we look at the current situation and current practices in South Asia, however, it is important to reflect on the evidence supporting hygiene and behaviour change and why it is so important.

Hygiene and Behaviour Change

Good hygiene and sanitation practices are closely linked and an increasing body of evidence confirms that hygiene behaviour change is an essential part of achieving the health impacts associated with improved water supply and sanitation. Indeed, investments to improve sanitation and hygiene in developing countries produce substantial health gains and have been shown to yield important economic benefits (Hutton et al, 2007).

² The term “sanitation” (and also “environmental sanitation”) is often used more broadly to include foul- and surface-water drainage, solid waste management, hazardous waste management etc. These aspects of sanitation are important, but less relevant to our discussion than management of human excreta.
Importantly, research is now showing that hygiene promotion can act as the means to create demand for sanitation and thereby increase coverage. Thus, in addition to increasing the health impact of WASH programmes (Water, Sanitation and Hygiene), hygiene promotion also has the potential to increase sanitation coverage. Figure 1 shows that increasing sanitation hardware provision alone is not enough; evidence now shows that focusing on hygiene promotion is the most cost-effective way of reducing diarrhoeal disease amongst children.

Many water supply, hygiene and sanitation improvement programmes implemented in the 1990s introduced a hygiene education component, but it was commonly treated as an after-thought that tended to use didactic methods and concentrate on health benefits alone. This was part of what became known as a ‘top-down’ approach, and the vast majority of the evidence shows that this was largely ineffective. Consequently such approaches are now considered outdated and they have generally been replaced.

Jenkins and Sugden (2006) examined evidence relating to people’s perceptions about the benefits of hygiene (and sanitation) compiled from various case studies and project reports (which were in turn based on household interviews, surveys and group discussions in many different settings). Their research found that respondents almost always ranked increased comfort, increased privacy, increased convenience, increased safety for women (especially at night) and for children, increased dignity, and higher social status well above any sort of health benefit or link to reduced illness.

Growing understanding about the process of behaviour change has led to a new generation of ‘bottom-up’ approaches that focus on first gaining an understanding of the target community and appreciating the very different reasons that motivate people to improve sanitation and hygiene at home. By addressing these real and no-doubt well-established motivations, concerns, and constraints practitioners are able to help a community bring about sustained changes in hygiene behaviour.

Of course these ‘bottom-up’ approaches must be well designed to allow practitioners to facilitate changes that are appropriate and sensitive to cultural differences arising from gender, ethnicity, beliefs and customs, as well as the different attitudes held by those living in urban and rural locations.

Figure 1 uses the unit DALY (Disability Adjusted Life Year). This is the quantitative indicator of burden of disease that reflects the total amount of healthy life lost, whether from premature mortality or some degree of disability during a period of time.

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3 Figure 1 uses the unit DALY (Disability Adjusted Life Year). This is the quantitative indicator of burden of disease that reflects the total amount of healthy life lost, whether from premature mortality or some degree of disability during a period of time.
The rest of this paper looks at hygiene and behaviour change approaches worldwide and how practitioners have used and developed them for use in South Asia. It reflects on the challenges that have emerged specifically in South Asia, the difficulties of scaling up hygiene, and other important emerging issues, which should be prioritized for discussion at the workshop. Firstly it starts with a short introduction to South Asia and an overview of hygiene in the region.

### Overview of South Asia

#### Political, Geographical and Socio-economic Characteristics of South Asia

South Asia consists of Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan and Sri Lanka. These countries are home to well over one fifth of the world’s population, making South Asia both the most populous and most densely populated geographical region in the world. The region has 40% of the poorest people in the world and its relatively young population is one of the least literate and the most malnourished in the world (Sardeg, 2009). Conflicts, terrorist attacks, and political instability are common, including wars between the region’s two nuclear-armed states, Pakistan and India.

The climate of this vast region varies considerably from tropical monsoon in the south to temperate in the north. Southern parts are mostly hot in summer and receive rain during the monsoon periods, while the northern plains are hot in summer and cooler in winter. The climate in the mountainous north also varies with low temperatures and snowfall in the winters in the foothills, and extreme cold and heavy snowfall on the higher altitudes of the Himalayan ranges. In common with other ‘developing’ regions much of the rural area of South Asia is remote with under-developed and poorly maintained transport infrastructure. As highlighted in the box that appears below, this makes rural development work challenging across all sectors, most notably in the WASH sector.

#### Box 1. Logistical challenge of hygiene promotion in Bhutan

A hygiene and sanitation survey carried out by a SNV (Netherlands Development Organisation) WASH team in four pilot sub-districts illustrates the difficulties in accessing regions of Bhutan. The districts were chosen to reflect the diversity of village and household settings across Bhutan – Nanong Geog in Pemagatshel district, Jarey in Lhuentse, Hilley in Sarpang and Laya in Gasa. Reaching the districts was not easy. Reaching Pemagatshel from Thimphu involved two-and-a-half-day road journey traversing five mountain ranges, with the highest pass exceeding 4,000 meters. Travel from Pemagatshel to Nanong entailed a one-and-a-half-hour drive on a forestry road followed by a three-hour walk to Nanong Basic Health Unit (BHU). To reach the second BHU in Nanong Geog required another five-hour walk. The distance to Jarey was similar. A trip to Laya involved a two-day trek. Collett (2009) notes that “just the logistics of reaching the locations is a major achievement let alone doing the survey work!”

Meanwhile, as urban-migration increases, huge mega-cities and rapidly expanding rural growth centres and “small towns” are becoming home to ever-increasing populations. Water and sanitation facilities in the resulting sprawling slums are desperately inadequate and provide little or no opportunity for residents to practice satisfactory hygiene behaviours.

### Overview of Hygiene in South Asia

Ascertaining the current status of hygiene behaviour in South Asia is not straightforward. The Joint Monitoring Programme (JMP)

\[^4\]

provides information on improved water and sanitation coverage, which enables practitioners to gain an insight into the current situation with respect to these sub-sectors in a particular country or region. The reports describe progress made against time and highlight both achievements and shortfalls. No such data is available for hygiene.

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National records of hand washing facilities, knowledge and/or practice, details of personal hygiene practices and home hygiene behaviours would be very useful for governments, programme planners, and practitioners alike. Obtaining this data, however, presents obvious difficulties. This type of information can only be gained through time-consuming behaviour studies that involve user interviews and observation surveys. Self-reporting of behaviours is subject to personal bias, which tends towards over-reporting of good behaviours, which leads to an overly optimistic report of current practices — a finding confirmed and described by Danquah in a paper for this workshop. The results of general estimates from sample populations can be scaled up, but this reduces the level of confidence in the data. Without this data it is difficult to report the general trend in hygiene practices in any country in the world.

However, in order to draw some comparisons and make observations to aid understanding of the situation, Table 1 presents a snap-shot of relevant and significant health data from South Asian countries, other developing regions, and the world as a whole.

### Table 1. A snap-shot of significant health statistics in South Asia

<table>
<thead>
<tr>
<th>Countries</th>
<th>Under-five mortality rank¹</th>
<th>Under-five mortality rate¹ (probable deaths by age 5 per 1,000 live births)</th>
<th>Adult mortality rate² (probable deaths between 15 to 60 years per 1,000 popn.)</th>
<th>% of annual deaths due to diarrhoea, all ages³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1990</td>
<td>2008</td>
<td>1990</td>
<td>2006</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>1</td>
<td>260</td>
<td>257</td>
<td>476</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>58</td>
<td>149</td>
<td>54</td>
<td>319</td>
</tr>
<tr>
<td>Bhutan</td>
<td>44</td>
<td>148</td>
<td>81</td>
<td>333</td>
</tr>
<tr>
<td>India</td>
<td>49</td>
<td>116</td>
<td>69</td>
<td>278</td>
</tr>
<tr>
<td>Maldives</td>
<td>89</td>
<td>111</td>
<td>28</td>
<td>313</td>
</tr>
<tr>
<td>Nepal</td>
<td>60</td>
<td>142</td>
<td>51</td>
<td>350</td>
</tr>
<tr>
<td>Pakistan</td>
<td>42</td>
<td>130</td>
<td>89</td>
<td>250</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>120</td>
<td>29</td>
<td>15</td>
<td>241</td>
</tr>
<tr>
<td>South Asia</td>
<td>NA</td>
<td>124</td>
<td>76</td>
<td>320 ⁴</td>
</tr>
<tr>
<td>Developing countries</td>
<td>NA</td>
<td>99</td>
<td>72</td>
<td>247 ⁵</td>
</tr>
<tr>
<td>The world</td>
<td>NA</td>
<td>90</td>
<td>65</td>
<td>211</td>
</tr>
</tbody>
</table>

Sources
4. Calculated from data in table.

The indicators in Table 1 show that the region lags behind developing countries as a whole in terms of both the under-five mortality rate and the adult mortality rate — the situation is very concerning.

Afghanistan’s mortality rates are among the highest in the world. The 2015 MDG target for under five mortality is 31 per 1,000 – or one in 32, but Table 1 shows that one out of four children in Afghanistan dies before her or his fifth birthday. This puts Afghanistan in the unenviable position of having the highest under-five mortality rate of any country in the world. Box 2 below describes some of the factors that contribute to this situation.
Box 2. Poor hygiene opportunities in Kabul, Afghanistan

According to a joint UNICEF/WHO (2009) report, more than 80,000 children under five died as a result of diarrhoea in Afghanistan in 2007. The high prevalence of diarrhoea resulting from poor hygiene practices and from lack of access to sanitation facilities and clean water heavily impacts children’s survival and development. The Ministry of Education reports that the situation is not much better for older children — soap is not available in toilets in most Kabul schools. According to municipal authorities, the situation is just as bad in the city itself, as there are only 35 public toilets for Kabul’s estimated population of 4.5 million. These toilets are reportedly very dirty and poorly maintained, and only five have facilities for the disabled, which is well below the number needed given the large number of disabled people resulting from three decades of turmoil. None of the public toilets provide soap or hand-drying facilities (Sanitation Updates, 2009).

Sources: UNICEF/WHO, 2009 and Sanitation Updates, 2009

In contrast to Afghanistan, the situation in the Maldives and Sri Lanka is much improved. UNICEF reports that since 1990 under-five mortality in the Maldives has been reduced from 111 (deaths per 1,000 children) to just 28, while in Sri Lanka it has been halved from 29 to 15. The adult mortality rates in both countries and the percentage of deaths due to diarrhoea (as reported by WHO) are also the lowest in the region.

Table 1 also shows that the mortality rates in the other six countries are high (between 206 and 254), and that all six countries are ranked within the bottom sixty nations in the world in terms of child mortality. However, the data does indicate that there has been an improvement since 1990. Bangladesh has reduced the under-five mortality rate from 149 to just 54, and India has reduced it from 116 to 69; similarly the adult mortality rate has also decreased in each country.

This data indicates that (with the exception of Afghanistan) there is an ongoing ‘general improvement’ in the region in terms of both child mortality and adult mortality. This is an encouraging sign. In the period since 1990 the regional under-five mortality rate has decreased by 39% (from 124 to 76) and the adult mortality rate has decreased by 24% (from 320 to 244). The causes of this improvement are complex: in addition to an increase in hygiene awareness, knowledge and practice; changes in socio-economic conditions, political influences, education opportunities and access to health care, clean water and sanitation facilities have had an impact. These are commonly referred to as confounding variables that could change or confound the link between a specific intervention, such as hygiene, and health outcomes. Although estimating the degree of influence of each of these variables is admittedly beyond the scope of this paper, the following section looks at some of the hygiene initiatives and approaches that have been used in the region and that have contributed to this improvement.

Behaviour Change Background and Concepts

Before reviewing the approaches in use in South Asia, it is useful to quickly look at the concepts upon which many of these interventions are founded and summarize their typical components.

Theory of Behaviour Change

The MOA framework simplifies many theories of behaviour change by categorizing them into three broad areas: motivation (M), opportunities or enabling factors (O), and abilities or skills (A). This framework recognises that individuals making a change must have the motivation to change and the requisite abilities, skills and resources at their disposal to take advantage of the opportunity (the materials, tools and information) they have to change their behaviour. In theory programme designers use formative research and pilot testing to allow for tailoring of the approach’s component parts to meet the needs of the local context, and to ensure that the approach is designed in accordance with and is appropriate for, the MOA framework of the research group.

Sources: UNICEF/WHO, 2009 and Sanitation Updates, 2009
Ideally, the output of the framework analysis and formative research will provide the structure of the strategy and the core components. Using this participatory process will highlight the issue that needs addressing, clarify the target group and provide information indicating the best way of carrying out the effort. The components of a typical behaviour change approach include: communications campaigns, participatory learning activities, social mobilization, hygiene education and the use of incentives. Further alternatives exist within these components, e.g., communication campaigns can be executed through mass media (TV, radio etc), house-to-house visits or community meetings; and social mobilization can target individuals, households, a community, children, or perhaps a combination of these.

**Typology of Approaches**

In general, hygiene approaches can be split into two categories — those that are participatory and take a “community based total-hygiene approach” and those that promote or “market” a single intervention. The hygiene education component or message that needs to be conveyed can thus include promotion or marketing of a single message (e.g. hand washing) or promotion of the full range of hygiene topics (e.g. safe water, food hygiene, safe disposal of faeces, hand washing etc.). The latter is known as a total hygiene approach and is frequently called a holistic approach to hygiene. Approaches that address more than one, but not all these hygiene issues are known as multi-hygiene behaviour change approaches.

**Community based total-hygiene approaches**

This type of approach encourages the participation of individuals in a group process no matter what their age, sex, social class or educational background. Participatory methods are suitable for planning at the community level and are designed to build self-esteem and a sense of responsibility for one’s decisions. In general, these approaches are useful for encouraging the involvement of women, children, the elderly and people with disabilities who in some cultures may be reluctant or unable to express their views or unable to read and/or write. Two well-established and well-known examples of this type of approach are Participatory Hygiene and Sanitation Transformation (PHAST) and Community Health Clubs (CHC). Both approaches were developed in the 1990s and have been used in many countries. Since 1994 PHAST has been an official Ministry of Health programme in Zimbabwe and has been incorporated into hygiene and sanitation programmes in Uganda, Kenya and Benin (Peal et al, 2010).

**Marketing of a single intervention**

This sub-group encompasses stand-alone interventions that focus on changing a very small number of specific hygiene behaviours. These interventions have the benefit of presenting a single, easily understood message. While these individual interventions may well lead to an eventual overall change in the hygiene behaviour of the individual or community, this is not their primary goal. This approach often uses a process known as (mass) social mobilization which was first introduced in Bangladesh in the late 1980s by the government and UNICEF to mobilize national attention on the very low and poor levels of sanitation across the country and motivate action by all levels of society to improve those levels (IRC, undated).

This single intervention approach is also often referred to as *social marketing*, which is defined by Weinrich (1999) as “the use of commercial marketing techniques to promote the adoption of behaviour that will improve the health or well-being of the target audience or of society as a whole”. The two major hygiene related social marketing interventions in use are hand washing (with soap) and household water treatment and safe storage.

Social marketing of hand washing was first used in Africa in three projects in the mid-1990s and also in the Central American Handwashing for Diarrheal Disease Prevention Program. These projects achieved significant success. Building on the knowledge gained from them, the Public Private Partnership for

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6 For more information on PHAST see Sawyer et al, 1998, and for more information on CHCs refer to Waterkeyn and Cairncross, 2005.

7 Household water treatment and safe storage should also be considered as a social marketing intervention but it is such a broad subject that it is beyond the scope of this workshop. For further information go to the WHO website on Household Water and Safe Storage, available at: [http://www.who.int/household_water/en/](http://www.who.int/household_water/en/). Accessed December, 2009.

8 For more information see Sidibe and Curtis, 2002 and Jenkins et al, 2009.

9 This was implemented by BASICS and is described in Saade et al, 2001.
Handwashing (PPPHW) approach was developed in 2001. The target of the approach is those most at risk (mothers, children and the poor) across the whole population. A global partnership has since been established to coordinate hand washing initiatives worldwide.

Single intervention type messages have also been promoted using a community-wide approach. This has been the case in the sanitation sub-sector where the relatively new Community–Led Total Sanitation (CLTS) approach has been the focus of many interventions in Asia and has proved an effective way to stop open-defecation. This approach, however, has been little used in the hygiene sub-sector.

Hygiene and Behaviour Change Approaches in South Asia

Whether it is better to focus on one message or take a holistic approach is a key question in the hygiene sub-sector. A mapping of the hygiene papers presented for the workshop indicates that both strategies are being deployed in South Asia. Four of the papers focus on a single approach – three on hand washing and one on menstrual hygiene, while the other thirteen describe projects that favour a multiple message or holistic approach. Table 2 identifies the country of origin and focus of each paper.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Paper title</th>
<th>Country focus</th>
<th>Focus – singular intervention or multiple</th>
<th>Rural/ urban</th>
<th>Size of project</th>
<th>Pilot/ expanding/ at scale</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmed &amp; Begum</td>
<td>Handwashing practice in ASEH Project Area: A study for impact monitoring</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>Both</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Capistrano</td>
<td>A Study on Personal and Home Hygiene in Flood Prone Communities</td>
<td>Philippines</td>
<td>Multiple</td>
<td>Rural</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Collett</td>
<td>Thirty-five years of searching for answers to Rural Sanitation and Hygiene in Bhutan</td>
<td>Bhutan</td>
<td>Multiple</td>
<td>Rural</td>
<td>Not known</td>
<td>Expanding</td>
<td>Not known</td>
</tr>
<tr>
<td>Danquah</td>
<td>Measuring hand washing behaviour: methodological and validity issues</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>Rural</td>
<td>18 million people</td>
<td>At scale</td>
<td>Not known</td>
</tr>
<tr>
<td>Das et al</td>
<td>Participatory Community Hygiene Education in Dhaka Slums: DSK experience</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>Urban</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Devine</td>
<td>Beyond Tippy-Taps: The Role of Enabling Products Role in Scaling Up and Sustaining Handwashing</td>
<td>Vietnam</td>
<td>Singular – handwashing</td>
<td>Rural</td>
<td>1.8 million people</td>
<td>At scale</td>
<td>Not known</td>
</tr>
<tr>
<td>Fernandes</td>
<td>Experiences from villages in the states of Madhya Pradesh and Chhattisgarh</td>
<td>India</td>
<td>Singular – menstrual hygiene</td>
<td>Rural</td>
<td>Not known</td>
<td>Not known</td>
<td>US$ 2,700 per SNPU1</td>
</tr>
<tr>
<td>Gautam et al</td>
<td>Stages of hygiene monitoring: An operational experience from Nepal</td>
<td>Nepal</td>
<td>Multiple</td>
<td>Both</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Kabir et al</td>
<td>Contributions of Village WASH Committee in breaking the cycle of unhygienic behaviours</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>Rural</td>
<td>37 million people</td>
<td>At scale</td>
<td>Not known</td>
</tr>
<tr>
<td>Kabir et al</td>
<td>The Role of Imams and different Institution in Hygiene Promotion of BRAC WASH Programme.</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>Rural</td>
<td>37 million people</td>
<td>At scale</td>
<td>Not known</td>
</tr>
</tbody>
</table>

Table 2. Summary of papers received for hygiene workshop
<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Location</th>
<th>Scale</th>
<th>Setting</th>
<th>Duration</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khisro &amp; Rahman</td>
<td>Assessing and Addressing Hygiene Issues of Internally Displaced Persons of Swat, Buner &amp; Dir</td>
<td>Pakistan</td>
<td>Multiple</td>
<td>Rural</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Krukkert et al</td>
<td>Hygiene promotion for men - Challenges and experiences from Nepal</td>
<td>Nepal</td>
<td>Multiple -</td>
<td>Rural</td>
<td>Not known</td>
<td>Ongoing 3-year project</td>
</tr>
<tr>
<td>Nath et al</td>
<td>Study on Perception and Practice of Hygiene and impact on health in India</td>
<td>India</td>
<td>Multiple –</td>
<td>Rural</td>
<td>Not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Nguyen</td>
<td>Designing Evidence-based Communications Programmes to Promote Handwashing with Soap in Vietnam</td>
<td>Vietnam</td>
<td>Singular -</td>
<td>Rural</td>
<td>1.8 million people</td>
<td>At scale</td>
</tr>
<tr>
<td>Qutub et al</td>
<td>Who is Responsible for Soap in Pakistani School Toilets?</td>
<td>Pakistan</td>
<td>Multiple</td>
<td>Urban  schools</td>
<td>38 schools</td>
<td>Pilot</td>
</tr>
<tr>
<td>Riaz &amp; Khan</td>
<td>Beyond traditional KAP surveys</td>
<td>Pakistan</td>
<td>Multiple</td>
<td>Rural</td>
<td>Not known</td>
<td>Expanding</td>
</tr>
<tr>
<td>Shabnam</td>
<td>The Practice of Handwashing</td>
<td>Bangladesh</td>
<td>Singular -</td>
<td>Rural</td>
<td>1.5 million people</td>
<td>At scale</td>
</tr>
</tbody>
</table>

Note: 1 Cost described as US$ 2,700 per Sanitary Napkin Production Unit

Table 2 reveals that the approaches are predominantly small-scale and rural, although some also address urban populations. Only one paper, by Das et al, specifically focuses on urban slums.

A review of hygiene and sanitation approaches currently being undertaken for the WSSCC (Peal et al, 2010) reveals further information about approaches in South Asia. The review suggests that participatory techniques are popular and well-used. Ahmed (2008 in IRC 2008) comments that PHAST-type techniques have been integrated into various hygiene promotion approaches in South Asia, particularly in Bangladesh by CARE (using the SAFER approach), WaterAid (using the IPE approach) and UNICEF (SHEWA-B) — these are all participatory approaches that address more than one hygiene-behaviour.

Many other NGOs were inspired by the work of Lyra Srinivasan and the PROWESS group in the early 1980s and 1990s (Srinivasan 1990 and PROWESS/RWSG 1995) and subsequently developed their own participatory programmes based on training courses and experience gained from working alongside PROWESS. Notable projects in this workshop that describe or discuss participatory approaches and that have a multiple message approach include the BRAC WASH Project (both papers by Kabir et al), WaterAid Bangladesh's Advancing Sustainable Environmental Health Project (Ahmed and Begum); UNICEF’s SHEWA-B (Danquah), DSK WASH (Das et al), WaterAid Nepal’s WASH Improvement Programme (Gautam), the Child-to-Child approach used in Pakistan (Riaz and Khan), the Assistance to Vulnerable Groups and Communities Most Affected by the Internal Conflict project, Nepal (Krukkert et al), and the Integrated Rural Support Programme for IDPs in Pakistan (Khisro and Rahman).

A review of recent published literature reveals that projects focusing on hand washing projects alone are also common in South Asia; recent papers by Luby et al (2009) and by Curtis et al (2009) indicate the progress being made (and some difficulties faced) by hand washing initiatives in Pakistan and India respectively. Curtis et al found that hand washing with soap (HWWS) in India (and ten other developing countries) is rare and described how formative research has identified the need for strategies that create social norms and highlight the disgust of dirty hands whilst teaching children that HWWS is good manners. The initiative is new and is now addressing how to implement the strategies effectively. In Pakistan, Luby et al report, “households that received free soap and hand washing promotion for 9 months reported 53% less diarrhoea than controls”. However, although intervention households showed better hand washing technique after two years than the ‘without intervention households’, their soap purchases and diarrhoea experience was not significantly different from that of control households.
The issue of availability of soap and other hygiene related products is also an important subject, and approaches have been developed in South Asia to not only change behaviours but also to create demand for hygiene products. In her paper for this workshop Fernandes describes how, in addition to improving women’s health in the region, a singular focus on improving menstrual hygiene care for women in Madhya Pradesh, India has empowered a self help group who make and sell sanitary pads.

Many see promoting soap use (or a low-cost replacement) with hand washing as the key hygiene intervention. Aiello et al (2008) estimated that hand washing with soap (combined with education) could produce a 39% reduction in gastro-intestinal illness. Other studies have looked at the efficacy of low-cost soap replacements like ash and mud. Bloomfield and Nath (2009) found (with rather limited data) evidence to suggest, “soil and ash are effective in reducing contamination on hands and are more effective than using water alone, but may be less effective than handwashing with soap”.

Improving access to and use of soap is the focus of the Global PPPHW, which aims to implement large scale hand washing interventions and create partnerships between commercial organisations, governments, and NGOs. It is active in Nepal and India, and is probably the largest global movement in the sub-sector. A significant annual event organised by the Global Partnership is Global Handwashing Day held on 15th October each year. In 2008, the first-ever Global Handwashing Day saw more than 120 million children around the world washing their hands with soap in more than 70 countries across five continents.

Another well-known approach is the use of SaniMarts. These are shops located in a market or bazaar where all materials for building, maintaining and using a latrine can be purchased at affordable prices; the approach was first tested in India in the late 1980s and early 1990s. Whilst the focus is on improving sanitation, other hygiene related goods like sanitary napkins, shampoos and soap are also available. The approach was successfully piloted in West Bengal and has since been used in Bangladesh and Nepal. However, Peal et al (2010) found an absence of published literature to indicate how successful the approach has been, and no government or donor is currently promoting it.

**Challenges in the Hygiene Sub-sector in South Asia**

**Political Will**

Political will refers to the degree to which political leaders and decision makers are willing to challenge the status quo. Where it exists, politicians, government officials, and representatives of influential organizations give support to good policies and good policy-making processes. This support can be given in a number of ways, including: providing resources to develop and implement hygiene-related policies, making public statements, passing legislation, establishing dedicated institutions, and allocating sufficient public money for the task. Political will for hygiene is indicated by expressions of concern for hygiene needs, advocacy for policy change, government resources for implementation, and an interest in reaching the underserved.

More often than not, however, this support is lacking. Representatives of the various South Asian governments may have ratified the Delhi Declaration of SACOSAN III in 2008, but they have taken few steps to follow-up on this commitment.

**Political Instability**

The South Asian region has more than its fair share of political problems. An unstable political climate makes it very difficult for practitioners to implement development programmes. At one end of the scale, lengthy election procedures can slow down decision making and frequent changes in government may lead to changes in policy, which can also hinder or halt disbursement of funds for development. At the other end of the scale, organizations operating in the context of civil disturbance and/or frequent terrorist attacks may have to consider the health and safety of their staff and stop work in a particular region altogether. Such issues are a major concern in Afghanistan, north-west Pakistan, Nepal, parts of Sri Lanka (until recently),

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10 Paragraph 4i. of the Delhi Declaration agreed at SACOSAN III states that: “The special attention needs of women (e.g. menstrual hygiene management) will be integrated in planning, implementation, monitoring and measurement of program outcomes. The key role of women in managing sanitation and hygiene in community settings will be enhanced.” (SACOSAN, 2008).
and in north-east India where travel restrictions and temporary but often lengthy closures of schools, government offices and businesses make the smooth running of development projects extremely challenging.

The paper for this workshop by Khisro and Rahman on the hygiene issues of internally displaced persons (IDPs) living in Swat, Pakistan highlights another consequence of political instability – the huge number of refugees living in camps in the region who have a very limited opportunity or ability to practice hygienic behaviours. Khisro and Rahman suggest that there are currently in excess of two million IDPs in the Swat valley region alone.

**Institutional Arrangements**

Hygiene is often mandated by an inappropriate institution and included in development projects run by departments with little or no experience with hygiene issues. It generally falls into one of two government departments – a public health engineering department where it is cast as the poor relation of water and even sanitation improvements and so receives little dedicated attention; or in a health department where it again falls low on the priority list behind high-profile curative health initiatives and more ‘immediate’ primary health care concerns.

Good hygiene (and sanitation) programmes can have a positive impact on institutional arrangements and can help to improve the institutions themselves. In their paper for this workshop, Krukkert et al describe how changes made to a hygiene promotion programme in Nepal overcame some barriers and enabled the field staff to carry out their work more effectively.

Dedicated hygiene departments are rare, but the initiative taken by the Bangladeshi government in setting up the Sanitation Secretariat shows an encouraging commitment to hygiene improvement. Hygiene is included as an important part of the government’s agreed sanitation strategy’s eleven principles to meet the goal of 100% sanitation by 2010 (Government of Bangladesh, 2006). Tabulated progress reports on regional progress in hygiene will soon be available on-line for the entire country.

**Financial Transparency**

Cairncross and Valdmanis commented, in 2006, that there was “lamentably little reliable evidence on the cost or the effectiveness of interventions to change hygiene behaviour”. Four years later the situation is much the same, and the reality is that most stakeholders do not know how much their interventions actually cost and will cost in the future. Indeed, recent research into hygiene (and sanitation) promotion approaches used worldwide over the last forty years found extensive literature on each approach but very little published data on the costs of implementing them (Peal et al, 2010). Furthermore, none of the papers submitted for the workshop discuss how much their interventions actually cost (see Table 2). Even the costs of implementing very well known approaches, such as PHAST (Participatory Hygiene and Sanitation Transformation), are difficult to ascertain. Obtaining data on how much is allocated specifically for hygiene (or hygiene promotion) by local, regional or even national governments is equally challenging.

This is partly because project evaluations rarely include a thorough evaluation of costs, and staff rarely spend time disaggregating costs. As a result, it is impossible to tell how much money has been spent on each component. The “add-on” nature of hygiene promotion to a WASH programme means that it frequently lacks a dedicated budget line. The hygiene promotion costs often get wrapped up and included with sanitation promotion and even engineering and hardware costs, which by their very nature are easier to quantify.

The question of who pays for hygiene improvement programmes and how much they cost is bound up with the question of institutional responsibility. Both are major challenges for the sub-sector in South Asia.
Cultural Differences and Context
In a paper for this workshop, Capistrano identifies that flood-prone communities in the Philippines\textsuperscript{11} have adopted personal and home hygiene practices related to the difficult environmental circumstances in which they live; their practices are often borne out of necessity. This example emphasizes the importance of building upon local practices to ensure that hygiene programmes are context-specific.

To be successful hygiene programmes need to be designed to allow practitioners to facilitate changes that are appropriate and sensitive to cultural differences arising from gender, ethnicity, beliefs and customs, as well as the different attitudes held by those living in urban and rural locations and wider environmental factors. This is challenging for practitioners in South Asia, as the region is characterized by many nationalities and ethnicities with distinct cultural identities, a large number of religions and very strong traditions established over thousands of years.

Natural Disasters
The tsunami that struck Sri Lanka and the Maldives in 2004; the earthquakes in Pakistan in 2008 and 2005 and in India in 2001; and the flooding in India, Nepal, Bhutan and Bangladesh in 2007 are examples of recent catastrophic events that stretched the resources of governments, aid-agencies and NGOs alike. These natural disasters halted not only hygiene programmes but development work across all sectors as displaced people focused on shelter and survival issues, in a way that is not dissimilar to the effects of war and conflict described above.

There is now general consensus that climate change will lead to an increase in the likelihood of floods occurring. Low-lying coastal areas of Bangladesh are considered to be particularly vulnerable (World Bank, 2008). Whilst a full discussion of climate change is beyond the scope of this paper or workshop, and given that there is little that any stakeholders in the sector can do to prevent such occurrences, it is important to emphasize that once a disaster has occurred the challenge falls upon hygiene practitioners to aid the recovery process and instigate hygiene programmes which limit the impact on health. As a starting point, practitioners can learn from experience with supporting IDPs in other emergency situations as described by Khisro and Rahman in their paper for this workshop and by the Government of the Maldives following the 2004 tsunami, see Box 3 below.

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**Box 3. Maldives recovery after the 2004 tsunami**

When the tsunami struck the Maldives on the morning of December 26, 2004 it directly affected one-third of the island nation’s population of 300,000. All but nine of the 200 inhabited islands were partially or completely flooded, claiming 82 lives, leaving 12,000 people homeless, damaging the already weak sanitation systems and introducing salt water into the groundwater.

The Government of the Maldives in partnership with United Nations agencies and the International Federation of the Red Cross immediately responded and, amongst other initiatives, provided safe water for tsunami-affected people through 200 large community water tanks. While on the atolls of Kaafu, Dhaalu, Gaafu Alifu and Gaafu Dhaalu a sanitation and hygiene programme was implemented to:

- reach more than 5,000 people with messages on hygiene promotion;
- train volunteers to identify hygiene problems and environmental health issues in their communities and organize community-driven projects to address the problems;
- improve the sanitation facilities for more than 850 households (one of many hardware components); and
- build local capacity to sustain these sanitation improvements by training local residents to operate and maintain the new systems and forming local hygiene and sanitation committees.

Source: American Red Cross, 2009

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\textsuperscript{11} Whilst the Philippines is not in the South Asia region, the content of this paper submitted for the workshop is very relevant to the subjects under discussion.
Promising Approaches for Scaling Up

There are relatively few at-scale hygiene promotion initiatives in South Asia (or even worldwide), and the papers presented for the workshop highlight this problem. Most of the initiatives described have been implemented effectively and have led to significant improvements of the lives of the targeted population, but the targets are relatively small when compared to the region as a whole and the scale of the problem. Table 2 shows that only four at-scale approaches, projects or programmes are described. The sector faces the challenge of determining how to rollout these smaller initiatives to a wider audience. Some important initiatives in South Asia identified below are part of the debate on how to fill this gap, but they also highlight another challenge — the bias in the region towards sanitation promotion in rural areas.

The Public Private Partnership for Handwashing with Soap has already been fully described and its strengths identified earlier in the paper. It is working at scale in over 20 countries with the support of the host government in each country. However, there are concerns about its effectiveness and, “the approach has not proved to be as resilient as anticipated, and most of the countries have evolved in different directions” (Paynter, 2009).

A relatively new approach, the Global Scaling Up Handwashing Project is described by Nguyen and by Devine in their separate papers for this workshop. Since 2006 the Viet Nam Ministry of Health and the Viet Nam Women’s Union, with support from the World Bank’s Water and Sanitation Program, have been carrying out an evidence-based, comprehensive behaviour change communications programme to promote hand washing with soap among women aged 15-49 and schoolchildren aged 6-10 throughout Viet Nam. The project aims to test whether innovative approaches can generate large-scale and sustained increases in hand washing with soap at critical times. The programme has reached over 1.8 million people in the first phase, with a target of 30 million to be reached in phase 2. Whilst the focus countries of the Scaling Up Project (Peru, Senegal, Tanzania, and Vietnam) are all outside the South Asia region, the results will be worth noting for all regions. There are no outcomes or impacts to report to date, but Nguyen notes that an end line impact evaluation is planned for the end of 2010.

The Indian government’s Total Sanitation Campaign (TSC) has been implemented at scale throughout rural India. The focus has been on increasing sanitation coverage, but in theory it also aims to “promote hygiene education and sanitary habits among students” (Government of India, 2007). However, the country report for SACOSAN III by the Government of India (Government of India, 2009) concluded, “an area for improvement in the next five years … includes more focus on hygiene promotion”. The report adds that, “the Government of India regrets that too much emphasis on financial incentives and a weak verification system has distorted the process and undermined the behaviour change process; in this environment it is difficult to anticipate that sustained hygiene behaviour change in TSC villages will persist”.

The Community-Led Total Sanitation (CLTS) approach and its concepts of community shame/disgust/pride have proved to be a powerful influence in triggering widespread behaviour change to eliminate open defecation in rural Bangladesh. Since it is a relatively new approach, however, there is still little evidence to confirm that it results in sustained usage over the long term; similarly the impacts on health remain largely unknown (Peal et al, 2010). Significantly, hand washing with soap (or other hygiene interventions) has been neglected in favour of a singular focus on the safe disposal of faeces and it remains to be seen whether the approach could be or will be adapted to influence hand washing behaviours. It is also largely untested in urban areas in South Asia.

Issues for Discussion

How to scale up hygiene approaches, projects and programmes is clearly an area where the sector needs to concentrate its efforts. This and other emerging issues are discussed below. Though clearly not exhaustive, the list is presented here as a starting point to generate debate about the issues and what can be done to solve them:

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12 Table 2 shows six papers. but Devine and Nguyen refer and both of the Kabir et al papers refer to the same project.
**Time for a Focus on Hygiene**

As Bangladesh and parts of India have eliminated open-defecation what opportunities exist for a focus on hygiene? The at-scale TSC in India and CLTS initiatives in Bangladesh have been successful, but pay little attention to hygiene behaviours. Could hygiene now be addressed in a similar manner and then be scaled up and used in other countries?

**Cost Effectiveness**

Only one of the papers (Fernandes, 2009) submitted for the workshop discusses how much the intervention actually cost. This problem is not limited to South Asia — there is little available data on the costs of implementing hygiene promotion in any region worldwide. The IRC initiative WASHCost (2008) is addressing just this issue, but it is important to bring it higher up the agenda because hygiene promotion appears very cost-effective (and this is often cited as one of its strengths), but there is a lack of published evidence to support the claim.

**Linkage to Education**

Children learn some of their most important hygiene skills at school, and school is where many children are introduced to hygiene practices that may not be promoted or possible in the home. It is generally agreed that children can be effective messengers and agents for change in their families and the wider community (Adams et al, 2009). When linked with appropriate sanitation infrastructure, hygiene promotion can be used to prevent premature dropout of girls from the education system (see Shordt et al, 2008 and Shabnam, for this workshop). Therefore, engagement with schools is often seen as an essential programme linkage.

Securing this linkage can be challenging, however. Within the state education system in each country, for example, the Ministry of Education is in charge of schools, but the provision of school water supply and sanitation facilities may well be the responsibility of a different ministry. Ensuring the construction of appropriate facilities that will increase rather than restrict the promotion of improved hygiene behaviours has proved difficult, and although the logical arguments are compelling, there is limited evidence of effectiveness. Qutub et al highlight this issue in their paper for this workshop. Their study found that in a survey of school children and teachers in 50 schools in Pakistan hygiene knowledge is common but respondents are unable to practice good hygiene behaviours in school because the school facilities are not well managed. In order to be successful a school hygiene program requires a high level of advocacy as well as coordination and collaboration between the various ministries, teachers, children, school administrators and other stakeholders — this is a complex challenge.

**Linkage to Water Supply**

Should hygiene promotion programmes be implemented as stand-alone initiatives or integrated with water supply and/or sanitation programmes? The increasing trend is for them to be independent which is beneficial, as they require different skills, time frames and activities. Nevertheless, ensuring that a water supply is in place first has clear benefits from a behavioural point of view, particularly as water is typically a higher priority than hygiene (or sanitation) amongst households. For instance, in Benin, west Africa, the rural hygiene and sanitation programme prioritizes villages that have improved water supplies (Jenkins et al, 2009), and in India, Nath et al (2009) conclude in their workshop paper that “to optimize health benefits from community water supply and sanitation, the hygiene behaviour issues should be integrated with the programmes undertaken by the national governments for provision of water supply and sanitation hardware.”

**Linkage to Government**

The primary responsibility for initiating improved hygiene behaviours lies with individuals, but if community-wide sustained change is the goal then governments are best placed to influence the behaviour of individuals. Involvement of NGOs at the local or grass roots level is, of course, essential as they are the experts in carrying out activities that are sensitive to the local context, but their programmes need linkage to and support from government if the result is going to be more than just pockets of isolated improvements.

Close coordination and collaboration with government ministries will ensure that ownership of a programme or project can be handed over upon completion. Where a project has been implemented through an NGO, it
is vital that close-coupled linkage has been made with all stakeholders so that the changes in behaviour can be sustained in the long term. To enable this to occur, volunteer health-workers will need support from government health workers and others.

**Linkage to Religious Institutions**

Reporting on the BRAC Project in Bangladesh, in a paper for this workshop, Kabir et al (2) found that, “the involvement of religious institutions to promote hygiene messages for the respective community appears to be effective as they are influential in that community”. Kabir et al add that “in particular the involvement of imams for hygiene promotion has been very positive” and that, “women in the community claim that this has helped to convince their husband to invest in latrines”.

Identifying suitable channels to communicate messages is an important part of all hygiene promotion programmes and should not be neglected. Riaz and Khan, in their paper for this workshop, highlight this point and conclude that, “standarized hygiene promotion campaigns are less effective as these are often developed in isolation from consideration of local pre-disposing and enabling factors”.

**Menstrual Hygiene Management**

Fernandes, in her paper for this workshop, describes the impact that good positive menstrual hygiene management can have to beneficiaries. Even though menstrual hygiene and the needs and concerns of women are included in the Delhi Declaration of SACOSAN III, they are all too often neglected or attached as an add-on to approaches. Increasing their profile and raising awareness and knowledge of the subject would enable more positive and robust action to be taken.

**Converting Knowledge into Practice**

Plenty of evidence within the sector shows that hygiene promotion programmes have been successful at raising target communities’ level of knowledge about the importance of good hygiene behaviours. However, there is growing concern that this knowledge is not being put into practice. Three papers for the workshop highlight this issue very clearly. In Bangladesh, Danquah found in a study of 1,000 households that reported knowledge was high in comparison with observed practices (90% of female care-givers identified before eating and after defecation as important times for hand washing but only 38% were observed using soap two-thirds or more of the time) and concludes that self-reporting of hand-washing measures is subject to over-reporting. Collett reports that a survey of households in rural Bhutan found that over 90% of the respondents, “could give one or more answers about critical moments to wash their hands, but only 21.5% of households were observed to have a hand-washing place in or nearby the toilet”. Ahmed and Begum found similarly high levels of knowledge in a survey of hand washing practices on Bangladesh WaterAid’s ASEH project and conclude in their paper that the challenge for the sector is how to convert this high level knowledge into the same levels of practice that people maintain over the long term. This is indeed the challenge, not only in South Asia but also in Africa and worldwide.

**Common Elements for Success**

Participation and ensuring that programmes are context-specific and tailored to the needs of the targeted group have already been identified as pre-requisites for success, but beyond these are there other common elements that can be shared? Can we build up a shortlist (or long-list) of bottom line requirements that can be replicated and that will save ‘reinventing the wheel’ each time? Some of these elements could for instance include the subjects discussed below:

**Champions**

Experience from successful at scale projects indicates that it is extremely important to have a ‘champion of hygiene’; Bibby and Knapp, 2007 and Ahmed, 2009 emphasize the importance played by effective, strong leaders in Ethiopia and Bangladesh respectively. Where there is no champion, how do you identify and/or create one, or is there perhaps an alternative to having a champion?

**Single versus multiple behaviours**

Jenkins et al (2009) suggests that although limited, there is evidence to suggest that targeting a single behaviour change (such as hand washing - PPPHWS) may be more beneficial (and easier to accomplish)
than a multi-behaviour change approach like PHAST or Community Health Clubs used in Africa. There is evidence that multi-behaviour change approaches are being successfully deployed in South Asia and worldwide, but there is concern that some approaches address too many issues. This dilutes the effectiveness of the intervention and can lead to failure — low uptake of important hygiene behaviours or to change being only temporary. To avoid over-dilution, what is the maximum number of hygiene messages or interventions that multi-hygiene behaviour change approaches should address?

Training of outreach staff and volunteers
Highly dedicated and trained outreach staff and an extensive network of trained community volunteers are often cited as common elements of successful projects. For example, in a paper for this workshop, Kabir et al describe the work of the Programme Assistants and the Village Water Committees established and trained on the BRAC WASH project as, “key drivers in ensuring a positive outcome” of the project in Bangladesh. Hygiene promotion relies on eliciting the participation of all groups — men, women, children, the elderly, able and disabled. Appropriate training ofpaid outreach workers and volunteers is vital to ensure that the participation of these groups. Krukkert et al in their paper for this workshop describe how hygiene promotion in Nepal was tailored to focus on men. Specific training was given to field staff to enable them to ‘reach’ men, and an 11-step strategy was developed to improve the fieldwork. Identifying such needs is a crucial element of success. Close supervision of the trained community volunteers by project field staff will enable the volunteers to deal with the plethora of context specific problems that occur in hygiene promotion programmes and facilitate a change in behaviours that have a greater chance of being sustained in the long term.

However, a scaled-up programme requires fieldworker training on a large-scale too. To do this we need to know what the best strategies are for rolling out training at sufficient scale without compromising on quality.

Monitoring
The paper for this workshop by Ahmed and Begum on the Advancing Sustainable Environmental Health project of WaterAid Bangladesh illustrates how useful monitoring can be (at base line, mid-term and end line) to assess levels of knowledge and practice. Monitoring of the different stages of a hygiene promotion programme is imperative in order to understand its effectiveness. Confounding variables and the tendency for interviewees to over-report changes in their behaviour both contribute to making hygiene promotion monitoring more challenging than in the other sub-sectors, and effective monitoring requires careful design from rapid assessment right through to long-term sustainability monitoring. Indeed, the paper by Gautam et al for this workshop advocates monitoring as the only evidence-based means to show the attributable contribution from WASH for reducing associated diseases and improving health status. They report on a successful monitoring system employed by WaterAid Nepal and conclude that systematic monitoring at all stages is imperative and that, “indicators applied from baseline to impact assessment should be consistent and coherent”. Their work adds to the evidence that a robust and fully supported monitoring programme with appropriate linkage to government, which takes into account the local context within which it is developed, will contribute greatly to ensuring that hygiene behaviours are sustained in the long term.

Such work is invaluable, but are there agreed ‘norms’ for a monitoring system that could be applied universally both to programmes at scale and to stand-alone initiatives? If not, could a consensus be reached to establish a system that would focus more strongly on outcomes and impact so as to provide better evidence of effectiveness? This would of course come at a cost, and it is important to be clear about both the cost of good monitoring and how donors and governments can be persuaded to pay for it.

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SOUTH ASIA HYGIENE PRACTITIONERS' WORKSHOP

Who is Responsible for Soap in Pakistani School Toilets?

Ayub Qutub, Fauzia Butt, Erum Bashir, Sobia Shabbir (Pakistan)

Hand washing with soap could potentially avert approximately a million diarrhoea deaths a year (Curtis and Cairncross, 2003). Some 10-15% of Pakistani children suffer from an episode of diarrhoea every month (PSLM, 2004-07). Several hygiene promotion projects are targeting schoolchildren in Pakistan. Soap companies have also launched hygiene campaigns. Yet knowledge gaps exist as to specific factors that initiate and sustain habit change among Pakistani schoolchildren, especially in schools in low-income urban wards. Meta-analysis suggests that focused hand-washing promotion may be more effective than hygiene education measures (Fewtrell and Colford, 2004). Another view suggests a tailored approach that targets hygiene promotion to primary schoolchildren, and hygiene education to secondary schoolchildren. However, questions about the scalability and sustainability of both approaches remain.

Pakistan Institute for Environment- Development Action Research (PIEDAR) has conducted a study comparing the observed and student- and teacher-reported hygiene practices in government and privately run schools of Rawalpindi and Islamabad that cater to children from low- and middle-income families to assess:

- sources of hygiene information of the children,
- reported hygiene practices of children, teachers, and parents,
- how the reported practices compare with observed behaviours.

A suite of tools, including sample surveys, semi-structured interviews with students and teachers focused group discussions with parents, and direct observation, have been used to assess actual hygiene behaviour and perceptions about it.

The study shows that hygiene knowledge is common among the students as a result of general communications and media campaigns along with change messages from family, friends or community, yet hand washing with soap is not consistently practiced. School administrations often fail to provide the simple basic necessities for convenient hand washing and latrine maintenance. School hygiene programmes need to address the key deficiencies through teacher training, strengthening school management and reform of Education Departments.

Introduction

Diarrhoea, intestinal worms, typhoid, cholera and trachoma are some of the common infectious diseases related to poor water, sanitation and hygiene (WASH). They cause serious illnesses and death. About 4 billion cases of diarrhoea cause 1.8 million deaths per year; over 90% of these (1.6 million) occur among children under the age of five. Repeated episodes of diarrhoea make children more vulnerable to other diseases and malnutrition. Improved access to safe drinking water and sanitation facilities play an important role in safeguarding the health of people, yet targeted and consistent hygiene practices yield the greatest health benefits.

Since children are more receptive to new ideas than adults, they can be influenced to cultivate the habits of good personal hygiene and environmental sanitation within schools during their formative years. Schools can help raise the profile of hygiene and sanitation and trigger improvements in the environmental health conditions of communities. Children can be effective change agents for healthy behavioural practices such as washing hands, using the latrine and cleaning up afterward. Moreover, children who adopt good hygiene practices at a young age are likely to grow-up to be conscientious parents and pass on their knowledge, skills and practices to their children and society. These elements comprise the paradigm that drives most school hygiene programmes.

In Pakistan several hygiene promotion projects have targeted schoolchildren. Soap companies have also launched hygiene campaigns. Yet knowledge gaps exist such as: which factors are more likely to determine change among
Pakistani schoolchildren, especially in low-income urban wards and to which extent changes in behaviour are sustained over time? Do children retain the newly acquired behaviour or do they return to the old habits when they are no longer in contact with or supported by programme staff?

PIEDAR has been running a WASH programme in 38 low-income schools of the twin cities Islamabad and Rawalpindi for the last five years. It comprises hygiene promotion/education, reinforcing health and hygiene messages, and encouraging a child-friendly learning environment at the school.

The aim of the project is to improve key hygiene practices such as:
- Defecating in a properly constructed and maintained latrine,
- Safe disposal of faeces,
- Hand washing with soap at critical times; after defecation, or performing other cleaning, before preparing or touching food and before eating,
- Keeping water safe at all times (while fetching from source, transporting, storing and drawing it for drinking).

To help put into practice lessons taught in relation with cleanliness and hygiene; hardware facilities such as washbasins, water filtration plants, and water storage tanks have been provided to some of the schools and toilets have been constructed where they were missing.

School children get actively involved in practicing improved sanitation and hygiene practices in their school, and are encouraged to promote improved hygiene practices among their peers, their households and communities. Environmental Clubs in the member schools are active advocates for cleaner homes, schools, and communities.

Pakistan has a huge and young population distributed across the following cohorts: more than 22 million children of secondary school age, 24 million of primary school age, and 22 million who will become of school age during the next five years, with yet another cohort of equal magnitude likely to be born by 2015. Changing the cultural practices of these cohorts will not be a small endeavour. It will require soundly conceived plans, and coordinated and persistent outreach.

PIEDAR undertook this comparative study of the observed and reported hygiene practices of intervention and comparison groups to identify any knowledge, attitude and practice (KAP) differences. The study should enable education and health planners to make improvements in the design of school hygiene programmes and their implementation.

**Methodology**

The study is a comparison of reported and observed hygiene practices of post-intervention groups in Islamabad and Rawalpindi with those of un-targeted groups in similar schools nearby to assess:

- sources of hygiene information of the two groups of children;
- reported hygiene practices of children and teachers;
- how reported practices compare with observed behaviours;
- whether significant KAP differences exist between intervention and control groups.
- whether there are significant differences in school absenteeism rates between groups/sub-groups.

**Study Design**

The two-stage research design called for (i) an in-depth triangulation of observed and reported cross-sectional data on hand washing and latrine use, and (ii) a validation of the key findings across a larger sample of schools. We obtained the consent of the school principals for the participation of students and teachers. A pilot test was conducted to assess the suitability of the questionnaire with regard to duration, language appropriateness, and question comprehensibility. During the first phase, we sought information on students’ knowledge, intentions, attitudes and perceptions of facilities available in the school environment (e.g., availability of clean water, soap, and toilet facilities). The second sample survey was conducted with the school as the unit of evaluation. We surveyed 25 intervention and 25 non-intervention schools, specifically to observe the status of the school latrines, and interviewed 50 teachers. We asked a set of close-ended questions to verify the teachers’ knowledge about the availability of soap in schools, and its placement for use by schoolchildren.
The research design had to cater for one significant variation known in advance other than programme intervention status. All the government schools are housed in proper buildings and equipped with facilities, including piped water supply and latrines to enable acceptable standards of hygiene within the school environment, including the separate and specific needs of girls and boys. The private schools are located in rented buildings, mostly upgraded from houses, and sited in small compounds. They also have piped water supply and latrines.

**Population Sampling**

In the first round, the sample size was 200 students randomly selected from the school attendance lists of ten randomly selected schools, i.e. five intervention schools and five comparison schools. The students were aged between five to fifteen years and studied in Classes III to IX. The sampled schools comprised four private and six government schools, all located in low-income wards of Rawalpindi and Islamabad. Twenty teachers were selected using a random number generator for semi-structured interviews from the ten schools. Focus group discussions were carried out with four groups of parents from two intervention and two non-intervention schools.

In the second round, we physically observed 50 randomly selected latrines for their condition and for availability of hand washing facilities and soap. Simultaneously, a second researcher conducted a focused interview with a designated teacher (i.e. the manager of the Environment Club in an intervention school and a potential manager in a non-intervention school) about the availability of soap in the school latrines.

**Data Collection**

Out of the sample of 200 drawn by random selection from school registers, twenty-five students could not be traced. One hundred and six girls and sixty-nine boys (a total of 175 students) were actually interviewed. There was one non-response among the twenty teachers selected for interview in the first round. The aims of the study were explained to all respondents. A standardized semi-structured questionnaire was administered to record perceptions about availability of hand-washing facilities at school, and self or student hand washing behaviours and practices. Approximately 62% of the students were between the ages of five to 10 years, while 38% were between 11 and 15 years of age. The number of participants at the focus group discussions varied from 11 to 17 mothers.

We successfully visited all 60 toilet facilities at each earmarked school and recorded the availability of water, basins and soap, and the condition of the latrines there. We managed to conduct interviews with all 50 designated teachers in the second round.

**Results**

**Hand washing practices and latrine conditions**

In the first phase, we observed that all ten schools had access to piped water supply, and that six had washbasins, but soap was available at only three schools (Table 1). The responses of the students corresponded well with this reality as 30% of them mentioned the availability of soap in or outside the school toilet (Table 2). However, the responses of the teachers were way off the mark, as 68% reported the availability of soap in the school toilets (Table 3).

The response of schoolchildren to the multiple choice question of why they washed their hands with soap (Table 4) showed that more than 97% of schoolchildren were aware that hands should be washed for cleanliness or to get rid of germs or both. Less than 3% conflated these reasons with the aim of getting a more ‘fair’ skin tone.

A number of students volunteered additional information. Some said people could only be acceptable or respected in society if they kept themselves clean. Others said having hands that could leave things dirty when touched discomfited them. Yet others informed us that presence of germs on hands was the main source of diseases, and that the germs must be removed to maintain good health.

For most students, the critical times for hand washing with soap are before and after eating (for removing sticky food residues), before preparing food, and after defecating. Many also believed in washing hands after sweeping, cleaning, playing, or touching anything dirty. Some respondents also mentioned ritual hand washing as a part of religious devotions, which they observed strictly. The responses of the teachers showed that they were also aware of the critical times when children should wash their hands.
The actual availability of soap in or outside school toilets did not match with the widespread knowledge about the reasons for using soap to wash hands. Only a third of the students confirmed the regular provision of soap by the school management, while 60% said that the school management never provided any soap (Table 5). A small number of students claimed to bring soap from home, which they took out from their school bags upon probing. A group at one school said they used the soap kept by the class teacher in her cupboard, but it was not found there when investigated. While 46% of students said they never forgot to wash their hands with soap, 75% admitted that they washed their hands only with water during the school hours.

Around half the teachers insisted that soap was available for students, while half admitted to its non-availability. More than three-fourths claimed that their school’s latrines were clean and functional. The sharp discrepancy between observation and response prompted PIEDAR to conduct a second survey, specific to the availability of soap and the condition of latrines in 50 more schools.

The consolidated results of the two rounds of surveys are provided in Tables 6 to 23. A brief summary of the results for 60 latrines inspected at the 26 Government and 34 private schools in our two samples reveals only 10% of the latrines are clean while 88% have stains and 82% are smelly; some 30% are positively filthy and 15% are actually choked. Indeed, the 70% of students who reported that toilets were clean and functional in the first round survey were either among the better placed or overly kind to their school (Table 24). Soap is actually available to students in only 15% of the cases, inside the latrine or at a washbasin just outside the toilet. This result is worse than the 30% soap availability observed in our first round survey of ten schools.

Health consequences may be expected from such neglect. Indeed, absenteeism owing to illness in the previous two weeks was reported by 26% of the sampled students. They reported fever followed by diarrhoea as the two most common problems (Table 25). Most teachers also reported illnesses among the children, but they observed coughs and colds more (Table 26).

Where do the schoolchildren get their hygiene, specifically hand washing, information? Figure 1 shows that the most cited sources were parents (35%) followed by the school (34%). 18% of the respondents from PIEDAR partner schools mentioned the WASH programme as a source of information. PIEDAR (37%) was a more important source for the teachers of our programme intervention schools (Figure 2).
Most students get hand washing with soap information while in primary school (75%), while 17% of them recalled learning the practice at all levels. Around 27% recalled daily teaching on hygiene while 23% reported weekly hygiene instruction. Most respondents said that the morning assembly or free time was used for hygiene lessons, while approximately 14% also recalled being taught hygiene as part of their syllabus. Some also recalled being reminded to wash their hands when they got dirty with ink or before going to the lunch break. Nearly 83% reported extending the message to their younger siblings, peers and family.

More than half of the students reported a preference for germicidal soap while perfumed soap was the choice of nearly 19%. Another 29% followed the choice of their family in the selection of soap.

Responsibility for Soap at School
Among the teachers who reported the regular or periodic availability of soap for schoolchildren, most thought that school management was responsible for it, while a minority placed the burden on teachers and/or students. The misuse of soap and an insufficient budget were the two main reasons given by those who admitted to its absence.

Focus Group Discussions
A total of four focus group discussions were conducted with mothers of the children attending the selected schools (two WASH intervention schools and two comparison schools). The purpose was to appreciate the role of parents, especially mothers, in the hygiene training of their children. Each group discussion lasted 30 to 45 minutes and was voluntarily attended by 11 to 17 mothers. The majority of the mothers were housewives. After a brief introduction, the purpose and scope of the discussion was explained. The discussion was structured around the key themes using probing questions prepared in advance. All participants were given an opportunity to participate.

In both groups, a majority confirmed the availability of tap water and some form of water storage at home. Most have washbasins, where soap is kept at all times, installed inside or outside the toilet. Some said they just had an outdoor tap in the front yard, and they wash their hands there. A majority said they washed hands with soap whenever they touched anything dirty. Some mothers admitted they washed hands with water only when they felt they did not really need to be washed with soap. The key times for washing hands with soap, the participants said, were after toilet use and before having meals. The mothers said they taught their children to wash hands with soap after playing, using toilet, before and after eating or when their hands get dirty. They said that their older children followed this practice habitually but they had to keep an eye on the young ones and remind them time and again to help them establish this habit. Some mothers admitted their children sometimes didn’t wash hands owing to laziness. The majority said that their parents taught them the basic hygiene practices in their childhood, which they were transferring to their children. They said that their children also learnt from their teachers in school, and from watching TV and getting inspired by the attractive advertisements and cartoon films. They said that the Safeguard campaigns in the school were also a source of
information for their children. The mothers from intervention schools mentioned the WASH programme of PIEDAR as having an influence on their children.

All mothers from both groups said that they had a toilet in their house. Their children used the toilet for urinating and defecating. Most said that the older children used the latrine properly and flushed or poured water before leaving the toilet. They had to help the younger children with anal cleansing or remind them to flush before coming out of the toilet. Some mothers complained about the condition of toilets in schools citing lack of cleanliness or misuse that prevented others from using the toilet.

There was no vast KAP difference between the mothers belonging to the two groups. The groups were grab samples. Their statements cannot be treated as necessarily representative of the views of mothers from the low-income wards of Rawalpindi and Islamabad. Any inferences drawn from the focus group discussions should be treated as contingent to wider validation. Nonetheless, the views of mothers must be taken into account in the development and improvement of the WASH in Schools programme.

Analysis
An in-depth study of ten schools and a more focused study of another 50 schools were conducted to evaluate hygiene knowledge, attitudes and practices in schools catering to low- and middle-income groups in Rawalpindi and Islamabad, Pakistan. The data collected showed that accurate hygiene information is common among schoolchildren in WASH intervention and non-intervention schools, but hygiene habits are not regularly practiced in either set of schools. Notably, school administrations had neglected routine latrine management and maintenance, as well as the provision of soap at washbasins inside and outside latrines. This meant that schoolchildren were impeded from practicing the good hygiene habits taught at home, in school, by the media, and through the WASH in Schools programme.

It also implies that hygiene promotion programmes have worked with the progressive and compliant segments among the WASH in School stakeholders. There is much more work to be done with those segments that are in positions of power and authority, and some of them may be resistant to change.

Conclusions & Recommendations
WASH in School programmes should focus on teacher training in school hygiene discipline and on strengthening school administrations to support toilet management and supervision. WASH should also play an advocacy role with the provincial Education Departments to require the establishment of codes for sanitation and hygiene in government and private schools, and to ensure compliance.

Acknowledgment
We gratefully acknowledge the kind cooperation of the following: Attia Ayub Qutub for enabling the field research, the students and teachers who participated in the study, and the administrations of the schools for granting permission to conduct the research. We also thank Syed Ali Amir Salman from ROZAN, for help with the questionnaire and our database. Fahmida Shahnaz, Hafza Qutub, Asim Faiz, Noreen Akhtar, Nelofer Ali Khan and driver Muhammad Shareef at PIEDAR provided technical and logistical assistance.
### Table 1. Category * Type of hand washing facility available at school, Cross tabulation of Direct Observation

<table>
<thead>
<tr>
<th>Categories</th>
<th>Water, washbasins, soap</th>
<th>Water and washbasins</th>
<th>Water</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Intervention</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Intervention</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

### Table 2. Category * Type of hand washing facilities available at your school: Cross tabulation of students’ responses

<table>
<thead>
<tr>
<th>Categories</th>
<th>Water, washbasins, soap</th>
<th>Water and washbasins</th>
<th>Water and soap</th>
<th>Water</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non intervention</td>
<td>9</td>
<td>34</td>
<td>9</td>
<td>35</td>
<td>87</td>
</tr>
<tr>
<td>Intervention</td>
<td>32</td>
<td>41</td>
<td>3</td>
<td>12</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>75</td>
<td>12</td>
<td>75</td>
<td>175</td>
</tr>
</tbody>
</table>

### Table 3. Category * Type of hand washing facilities available at your school: Cross tabulation of teachers’ responses

<table>
<thead>
<tr>
<th>Categories</th>
<th>Water, washbasins, soap</th>
<th>Water and washbasins</th>
<th>Water and soap</th>
<th>Water</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non intervention</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Intervention</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>19</td>
</tr>
</tbody>
</table>

### Table 4. Why do you wash hands with soap?

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleanliness</td>
<td>43</td>
<td>24.6</td>
<td>24.6</td>
</tr>
<tr>
<td>to get rid of germs</td>
<td>60</td>
<td>34.3</td>
<td>58.9</td>
</tr>
<tr>
<td>for fairness</td>
<td>1</td>
<td>0.6</td>
<td>59.4</td>
</tr>
<tr>
<td>Cleanliness, get rid of germs, fairness</td>
<td>4</td>
<td>2.3</td>
<td>61.7</td>
</tr>
<tr>
<td>Cleanliness, get rid of germs</td>
<td>67</td>
<td>38.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5. Does the school management provide soap at school toilet? Students responses

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>59</td>
<td>33.7</td>
<td>33.7</td>
</tr>
<tr>
<td>No</td>
<td>105</td>
<td>60.0</td>
<td>93.7</td>
</tr>
<tr>
<td>Sometimes</td>
<td>11</td>
<td>6.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>175</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 6. Type of School

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Government</td>
<td>26</td>
<td>43.3</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>34</td>
<td>56.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 7. WASH programme category

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Intervention</td>
<td>30</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td>Comparison</td>
<td>30</td>
<td>50.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 8. City location

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Islamabad</td>
<td>25</td>
<td>41.7</td>
</tr>
<tr>
<td></td>
<td>Rawalpindi</td>
<td>35</td>
<td>58.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 9. Total number of latrines

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>1-2</td>
<td>22</td>
<td>36.7</td>
</tr>
<tr>
<td></td>
<td>3-4</td>
<td>27</td>
<td>45.0</td>
</tr>
<tr>
<td></td>
<td>5-6</td>
<td>4</td>
<td>6.7</td>
</tr>
<tr>
<td></td>
<td>7-8</td>
<td>7</td>
<td>11.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 10. Type of toilets

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Latrine with flush system</td>
<td>33</td>
<td>55.0</td>
</tr>
<tr>
<td></td>
<td>Pour flash latrine</td>
<td>26</td>
<td>43.3</td>
</tr>
<tr>
<td></td>
<td>Pour flash latrine &amp; urinals with flush</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>
### Table 11. Operating condition of flush

<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional</td>
<td>24</td>
<td>40.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Not functional</td>
<td>10</td>
<td>16.7</td>
<td>56.7</td>
</tr>
<tr>
<td>Skip for PFLs</td>
<td>26</td>
<td>43.3</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 12. Latrine floor condition

<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>50</td>
<td>83.3</td>
<td>83.3</td>
</tr>
<tr>
<td>Dry</td>
<td>10</td>
<td>16.7</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 13. Overall cleanliness status

<table>
<thead>
<tr>
<th>Status</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean</td>
<td>6</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Filthy</td>
<td>18</td>
<td>30.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Dirty</td>
<td>36</td>
<td>60.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 14. Reasons for filthy and dirty status

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrappers</td>
<td>1</td>
<td>1.7</td>
<td>1.7</td>
</tr>
<tr>
<td>Stains</td>
<td>53</td>
<td>88.3</td>
<td>90.0</td>
</tr>
<tr>
<td>Skip, if clean</td>
<td>6</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 15. Visible faecal smears inside pan

<table>
<thead>
<tr>
<th>Valid</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18</td>
<td>30.0</td>
<td>30.0</td>
</tr>
<tr>
<td>No</td>
<td>36</td>
<td>60.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Skip, if clean</td>
<td>6</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Table 16. Visible faeces surrounding the pan

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>12</td>
<td>20.0</td>
<td>20.0</td>
</tr>
<tr>
<td>No</td>
<td>42</td>
<td>70.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Skip, if clean</td>
<td>6</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 17. Smell

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>49</td>
<td>81.7</td>
<td>81.7</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>8.3</td>
<td>90.0</td>
</tr>
<tr>
<td>Skip, if clean</td>
<td>6</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 18. Latrine Blockage

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>9</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>No</td>
<td>51</td>
<td>85.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 19. Is there privacy for boys?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>51</td>
<td>85.0</td>
<td>85.0</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>1.7</td>
<td>86.7</td>
</tr>
<tr>
<td>Skip, for girls only schools</td>
<td>8</td>
<td>13.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

### Table 20. Is there privacy for girls?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Yes</td>
<td>59</td>
<td>98.3</td>
<td>98.3</td>
</tr>
<tr>
<td>Skip for boys only schools</td>
<td>1</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Table 21. Leaking taps

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Yes</td>
<td>15</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>42</td>
<td>70.0</td>
</tr>
<tr>
<td></td>
<td>Some</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 22. Hand washing facility

<table>
<thead>
<tr>
<th>Type</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>17</td>
<td>28.3</td>
<td>28.3</td>
</tr>
<tr>
<td>Water and washbasins</td>
<td>34</td>
<td>56.7</td>
<td>85.0</td>
</tr>
<tr>
<td>Water, washbasins, soap</td>
<td>8</td>
<td>13.3</td>
<td>98.3</td>
</tr>
<tr>
<td>Water and soap</td>
<td>1</td>
<td>1.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 23. Placement of Soap

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Inside latrine</td>
<td>6</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>Outside latrine</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>Skip, if none</td>
<td>51</td>
<td>85.0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>60</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 24. Category * Condition of toilet facilities: Cross tabulation of semi structured interviews of students

<table>
<thead>
<tr>
<th>Categories</th>
<th>Functional and clean</th>
<th>Functional and dirty</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison</td>
<td>62</td>
<td>25</td>
<td>87</td>
</tr>
<tr>
<td>Intervention</td>
<td>61</td>
<td>27</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>123</td>
<td>52</td>
<td>175</td>
</tr>
</tbody>
</table>

Table 25. Category * Illnesses you face: Cross tabulation of semi structured interview of students of ten first round schools

<table>
<thead>
<tr>
<th>Categories</th>
<th>Dysentery</th>
<th>Diarrhoea</th>
<th>Cholera</th>
<th>Fever</th>
<th>Abdominal pain</th>
<th>Cough and cold</th>
<th>Dental problem</th>
<th>ENT problem</th>
<th>None</th>
<th>Total</th>
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<tr>
<td>Non</td>
<td></td>
<td>0</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>65</td>
</tr>
<tr>
<td>intervention</td>
<td></td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>9</td>
<td>5</td>
<td>17</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>130</td>
</tr>
</tbody>
</table>
Table 26. Category * Illnesses common among the school students: Cross tabulation of semi structured interview of teachers from ten first round schools

<table>
<thead>
<tr>
<th>Categories</th>
<th>Diarrhoea</th>
<th>Fever</th>
<th>Cough and cold</th>
<th>Abdominal pain</th>
<th>Didn’t observe</th>
<th>ENT problem</th>
<th>None</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non intervention</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Intervention</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>19</td>
</tr>
</tbody>
</table>

References


Beyond Traditional KAP Surveys-Need for Addressing Other Determinants of Behavioral Change For More Effective Hygiene Promotion

Mohammad Riaz, Farooq Khan

Rigid use of planning tools such as KAP surveys without an understanding of broader project environment including in depth assessment of predisposing and enabling factors can seriously hamper project outcomes over time. If this lesson is not learned, then continuing stereotyping and over-simplification in planning runs the risk of causing huge losses to societies in terms of high child mortality and morbidity rates thus jeopardizing the gains made under Millennium Development Goals.

Background

According to the official data for sanitation coverage (2006/2007), 73% of the population in Pakistan now has access to a household latrine, with 96% access in urban areas, and 62% access in rural areas. While significant progress has been made in meeting quantitative targets, continuing concerns about the quality of services remain. Water and sanitation-related diseases are still responsible for some 60% of child deaths in Pakistan. While government-led efforts primarily concentrate on hardware, a number of international development agencies are spending significant funds targeting both hardware and behavioural aspects of water and sanitation programming. This paper is based on an internal assessment of one such donor-funded project, implemented over many years by a local NGO. The objective of this assessment was to identify the factors limiting the effectiveness of behavioural change aspects of WASH programming. The project area under assessment is located in the Himalayas with difficult terrain where the prevalence of waterborne diseases remains high and people are generally unaware of the link between poor hygiene and sanitation, and disease.

The project under scrutiny had both hardware and behavioural objectives. It set out to provide water and sanitation facilities in schools in five union councils (UC), and to improve hygiene practices to bring about behavioural change amongst children and the broader community. The approach used for hygiene education was the Child-to-Child communication (CtC) approach. This approach was adopted because children are ready recipients for new learning and behavioural change not only at the individual, classroom and school level; but also for the broader community as well.

To develop a more focused and target-oriented strategy for behavioural change, a sample pre-project knowledge, attitude and practice (KAP) survey was conducted. The purpose of this survey was to support design of the hygiene promotion strategy based on information obtained. Subsequently, at the close of the project interventions, a post-KAP survey was conducted. The post KAP showed positive improvement as a result of School Sanitation and Hygiene Education (SSHE) measures; however, it raised some interesting new issues as well. A deeper analysis of the Pre and Post KAP surveys revealed that pre survey findings were translated into the design of the hygiene education in the project; but other determinants, which are equally important for designing an effective hygiene communication plan, were overlooked or not considered in the design of the health and hygiene education (HHE) plan. This paper examines what those determinants are/were and their importance for shaping any successful behavioural communication plan.

1 The CtC approach is primarily an active learning method. Children are encouraged to assess, analyze and act on a given situation. The agency trained teacher, with active involvement of children, identifies an issue (e.g. personal hygiene/school environment/domestic hygiene). Children then collect further information regarding the issue and, with the teacher’s help, plan action for highlighting/creating awareness among their fellow children or general population. The six steps of CTC approach are: 1) identification of hygiene issue, 2) finding out more 3) planning how to do it, 4) action at the community level 5) evaluation of the action/activity and 6) determining how to do better next time.

2 SSHE refers to a combination of hardware and software hygiene and sanitation components that are necessary to produce a healthy school environment and to develop or support safe hygiene behaviours. It focuses on development of life-skills, a healthy and safe school environment, and outreach to families and communities.
Why move beyond KAP Surveys?
Planning to change vulnerable hygiene practices and beliefs of a community or school demands proper identification of areas of concern. It also requires the identification of predisposing, enabling and reinforcing factors, whose absence or presence play a significant role in stimulating (or otherwise impacting) the desired outcomes. Therefore, identifying knowledge, attitudes and practices in tandem with the knowledge of local enabling and predisposing factors helps planners and implementers pinpoint:

- areas on which to focus,
- vulnerable practices that should be targeted,
- optimal messages,
- which channels/products and services should be deployed,
- which combination of feasible activities should be pursued.

Study Findings
The study findings are presented below under two broad categories:

1. **Practice-Related Findings** are mainly derived from the data collected using the On-Site Observation Questionnaire. This questionnaire presented the surveyors assessment of practices by assigning a score ranging between 0 (for least desirable) to 5 (most desirable). The scoring also allowed ranking of the Union Councils (UCs) and Schools.

2. **Knowledge and Attitude Related Findings** are mainly derived from a broadly Semi-Structured Questionnaire that was not based on the scoring method.

Practices Related Findings
The key findings related to hygiene practices are discussed in summary form for all target Union Councils (UCs) in the paragraphs below.

**Overall Union Council Wise Hygiene Score**

Figure 1 below shows the overall picture of hygiene in schools across five target union councils of District Muzaffarabad. As is evident, schools in UCs of Chinari, Gojra and Chakama scored around 50, while Municipal Committee (MC) Muzaffarabad could score above 50%, at around 65 the maximum score was far less than 100. In essence, this means that while schools in more accessible and urbanized UC have fared slightly better, there is not a huge difference between the two sets of UCs, and they both require more or less equal levels of attention vis-à-vis hygiene promotion.

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3 These factors are related to person’s knowledge, attitude, beliefs, values, and perceptions. In addition, a variety of demographic factors also belong to this group, such as socioeconomic status, gender, and present family size. These factors together provide the motivation for an individual or group to act in a certain way.

4 e.g. personal skills and resources as well as community resources necessary to perform a health behaviour. Resources include, personnel, community organization, money, time, water supply and sanitation facilities, health care facilities, transportation facilities, a special container for drinking water storage, space to construct a latrine etc.

5 e.g. our best friend, families, peers, teachers, employers, health and other personal, religious leaders, community elders, etc.
Knowledge and Attitude Related Findings
The above analysis of observation based hygiene related KAP was further supplemented by another structured questionnaire. Some of the resulting findings are presented in Figure 2 below. This structured questionnaire was completed during an interview.

Figure 2. When should hands be washed?

The pre-project survey found that less than half (45%) knew about the importance of washing hands at critical times (before eating/after defecation etc). This demonstrated a well established need for promotion of hand washing throughout the target area.

How worms may get inside our body by walking bare footed?
Only 10% of responses correctly identified how worms get enter our bodies. This was one of the important areas where children’s knowledge was targeted for improvement.
The emerging HHE strategy

Based on the findings of the pre-intervention KAP survey, a HHE strategy was apparently developed without catering for the special needs of rural and urban areas and with inadequate emphasis on key messages. In hindsight, this was identified as over-simplification because it did not consider enabling and reinforcing determinants of behavioural change. The key features/shortcomings of this HHE strategy included:

- Rigid identification of opinion leaders, (e.g. only religious leaders, female health visitors, and school teachers were identified as opinion leaders, but in more urban areas elected councilors, local media, market associations, Mohalla elders, women and other notables were more effective opinion leaders);
- Reliance on interpersonal communication (primarily suitable to rural settings) with lesser emphasis on new media such as multimedia, and TV/Cable/FM etc;
- Provision of similar school WATSAN hardware facilities (hand pump, pit latrines, hand washing places, solid waste bins etc), without any design distinctions for urban and rural areas (e.g. pit latrines provided in urban schools were never used by students as they were more accustomed to pour-flush latrines in their homes).

Post-intervention Findings

The project ran for a period of three years. Some 211 schools in five union councils were targeted with both hardware and behavioural change interventions. At the close of the project, a post-intervention survey was conducted. The findings showed overall improvement of hygiene level in almost all targeted union councils. As evidenced by Figure 3 below, however, some union councils did not achieve the desired level of scores. Surprisingly, these unions were in the more urbanized areas where the scores were generally expected to be much better than those obtained in rural areas.

Further investigation revealed some underlying factors responsible for lower scores in these urbanized union councils. These factors were:

- Heterogeneous community: Being urbanized, the communities in the low scoring unions of MC and UC Muzaffarabad were found to be very heterogeneous. The rural UCs were populated by more homogenous communities.
- Hardware facilities provided in schools were not consistent with existing preferences.
Reliance on only interpersonal communication, even though children in Urban Union Council areas could have been more strongly influenced by more modern communication techniques, such as multimedia, cartoons, CDs, etc.

Figure 4. Post KAP - When Should Hands be Washed?

Post intervention findings - Hand washing
As is evident in the above figure, the children’s understanding of hand washing greatly improved compared to pre-intervention findings. This achievement was mainly the result of:
- more attention being paid to hand washing in hygiene promotion activities;
- celebration of special hand washing days.

Post intervention finding - intestinal worms
The post-intervention KAP established that understanding of a transmission route for intestinal worms increased from 10% to about 40%, while the knowledge about the need for hand washing at critical times increased from 45% to 100%. In comparison, the knowledge about worm infestation appears very low. One reason for this disparity was a more or less uniform HHE wherein deficient knowledge areas were targeted by standard messages and given similar emphasis by the promoters.

Scale of the Problem
In the course of discussions, other sector professionals working with similar projects agreed that their hygiene promotion and behaviour change strategy is not proving effective. This is mainly due to uniform policies and strategies that are applied in different areas without taking into account the level and local need for pre-disposing and enabling factors. This situation highlights the need for effective and acceptable hygiene promotion strategies for behaviour change that are tailored to the circumstances of each geographical entity. This is the means for effectively translating increased water and sanitation coverage over the years into real health benefits.

Conclusion
An internal review of the project reveals that project implementers failed to recognize determinants other than knowledge-attitude-reported-practice (KAP) in the design of a hygiene communication plan. It was learnt that for hygiene promotion and behavioural change to be successful, pre-disposing and enabling factors for different geographical locations must be determined and the hygiene promotion strategy must be tailored accordingly.
The internal review also revealed that low scoring unions had markedly different characteristics compared to higher scoring unions, e.g. technology preferences, channels of information, variation in types and effectiveness of local opinion leaders, and homogeneity of community etc.

Recommendations
The study suggests the following recommendations for formulating future hygiene promotion strategies:

- Measuring knowledge, attitudes and current practice (KAP) can help to formulate an effective hygiene promotion strategy. However, it is also necessary to identify local pre-disposing and enabling factors to finalize the strategy. Donor-driven, standardized hygiene promotion campaigns are less effective because they are often developed in isolation from consideration of local pre-disposing and enabling factors.
- Effective dissemination of hygiene messages requires different communication channels and the right mix/blend of communication channels for rural and urban areas. These different channels should take into account differences in literacy, access to information, and culture.
- Wherever possible the HHE strategy must target the most vulnerable hygiene habits and the practices which can provide the greatest health benefits, which may differ from community to community. A standardized HHE approach will be only partially effective.

As previously mentioned, while Pakistan may achieve the WASH sector MDGs in time, child mortality and morbidity rates will remain high unless sector programs improve the quality of behavioural change interventions. It is therefore imperative that the recommendations suggested here are incorporated into forthcoming programs.

References
KAP Report - Muzaffarabad, AJK, 2007-08.

Keywords
Hygiene, hand washing, Pakistan, behaviour change communications, enabling factors, pre-disposing factors, evidence-based communications

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6 Predisposing characteristics includes demographic factors (age and gender), social structure (education, occupation, ethnicity, status in the community, physical environment, health beliefs that might influence perceptions.
7 e.g. easy and/or cheaper availability of soap, access to water supply, convenient location for hand washing materials, or availability of communication channels and so on.
SHABNAM

Dhaka, Bangladesh, February 2010

SOUTH ASIA HYGIENE PRACTIONERS’ WORKSHOP

The Practice of Hand Washing

Laboni Shabnam, [Bangladesh]

Water and sanitation are among the reasons for increasing poverty as identified in the second and seventh Millennium Development Goals (MDGs). Over 50,000 children die from diarrhoeal diseases every year in Bangladesh. 40 percent of these deaths could be reduced through the practice of hand washing. Hand washing could also help to reduce respiratory problems by 25 percent, according to a study conducted jointly by UNICEF and World Health Organization. Considerable achievement in has been observed in water and sanitation, but achievement in hygiene and behavioural practice has fallen behind. Hygiene and behavioural practices need to be given additional attention. In response to this situation, the Government of Bangladesh and its development partners are considering ambitious plans to achieve nationwide total sanitation by 2010, as stated in its international commitment made in 2003 at the South Asian Conference on Sanitation (SACOSAN).

Identification of a Hygiene Behaviour

Hand washing before eating, after defecation, and before serving food are significant hygiene behaviours. Hand washing is a practice that adds substantially to the health of the nation. The Bangladesh Government observed Global Hand washing day along with 80 countries across the world for the second time on 15 October 2009. This year, the theme of the day was ‘My life is in my hands’.

In 2009, Sanitation Month and Global Day observation were organized by the Department of Public Health and Engineering with the fund for Annual Development Plan (ADP) of the Government, Plan Bangladesh, Water Aid Bangladesh, NGO Forum and UNICEF. On this occasion the SSARA (Sustainable Sanitation And Resource Mobilization) Project and forty primary schools of UNIQUE (Up-scaling Non-formal primary education through Institutionalizing Qualitative Endeavour) organized a hand washing program at the union level of Jamalpur Sadar upazila of the Jamalpur district. UNIQUE is a project of Dhaka Ahsania Mission (DAM), which is funded by the European Commission with the objective of reaching out to children living in neglected areas such as reverie chars, coastal regions, oxbow lake-haor, and areas dominated by aborigine people to provide non formal education and undertake school preparedness programmes for children below age 6.

This paper describes how hand washing strategy has been implemented at Jamalpur Sadar (JMS), Melandha and Bakshiganj — three upazila of Jamalpur district in north-central Bangladesh. DAM has carried out two programmes in this region: the Decentralized Total Sanitation (Dishari) and the Sustainable Sanitation And Resource Mobilisation (SSARA) approach.

Dishari is a milestone of DAM in WatSan, which was implemented in three upazilas of the Jamalpur district (Jamalpur Sadar, Melandha and Bakshigijn) with financial support from WaterAid-Bangladesh from 2005. This was a process-oriented project in which DAM facilitated strengthening of the institutional capacity of the local government, created an enabling environment for cooperative work among the GO and NGO community with the lead implementing role of Ups (Union Parishad), and promoted total sanitation with local resources and collaboration with partners. The main emphasis of the Dishari project was hardware activities such as Tube wall and latrine installation and capacity building of union parishad. Some software activities on hygiene promotion were also undertaken.

The DAM SSARA project is funded by WaterAid-Bangladesh. It has been working at JMS upazila since April 2009 with upazila parishad taking a lead role in sustainable sanitation and resource mobilization. The main emphasis of this project is software activities such as advocacy related work including participatory planning, budgeting and multi indicator participatory monitoring. Elected women representatives of LG Local Government (LG) are involved in all implementation activities. Electronic data processing system have to establish at Ups by LG.
The DAM Dishari project has been observing special days and weeks with events that have mobilized large numbers of people for improved hand washing practices. Mobilization has focused on households, schools, and public institutions such as markets.

The Dishari programme is conceived as a set of related activities within the government/community, the education system and selected public institutions such as bazaars (market centres). The program is focused on three levels: the Union (approximately 20,000 to 40,000 people), the Ward (roughly 2000 people) and the Para (neighbourhood). Figure 1 represents the organization of the programme across these levels.

### Figure 1. Dishari: PROGRAM GROUNDING of HYGIENE PROMOTION

- UPTF (Union Parishad Task Force)
- CAG (Community Action Group)
- WTF (Ward Task Force)
- HP (Hygiene Promotion)
- GAT (Growth Centre Action Team)

**Hygiene Promotion (HP)**

Hygiene promotion focuses on five practices: washing hands with agent after defecation, washing hands with agent before eating, washing hands with agent after cleaning a child’s bottom, washing hands with agent before feeding a child, and washing hands with agent before Khabar Paribesson (serving food). The agent for hand washing might be soap, ash (powder that remains after the burning of fire wood), or clean mud (clay) as the latter may be more affordable for the poor.

**Household (HH) Level**

HH level efforts involve weekly meetings held in courtyards or gathering points near several households. These meetings, termed “sessions” include 20-30 participants from the neighbourhood. Women, girls and children are usually the active participants; some men also participate. LG Ward Task force representatives and Dishari project health workers conduct these sessions. Materials needed for hand washing (soap, nail cutter, flash card, flip chart etc.) are provided along with participatory activities. Follow up activities are included in the subsequent session. The participatory activities engage community members in interactive learning. In the hand washing session, for example, a facilitator may ask a participant, “Are your hands clean?” The participant might respond that her hands are clean. The facilitator invites the participant to wash her hands with soap in a water
bowl. When the participant does so, the water in the bowl may become dirty, which visibly demonstrates that the participant’s hands were not clean.

**Why is this process effective?**

Learners and teachers actively participate in this type of group learning. The participants can learn about each other’s conditions or problems and about their approaches to solving them. Discussing concerns among themselves enables them to monitor each other’s hygiene activities and advocate for each other in the long run.

**School level**

The SMC (School Management Committee, which consists of teachers and parents), the SAT (School Action Team, which consists of teachers and children) and the PAT (Para Action Team) organize classes. They conduct weekly discussion meetings with the young learners and observe the students’ hygiene practice. The students are given ideas about their area’s sanitation and hygiene situation, and about symptoms and causes of diarrhoeal diseases. In addition, they exchange their own ideas about the hygiene situation. A team of children is formed for these sessions and the work plan is discussed with them. They fill up their monthly mode meter sheets at these sessions, and use them to evaluate each other’s hygiene practices.

**Why is this process is effective?**

As classmates become aware of hygiene behaviours, hygiene becomes a regular topic of conversation amongst them. They ask each other hygiene related questions, e.g. “Hey, did you wash your hands?” or “Hey, you didn’t wash your hands after coming out of the toilet…you should do it now.” This results in widespread hygiene practices among the students. In addition, they discuss these practices with their family and neighbours, and advocate for better hygiene practices outside of school. These children develop a sense of leadership and responsibility.

**International Year of Sanitation, National Sanitation Month and Global Hand Washing Day Observation**

Dishari Project of Dhaka Ahsania Mission undertook initiatives that resulted in successful implementation of hygiene related events at 31 unions and 310 Jamalpur district schools in JMS, Melandha and Bakshigon Upazila. The initiatives mobilized huge participation by school teachers and students, UPs members, and community people. Dishari project developed an action plan with involvement of government staff and elected officials from the upazila and unions (Upazila Nirbahi Executive Officers, UTF and WTF members, and UP chairman and members). Action plans were developed for each union, and included activities such as: inauguration and discussion meetings, poster display, demonstration of hand washing, and cultural events with the active participation of the Upazila Chairman and elected officials/member, local elites, school teachers and students, Imam, youth groups, NGO representatives and local cultural groups. Promotional events with huge mobilization on Global Hand Washing Day, included: folk song, drama, and a school level sanitation competition among school students, all of which were intended to create momentum within the community and at the household level.

**Implementation process of hygiene promotion of SSARA project**

SSARA commenced in April 2009 and will be completed by March 2011. Hygiene promotion activities being implemented through SSARA include:

- workshop on integrated strategy for implementing hygiene activities,
- leadership training of school action team,
- refreshers training for health workers (health complex of Upazila),
- workshop and orientation of growth centre committee members,
- hygiene session at Para (Molalla) level,
- orientation of child group,
- conducting school hygiene session,
- growth centre hygiene session,
- hygiene promotion campaign,
- development of hand washing technology.
SSARA activities include:

**Courtyard Meeting:**
- Sessions include 20-30 participants from the neighbourhood.
- Participants are women, girls, children and some men.
- Ward task force/health workers conduct the sessions.
- Preference is given to poor and disabled participants.
- Materials and follow up session are provided.

**Hundred percent HH visit:**
- Observe HH hygiene behaviour for every HH and evaluate improvements.
- Discuss health care and make tube well and latrine usable for disabled HH members.
- If a problem is identified during a HH visit, then immediately motivate HH to practice hygiene behaviour again.

**Community/area/ward based hygiene promotion activities:**
- Issue based campaign
- Day observation
- Peoples’ theatre
- Cultural program

Since 2005, DAM, through Dishari and SSRA, has been implementing numerous activities in addition to those mentioned above.

**Recent activities of SSARA Rally**

On October 15, 2009 an inaugural ceremony for National Sanitation Month and Global Hand Washing Day was held in the Jamalpur District in the form of a colourful rally. District administration and the Department of Public Health Engineering arranged the event through financial support from the SSARA project. The Deputy Commission of Jamalpur district led the rally. In addition, other government officials, social leaders, journalists, community people, and NGO representatives participated in the rally.

*Photo 1. Rally on Global Hand Washing Day by School Students at Jamalpur*
Demonstration of hand washing
Demonstrations of hand washing were made by the most senior district government official, the Deputy Commissioner of the Jamalpur District, in three or four different places. Government and non-governmental staff gave a hand washing demonstration by standing in a long line and washing their hands. Small hand washing devices (technology) were used for the demonstration.

![Photograph 2. A Student washes her hands on Global Hand Washing Day at Jamalpur](image)

Discussion meeting
At the end of the rally a discussion took place in the hall room of Deputy Commissioner. The Executive Engineer of DPHE-Department of Public Health Engineering presided over the discussion meeting and the Deputy Divisional Engineer of DPHE made the presentation.

Evidence from Wash Census
To collect information on the WASH situation, from July through September 2009, The WAB-WaterAid Bangladesh, organized by SSARA, conducted a census of all households of Jamalpur Sadar. The study questionnaire appears in annex 1. WAB provided training on the questionnaire to SSARA central and upazila staff. Upazila staff provided training on collecting information from household head to field staff and to daily paid investigators ( enumerators). SSARA staffs were responsible for supervising the enumeration activities. Selected and trained investigators went to all HHs with the questionnaire, as the intended questionnaire respondents were male and female HHs. The census was also conducted at school, hotel, and growth centre levels of same upazila. The table below presents the questionnaire results.

<table>
<thead>
<tr>
<th>Union</th>
<th>No. Of H/H</th>
<th>Household having hand washing technology</th>
<th>Hand washing after defecation</th>
<th>Hand washing before eating</th>
<th>Before preparing and serving food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenduya</td>
<td>9313</td>
<td>85</td>
<td>4782</td>
<td>2157</td>
<td>1528</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>51%</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>Shorifpur</td>
<td>10859</td>
<td>61</td>
<td>10399</td>
<td>509</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>96%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Lakshmirchar</td>
<td>6390</td>
<td>32</td>
<td>5510</td>
<td>688</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>86%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Tulshirchar</td>
<td>6087</td>
<td>0</td>
<td>2099</td>
<td>154</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>34%</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>
Table 1 shows that reported hand washing with soap or ash after defecation is very high. This probably reflects an actual high level of practice. However, the respondents gave verbal information, which was probably higher than actual practice. Verbal responses about hygiene behaviours tend to be optimistic. Therefore, it is particularly important to note that the reported hand washing with soap or ash before eating was much lower than after defecation. Anecdotal evidence suggests that this occurs in other developing countries. Hand washing with soap or ash before eating is extremely important as it gives a significant health advantage, particularly where people eat with their hands as in Pakistan. This is an important behaviour that requires much more emphasis in the future.

The respondents with young children in the household reported on their hand washing practice at two times: before feeding the young child and after cleaning the child’s bottom after he/she has defecated. Table 2 presents their responses. Unfortunately, we did not record the number of households that had young children. However, the very low number of positive responses indicates that these practices are not common. In the future, these hygiene behaviours require greater emphasis in water, sanitation, hygiene and health programmes.

### Table 2. Hand washing by caregiver taking care of young children

<table>
<thead>
<tr>
<th>Union</th>
<th>No. Of HH</th>
<th>Washes hands after cleaning children’s bottoms</th>
<th>Washes hands before feeding children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenduya</td>
<td>9313</td>
<td>853</td>
<td>547</td>
</tr>
<tr>
<td>Shorifpur</td>
<td>10859</td>
<td>218</td>
<td>58</td>
</tr>
<tr>
<td>Lakshmirchar</td>
<td>6390</td>
<td>87</td>
<td>9</td>
</tr>
<tr>
<td>Tulshirchar</td>
<td>6087</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Itail</td>
<td>6318</td>
<td>989</td>
<td>705</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Union</th>
<th>No. Of HH</th>
<th>Washes hands after cleaning children’s bottoms</th>
<th>Washes hands before feeding children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narundhi</td>
<td>7173</td>
<td>6955</td>
<td>1375</td>
</tr>
<tr>
<td>Khoradhap</td>
<td>7028</td>
<td>4595</td>
<td>842</td>
</tr>
<tr>
<td>Bashchara</td>
<td>7114</td>
<td>6833</td>
<td>1069</td>
</tr>
<tr>
<td>Ranagacha</td>
<td>9770</td>
<td>5923</td>
<td>1270</td>
</tr>
<tr>
<td>Shreepur</td>
<td>6855</td>
<td>6342</td>
<td>2822</td>
</tr>
<tr>
<td>Shahbaypur</td>
<td>10307</td>
<td>10015</td>
<td>3509</td>
</tr>
<tr>
<td>Tiptalla</td>
<td>9075</td>
<td>8762</td>
<td>6722</td>
</tr>
<tr>
<td>Mesta</td>
<td>8770</td>
<td>8320</td>
<td>7595</td>
</tr>
<tr>
<td>Digpait</td>
<td>9019</td>
<td>8439</td>
<td>4177</td>
</tr>
<tr>
<td>Rashidpur</td>
<td>8430</td>
<td>7279</td>
<td>867</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Union</th>
<th>No. Of HH</th>
<th>Washes hands after cleaning children’s bottoms</th>
<th>Washes hands before feeding children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenduya</td>
<td>9313</td>
<td>853</td>
<td>547</td>
</tr>
<tr>
<td>Shorifpur</td>
<td>10859</td>
<td>218</td>
<td>58</td>
</tr>
<tr>
<td>Lakshmirchar</td>
<td>6390</td>
<td>87</td>
<td>9</td>
</tr>
<tr>
<td>Tulshirchar</td>
<td>6087</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Itail</td>
<td>6318</td>
<td>989</td>
<td>705</td>
</tr>
</tbody>
</table>
Table 3 below presents the overall data about hand washing in one upazila. It shows that, on the average, four out of five people report washing their hands with soap or ash after defecation, while less than one in three report washing hands with soap before eating. Only about 5% report washing hands after cleaning of young children’s bottoms, and only 2% report doing so before feeding them. There is a strong risk of infecting a young child who is fed with dirty hands.

Table 3. WASH Census - Hand Washing habit of Whole Upazila (JMS)

<table>
<thead>
<tr>
<th>Item</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total HH</td>
<td>122508</td>
<td></td>
</tr>
<tr>
<td>Use hand washing technology after defaecation</td>
<td>1334</td>
<td>1</td>
</tr>
<tr>
<td>Wash hands by soap/ashes after defaecation</td>
<td>99922</td>
<td>8</td>
</tr>
<tr>
<td>Wash hand by soap/ashes before eating</td>
<td>36832</td>
<td>30</td>
</tr>
<tr>
<td>Wash hands before preparing and serving food</td>
<td>9916</td>
<td>8</td>
</tr>
<tr>
<td>Wash hands after cleaning children’s bottoms</td>
<td>6319</td>
<td>5</td>
</tr>
<tr>
<td>Wash hands before feeding children</td>
<td>2660</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 2. Hand Washing Technologies
Figure 2 depicts hand washing devices, known as “hand washing technology” that are referenced in Table 3. This is a new technology developed by community people and DAM staff. SSARA has been promoting this technology in JMS to develop the hygiene behaviour of community people. The community people are largely unaware of this type of technology, so its use is not wide spread. This accounts for the very low (1%) use of this technology reported in Table 3.

Table 4 presents the census findings with regard to educational institutions. In school settings, SSARA has undertaken activities such as conducting school hygiene sessions and leadership training of school action teams mentioned elsewhere in this paper. One out of five schools had solid waste management, which usually involved burying or burning waste from the school. Slightly more than one in ten had hand washing devices. In schools, it is extremely important to be well organized for hand washing (with soap or ash); however, most schools lack the facilities for this. More emphasis is needed on these issues in schools.

The data in Table 4 highlights the status of hand washing in hotels and food shops and the cleanliness of butcher shops as other areas for concern. Nine out of ten hotels/food shops lack hand washing devices, and more than two out of three butcher shops were not clean. To improve the situation of hotel/food shop hygiene, SSARA has designed activities such as the formation of a hut-bazaar (local market) committee/workshop on hygiene behaviour for committee members. It is hoped that after the successful completion of SSARA, the hotel/food shop/butcher shops situation will improve.

Table 4. WashCensus - Situation of Educational Institutions

<table>
<thead>
<tr>
<th>Union</th>
<th>Waste Management</th>
<th>Hand devices</th>
<th>No of Local market</th>
<th>Hotel/ shop</th>
<th>Food Having hand washing devices hotel</th>
<th>Slaughter (butchery)</th>
<th>house</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Kenduya</td>
<td>0</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>7</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>Shorifpur</td>
<td>1</td>
<td>22</td>
<td>0</td>
<td>23</td>
<td>4</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>Lakshmirchar</td>
<td>0</td>
<td>14</td>
<td>3</td>
<td>11</td>
<td>4</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>Tulshirchar</td>
<td>0</td>
<td>19</td>
<td>0</td>
<td>19</td>
<td>2</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Itail</td>
<td>9</td>
<td>12</td>
<td>13</td>
<td>8</td>
<td>7</td>
<td>75</td>
<td>5</td>
</tr>
<tr>
<td>Narundi</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>24</td>
<td>3</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>Ghoradhap</td>
<td>3</td>
<td>16</td>
<td>0</td>
<td>19</td>
<td>4</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td>Baschara</td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>10</td>
<td>4</td>
<td>38</td>
<td>0</td>
</tr>
<tr>
<td>Ranagacha</td>
<td>20</td>
<td>10</td>
<td>8</td>
<td>25</td>
<td>6</td>
<td>68</td>
<td>29</td>
</tr>
<tr>
<td>Shreepur</td>
<td>3</td>
<td>16</td>
<td>1</td>
<td>18</td>
<td>7</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Shahbaypur</td>
<td>0</td>
<td>24</td>
<td>0</td>
<td>24</td>
<td>5</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Titpalla</td>
<td>13</td>
<td>10</td>
<td>4</td>
<td>9</td>
<td>5</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Mesta</td>
<td>2</td>
<td>26</td>
<td>1</td>
<td>27</td>
<td>6</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>Digpait</td>
<td>10</td>
<td>16</td>
<td>2</td>
<td>24</td>
<td>5</td>
<td>54</td>
<td>12</td>
</tr>
<tr>
<td>Rashidpur</td>
<td>0</td>
<td>21</td>
<td>0</td>
<td>21</td>
<td>8</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td><strong>65</strong> (20%)</td>
<td><strong>253</strong> (80%)</td>
<td><strong>33</strong> (11%)</td>
<td><strong>278</strong> (89%)</td>
<td><strong>77</strong></td>
<td><strong>519</strong></td>
<td><strong>58</strong> (10%)</td>
</tr>
</tbody>
</table>
Conclusion
Hand washing with soap or ash after defecation, before eating, after cleaning children’s bottoms, before feeding children, and before serving food has a great impact on people’s health. For many years, people were unaware of the necessity of washing hands with soap or ash. They did not know about the relation between hand washing and related diseases. This situation has improved and the number of people who are washing their hands with soap/ash is increasing. Hand washing has become an important hygiene behaviour. We must continue to take an integrated approach to implementing the various initiatives of government and non-governmental organizations until hand washing is sustained by all people. Changing a deeply rooted culture of hygiene behaviours requires long term motivating activities.

Recommendations
- Long term initiatives should be undertaken for effective hand washing.
- All upazila level government and non-government staff organizations need to work in an integrated way. Government should have a policy to ensure that all GO and NGO personnel convey the same messages.
- In Upazila health centres, doctors and health workers should give health classes for diarrhoea patients about disease transmission from unhygienic hands (or hand washing).
- Women members of union parishad and upazila parishad can be assigned special duties related to explaining the necessity of hand washing in their electoral areas.
- For further discussion during the Sanitation Symposium: In other countries is the practice of washing hands with soap/ash before eating also lagging far behind the practice of hand washing with soap/ash after defecation?

Acknowledgements
The author would like to extend thanks to the people who have provided me with this platform to represent my little work. I am honoured. I also would like to thank my organization for giving me the opportunity to take part in these activities. Last but not least, I thank my daughter and husband for helping me with this paper.

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SACOSAN (South Asian Conference on Sanitation) III. Bangladesh country paper.


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Overview

In February 2010, hygiene practitioners and researchers in Asia came together to share lessons learned and to discuss progress and challenges in promoting hygienic behaviours. A substantial challenge—and the red thread through this exciting meeting—was how to move from knowledge to sustained practice at scale. Reaching this goal requires intensive hygiene promotion, focus on enabling factors, sufficient time, well-tested communication, and flexibility. Hygiene needs sustained attention.

Considerable progress has been made in research, in improving knowledge about hygiene, and, to some degree, in improving hygienic practices. In five of the programmes represented at this workshop, hygiene promotion being implemented at scale is reaching more than a million people. Quite a bit of learning took place during the workshop. For instance, we agreed on the importance of hygiene promotion designed specifically for men. Many participants made a commitment to do something about menstrual hygiene promotion. Those involved in efforts in school settings agreed that sustaining the effectiveness of school programmes is a major challenge. The quality of communication and hygiene messages requires more attention. In terms of monitoring and research, we agreed that self-reporting—when people report on their own hygiene practices—provides very optimistic data. We need to test and use more valid and convenient tools to measure behaviour, particularly at scale. Measuring behavioural change is preferred over difficult health impact studies.

To move forward, participants proposed a concrete follow-up to this successful workshop. Several participants will be collaborating on hygiene for men, school programmes and assessment methods.

The Asia Hygiene Practitioners’ Workshop was organized for in-depth learning and documentation of effective practices (and not so effective practices) among professionals and researchers involved in the challenging effort to stimulate effective hygiene behaviours. The robust workshop discussions focused on more than 18 papers, some research based and others descriptive of projects within Asia. Participants represented organizations in Bhutan [Government and Netherlands Development Organization (SNV)], Bangladesh [Bangladesh Rural Advancement Committee (BRAC), Dhaka Ahsania Mission (DAM), Dushtha Shasthya Kendra (DSK), International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDRB), stimulating household improvements resulting in economic empowerment (shiree), WaterAid-Bangladesh], India (WaterAid-India, USAID-India), Nepal [Nepal Water for Health (NEWAH), WaterAid-Nepal], Pakistan [Integrated Rural Support Program (IRSP), Mercy Corps, Pakistan Institute for Environment-Development Action Research (Piedar)], the Philippines (PCWS), and Vietnam (World Bank Water and Sanitation Program (WSP) and WSP-USA). Over past decades, as we know, considerable discussion has focused on how to bring interventions to scale. In light of this, it was noteworthy that at least five of the programmes represented at the workshop work with more than 1 million people.
1. Inauguration: Why Hygiene and Behaviours?

Dr. Mahabub Hossain, Executive Director of BRAC, inaugurated the workshop noting that over the past 40 years the average food intake for people has increased, but their nutritional status has not. One factor that reduces nutritional status is poor hygiene. We must look at factors that will encourage people to use facilities as intended with hygiene behaviours that reduce mortality and morbidity.

Participants were welcomed to the meeting by Tom Palakudiyil of WaterAid, Carolien van der Voorden of the Water Supply and Sanitation Collaborative Council (WSSCC), and Joep Verhagen of the IRC International Water and Sanitation Centre (IRC). They noted that the previous workshop—Beyond construction, use by all—focused largely on sanitation. However, they emphasized that inputs for water supply and sanitation are effective only if we can get the hygiene part right. Tackling sustainable hygiene change at scale is the challenge. Hygienic practices boost achievements in water and sanitation to break the chain of infection and help people lead healthy lives. To move a step forward, this workshop was intended to create room for people to share information about what works and what does not work.

We know that hygienic practices can reduce diarrhoeal disease by as much as half and more recent evidence shows that it can also substantially reduce pneumonia and other respiratory infections. Hygiene can also reduce parasite infestation and skin and eye infections. Furthermore, we also know that the level of knowledge about safe hygiene practices is high. The research in the workshop typically showed that more than three out of five women could repeat messages about hygienic practices and critical hand washing times. As one participant said, “Now people can say messages. They know but do not practice. Now what? How to turn knowers into doers?” This is the key challenge. This was the theme, the red thread, that ran through the workshop: moving from knowledge to practice.

This summary of the Workshop is divided into four parts:

- Programme strategies: mobilization, participation, and campaigns/social marketing
- Elements of projects: planning, management, enabling factors, messages, time, hygiene for men
- Measuring behaviours (tools) and impact studies
- Menstrual hygiene and school programmes

Learning and sharing workshop. Before the workshop, practitioners were supported through a review process to write up the field stories and the research that are too often lost. During the workshop, robust discussions and learning were stimulated through a variety of activities: Plenary sessions with presentations of 15 minutes each, break-out sessions providing a smaller group with the opportunity for more extended questions and discussion, snappy market-place presentations of 5 minutes providing all participants with the opportunity to share ideas and experience of interest, and Roadside Dhabas which were discussion groups on particularly challenging topics. A display of menstruation hygiene products highlighted a relatively new theme. At the conclusion of the workshop, an Open Space stimulated forward planning, with individuals writing topics of special interest on posters, around which discussions were held.

2. Programme Strategies

Some programmes use conceptual frameworks to help organize thinking about the factors that affect the adoption of new practices. The WSP Water and Sanitation Program introduced FOAM, an interesting framework that emphasizes enabling factors and the ability of people to carry out new behaviours. Another practice, adapted from Lewin (1958) by Akhtar Hameed Khan and described by Piedar focused on dynamic changes in behaviour over time through a three-stage model of planned change: unfreezing, moving, and re-freezing, which would currently be called an equilibrium/transition model. Many theories of behaviour change can generally be simplified down to three broad areas: motivation, enabling factors and abilities or skills. One potential benefit of such frameworks is that they can clarify thinking about overall project design.
1.1. Mobilization
The programmes in Bangladesh and other countries put considerable effort into mobilization of key groups in the society. Hygiene mobilization usually seeks to embed a hygiene focus within major local institutions and to communicate and organize hygiene messages through these local groups. The groups include: religious leaders/Imams, local politicians, village WASH committees, health volunteers, youth groups, children from schools, women’s groups and savings groups, health institutions, vendors/retailers and so on. There is little hard evidence about how effective one group is in comparison to another. Indeed, the answer may vary according to the local situation. Leadership within communities varies widely. The religious leader, for example, may be very influential, but in a particular community some other local leader or member of the public may really be influential when it comes to community adoption of improved practices. This implies that it is important for field staff to be sensitive to the interests and capacities of different groups (or subgroups) in each community. The extension staff and hygiene promoters need the freedom and encouragement to build on these local strengths and preferences.

Interestingly, several participants from Bangladesh noted that one important group, the village water and sanitation committee, often leads and monitors WASH activities locally, while it is other individuals or groups who do the actual hygiene promotion. Local groups such as these committees, the volunteers, and field staff need training and continuing support. BRAC (Bangladesh Rural Advancement Committee), for example, emphasized its leadership training to empower the community water and sanitation committee. Providing sufficient support to such committees and to field staff is a management challenge both in massive programmes, with thousands of communities, and in communities that are geographically isolated.

Participation 2
Many programmes represented in the workshop emphasized community participation and special forms of participation such as child-to-child activities. The meaning and context of participation was not always made clear, however. For example, at the narrow end, participation could refer to attending meetings or watching activities. At the broader end, participation could be motivational and empowering. A few participants mentioned people’s participation in planning and programme design. DSK-Bangladesh (Dushtha Shasthya Kendra) described how some local committees design messages. At least four projects mentioned social mapping done by community members, as a motivational activity and in many cases and applied for planning and local management of projects in others.
One project (WSP-Vietnam and the Government of Vietnam) is developing an evidence-based communication campaign for hand washing with soap, which targets mothers (caregivers) and children in primary schools. Modifying the traditional social marketing approach somewhat, this programme has:

- used consumer research to identify current practices, to understand motivating factors and barriers to hand washing with soap and to determine effective channels for communication;
- used this information to design programmes with repeated pre-testing of campaign images and materials;
- combined mass media together with interpersonal communication led by trusted groups (particularly the Women’s Union);
- subsequently trained, implemented and monitored, and assessed.

This programme has emphasised one behaviour in its campaign (hand washing with soap) through positive messages, which differ according to the audience.

### 1.2. One or many behaviours and messages? One or many motivations?

Whether it is better to focus on one message or take a holistic approach is one of the key questions in the hygiene sub-sector. Four of the programmes reported in the workshop focus on a single approach — three on hand washing and one on menstrual hygiene. Thirteen other projects that favour a multiple message or holistic approach. Four WASH programmes focus on many hygienic practices, up to 15 in all. The question of possible “overload” of desired behaviours was raised. Other programmes, with a social marketing approach, focused on few or one behaviour, for example hand washing with soap. Research tends to show that fewer messages are more effectively integrated into people’s lives.¹

Some programmes, particularly those which concentrate on many messages, used improved health as a primary motivation for people to adopt new hygiene practices. However, the communication campaign strategy focuses on non-health messages as a way of motivating people for behavioural change. The communication campaign in Vietnam is, for example, focusing on good motherhood (the family is in your hands) as an effective motivational message for caregivers. Messages should be meaningful, easy, and visual. Messages about behaviours should be culturally sensitive and specific to the context. One participant reviewed current research showing that the most effective motivations and messages build upon issues such as:

- using the power of group norms (what everybody is doing and thinks you ought to do),
- building on the feeling of comfort (the feeling and smell of beauty and cleanliness),
- building on the adult’s role in nurturing (being a good mother or father, being a role model),
- making the feeling of contamination palpable (for example, using “Glo-germ”).

Other participants approached the question of messages differently. One noted that there should be no messages, rather the focus should be on the receivers – through facilitating community processes, the community itself should be supported to assess its own situation, analyse the problems and make a plan of action. No specific messages are necessary for that. Others noted that people change so the communications plan should develop. You may want to start with one message (for example, hand washing with soap) and then add other elements (such as specific hand washing times). Clearly the discussion about the number and types of behaviours, motivations and messages deserves further attention.

3. Issues Common to Many Programmes
Several other issues were raised during the workshop, as being important to most or all programmes, no matter what the context or specific messages.

1.3. Systematic approach in planning and management
The appealing presentation from the Philippines emphasized using research to build on positive practices, on what people already know and do, and building on traditional values. For example, among the Waray in the Philippines, personal hygiene was seen as an investment for health. It appeared that hand washing before meals was historically a sacred ritual where, if soap was not available, local sour fruits commonly grown in the backyard garden were used as substitute for soap. Hygiene promotion could build upon these traditional values. Systematic, formative research is needed to identify and get to know your audience. It was noted that it is not always easy to apply the information from research to plan messages and approaches to communicating with specific groups. Research should be used systematically. It is also important to take time to change or tweak messages according to how people’s behaviour changes during the intervention.

To be effective, some issues need to be kept in mind, for example: Is hygiene emphasized sufficiently? Are field workers given sufficient support and training? The workshop papers mentioned several activities to help ensure that sufficient emphasis is placed upon hygiene within water and sanitation projects, for example:

- repeated staff training on hygiene promotion;
- discussions in staff meetings with field workers on problems that arise related to hygiene promotion/practices;
- including hygiene when dealing with construction issues in the community or in home visits;
- participatory activities such as mapping or monitoring in the community related to hygiene;
- ensuring staff time is allocated for hygiene both among managers as well as field staff;
- periodic monitoring.

Research has shown that communities with more intense hygiene interventions and strong local support for WASH programmes have significantly more frequent hand washing and more consistent latrine use among the audiences targeted.²

Systematic management, however, does not mean uniformity. Several participants noted that effective programmes are flexible. For example, urban areas differ from rural communities often having less social cohesion, more heterogeneity with less interpersonal communication, less space, and lack of land rights. Technologies and facility designs that are considered acceptable may differ in urban and rural areas. In general, programmes should be responsive to differences among communities and regions.

☆ Learning workshop: Systematic management and a long time-line are essential for hygiene promotion to work effectively. Participants agreed on the need for sufficient training of staff, support for field staff, and strong emphasis on hygiene within water and sanitation programmes.

1.4. Time: how long it takes
Long or repeated intervention periods may be needed before consistent new behaviours are in place. As one participant stated, "Keep doing it and doing it". The successful behaviour change campaigns in Bangladesh (like the oral rehydration therapy ORT and the family planning campaigns) all lasted more than a decade, reaching more than one generation. They were concerted efforts using multiple mediums. For this approach to succeed, motivations and messages need to be repeated and adapted over time, to keep them relevant and appropriate.

Enabling factors
Enabling factors are elements that ensure that people are able to carry out hygiene behaviours. Among other things, hygiene depends on the availability of water and hygienic toilets, and on the knowledge and social support in the immediate environment. The FOAM framework emphasized access and availability of acceptable products, design and technology, social norms, and social support in the environment. The Mercy Corps school/community research in Pakistan emphasized that it is essential to identify local pre-disposing and enabling factors\(^3\) to finalize the intervention strategy and to build on these. There was less agreement among participants about the degree to which hardware (construction of water and sanitation facilities) enables hygiene promotion or detracts attention from hygiene. The answer may depend on the ways in which projects and staff are managed.

1.5. Hygiene promotion for men
Hygiene promotion programmes usually focus on women and children. However, as heads of families, men have authority to reinforce hygienic behaviours. Men often make family decisions about investments for inputs such as toilets, water supply, and soap. Men, as well as women, are role models for their children. In our workshop, there was some heated discussion about whether hygiene for men would re-introduce gender bias against women. It was agreed, however, that for interventions to be effective, all members of community and family need to be involved.

NEWAH in Nepal has developed a hygiene component for men that includes short messages that emphasize economic benefits of hygiene and sanitation. The programme has also sought to strengthen the involvement of men in the WASH committees in sanitation and hygiene promotion, and to provide greater practical support and motivate project staff to support this effort. In Bangladesh during the 1990s in a project called SAFE and SAFER, male staff concluded that the differences between men and women in social activities, communication patterns, and daily schedules should be taken into account in hygiene promotion. The staff reached men in various places: male tubewell caretakers individually, group sessions at tea stalls, and on-the-spot informal sessions with young males. Staff began by saying they wanted to inform men about what women and children were learning in the hygiene project and then discussed the basic concepts and messages. Another WASH project in Kerala focused its hygiene work on women. Subsequently, its research found that women who were more involved in the programme used toilets significantly more consistently than men. For men, the project did not seem to have this impact. It concluded that more emphasis was needed on hygiene promotion for men.

Learning workshop: There was strong agreement that messages are not enough. For example, programmes must attend to enabling factors, so that people are able to carry out new practices consistently. Hygiene promotion designed specifically for men is gender-sensitive. All members of the family need to be involved. Several participants committed themselves to a greater focus on hygiene for men.

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\(^3\) Predisposing characteristics include demographic factors (age and gender), social structure (education, occupation, ethnicity, status in the community, physical environment, health beliefs that might influence perceptions.

\(^4\) For example, available and affordable soap, access to water supply, convenient location for hand washing materials, or availability of communication channels, etc.
4. Measuring Impact of Hygiene Promotion

A hygiene impact evaluation measures the health of the people in the programme and scientifically correlates their change in health status with the hygiene intervention. Impact studies that link interventions to changes in health are difficult to develop successfully. One problem is controlling for confounding variables in health studies. Confounding factors are variables unrelated to the intervention that affect the results of the study. For example, better educated and wealthier families accept new ideas faster and may have better toilets or water sources. Therefore, the difference in hygiene practices shown in an evaluation may relate, in part, to education and wealth. There are many possible confounding factors and not all of them are easy to identify.

There are methods for designing impact studies that avoid confounding factors and other problems, but most of these methods present their own difficulties. In principle, each group for which there was an intervention needs some sort of comparison group, e.g. a control group that is identical to the project group but is not included in the project. It can be difficult—and unethical—to find and study such control groups. Case controls are another research strategy in which people with a disease such as diarrhoea (cases) are compared to another group of people from the same population who don't have that disease (controls). Before/after and time series are other approaches to impact studies. Each of these research strategies presents its own challenges and must be very carefully developed with sufficient time, resources, and expertise. Thus, for methodological reasons, even in a successful programme the research might not show that the intervention had an impact.

In addition, professionals point out that health impact studies are not very useful tools for evaluating WASH interventions. The results are too general to be used for analysis and planning of future projects (Cairncross 1990, IDRC/UNICEF 1985). Over the past 35 years, major institutions have advised against large impact studies, or have seriously cautioned about the challenges that health impact studies present (see, for example: World bank 1976; Cairncross, Valdmanis 2006; CAWST 2007). As was pointed out by one participant at the workshop, “It is obvious that hygiene changes affect health, until we try to prove it”.

Project experiences: One impact evaluation reported at the workshop showed similar change (improvement) in both intervention and control areas, so confounding factors were probably at play. Another impact study had weak data analysis which apparently did not take confidence intervals or risk assessment into account. Statistical measures of confidence and error bars are needed in these analyses. WaterAid-Nepal took a different approach and seeks to assess the long-term sustainability of facilities and hygiene behaviours. In conjunction with other partners, it is trying out the implementation of a multi-step assessment package which includes rapid assessment for planning, baseline monitoring, community based monitoring, and long term sustainability monitoring.

1.6. Tools for measuring behavioural change

Many tools can be used to collect information about behaviours, that is, about what people do. The main tools mentioned in the research at the workshop were:

- self-reporting through interviews and questionnaires,
- observation of actual behaviours in households,
- observation of physical conditions in households (spot checks of toilets, hand washing places, etc.).

Key questions are: How valid is each of these tools? Is the collected information a good reflection of what really happens (validity)?

Self-reporting: Research on data collection tools in the SHEWA-B programme showed that self-reports of hand washing with soap were 2 to 3 times higher than observations. In the study, less than 20% of the people who defecated were observed to wash their hands with soap or ash afterwards. However, in other studies in Bangladesh\(^5\) 60% to 98% of the respondents said (self-}

\(^5\) From MICS-2006, Eusuf-2004, and from studies presented at this workshop.
Summary report

They wash their hands with soap and water after defecation. Reports from people about their own behaviour are poor reflections of reality. Therefore, validity of research based on self-reports will be questioned.

Some findings about structured observations in the research within SHEWA-B are very helpful:

- People tend to change their behaviour when they are being observed, acting “better” than normally. Thus, structured observations may give data that is more positive than reality.
- Observations should start at a time when the practices can be observed, for example, very early in the morning for defecation.
- Careful training of data collectors and careful field testing are essential.
- For household observations, a female data collector is preferred.

The SHEWA-B report suggested two other potentially useful tools for proxy indicators, which are easier to apply than observation:

- Recall by respondents over the past 24 hours (for example, about the use of soap);
- Spot check of the locations for hand washing or defecation (Is there a hand washing place with water and with soap or where soap can be collected easily? Is the toilet used and maintained?).

☆ Learning workshop: It was agreed that hygiene practices cannot be measured by what people say they do. Self-reporting gives overly optimistic results. Household observations are more valid, but also present challenges. Other tools that may be more convenient as proxy indicators include spot checks and 24-hour recall. Health impact studies—measuring the impact of hygiene promotion on health—are very difficult and are often unpredictable. It is more useful to try to measure changes in behaviours.

5. Menstrual Hygiene

Consistent menstrual hygiene, the workshop was reminded, allows women greater freedom of movement and is therefore a human rights issue as well as a health issue. A survey undertaken by WaterAid-India in Madhya Pradesh and Chhattisgarh states of India showed that two out of three women in the study manage menstruation in the open field with rags. Half did not know about pads. There was no demand among women for menstrual pads; and in any case, they said they would not buy sanitary products from men who usually run shops. The project provided structured training for field workers in local NGOs to help them understand existing practices of menstruation management: the why and how of menstrual hygiene. The project included focused discussions with women’s groups to demystify the myths and misconceptions about menstruation. Finally, for the equivalent of US $2,700, a sanitary pad production unit with attention to disposal of waste and hygiene promotion in surrounding areas was started with local women’s groups. The materials are sterilized, quality is controlled, and prices are kept low to ensure affordability. In addition to hygiene benefits, the effort also provides opportunity for income generation among women’s groups.

Menstrual hygiene can be tackled even under the most challenging of circumstances. The Integrated Regional Support Program-IRSP works with displaced people from districts in Pakistan near the Afghan border. Among people living in very crowded conditions, the organisation has tackled the incredibly sensitive issue of menstrual hygiene management. This has included the provision of sanitary cloths and guidance (even with a competition) among displaced women about how to fasten, untie, and clean the menstrual cloth in a limited time period.

6. School Hygiene, Water and Sanitation Programmes

Several programmes represented at the Workshop had a component on school hygiene (including BRAC, DSK, Mercy Corps-Pakistan, PIEDAR-Pakistan, WSP-Vietnam, WaterAid-India, WaterAid-Nepal). Experience has shown that school programmes offer potential to support the development of hygienic behaviours among the
The success of the school health programme depends on enabling factors, which include teacher training, strong school management, and effective education departments.

Two critical studies were presented on school programmes in Pakistan. Their findings reflected the experience of some participants from other countries. Research from PIEDAR in Pakistan showed that school administrations could fail to provide the simple basic necessities for convenient hand washing and latrine maintenance. Successful school hygiene depends upon a strong sense of ownership by teachers and their supervisors. Interestingly, in this study the children gave more valid responses than the teachers. The research paper from Mercy Corps, Pakistan noted that attending to enabling factors for different geographical locations and tailoring the hygiene promotion strategy accordingly is imperative for hygiene promotion and behavioural change. These factors include: technology preferences, channels of information, variation in types and effectiveness of particular types of local opinion leaders, and homogeneity of community etc. Interestingly, this was the only paper that dealt explicitly with knowledge and practice to limit worm infestation among children.

7. Conclusions: Hygiene and Behaviour Change Approaches in South Asia

The components of a typical behaviour change approach include: communication campaigns, participatory learning activities, social mobilization, hygiene education, and the use of incentives. Further alternatives occur within these components — for instance communication campaigns can be executed through mass media (TV, radio etc), house to house visits or community meetings; social mobilisation can target individuals, households, a community, local institutions or perhaps a combination of these.

At the conclusion, participants proposed a follow-up workshop in two years time to review progress. Several participants committed themselves to working on hygiene for men, school programmes, and assessment methods.

This was an exciting workshop that focused on sharing and learning. In the discussions—at times with considerable passion—participants agreed on many key issues, identified several that require further work, and identified others for which agreement could be reached. These are summarized below.
### Table 1. The workshop papers, their country of origin and focus.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Paper title</th>
<th>Country focus</th>
<th>Focus – singular intervention or multiple</th>
<th>Size of project</th>
<th>Pilot/ expanding/ at scale</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahmed &amp; Begum</td>
<td>Hand washing practice in ASEH Project Area: A study for impact monitoring</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>Not known</td>
<td>At scale</td>
<td>Not known</td>
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<tr>
<td>Capistrano</td>
<td>A Study on Personal and Home Hygiene in Flood Prone Communities</td>
<td>Philippines</td>
<td>Multiple</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
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<tr>
<td>Collett</td>
<td>Thirty-five years of searching for answers to Rural Sanitation and Hygiene in Bhutan</td>
<td>Bhutan</td>
<td>Multiple</td>
<td>Not known</td>
<td>Expanding</td>
<td>Not known</td>
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<tr>
<td>Danquah</td>
<td>Measuring hand washing behaviour: methodological and validity issues</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>18 million people</td>
<td>At scale</td>
<td>Not known</td>
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<tr>
<td>Das et al</td>
<td>Participatory Community Hygiene Education in Dhaka Slums: DSK experience</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>More than 1 million</td>
<td>Not known</td>
<td>Not known</td>
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<tr>
<td>Devine</td>
<td>Beyond Tippy-Taps: The Role of Enabling Products Role in Scaling Up and Sustaining Hand washing</td>
<td>International</td>
<td>Singular – handwashing</td>
<td>Scaling up</td>
<td>At scale</td>
<td>Not known</td>
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<td>Fernandes</td>
<td>Experiences from villages in the states of Madhya Pradesh and Chhattisgarh</td>
<td>India</td>
<td>Singular – menstrual hygiene</td>
<td>Not known</td>
<td>Not known</td>
<td>US$ 2,700 per SNPU</td>
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<tr>
<td>Gautam et al</td>
<td>Stages of hygiene monitoring: An operational experience from Nepal</td>
<td>Nepal</td>
<td>Multiple</td>
<td>Not known</td>
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<tr>
<td>Kabir et al</td>
<td>Contributions of Village WASH Committee in breaking the cycle of unhygienic behaviours</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>37 million people</td>
<td>At scale</td>
<td>Not known</td>
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<tr>
<td>Kabir et al</td>
<td>The Role of Imams and different Institution in Hygiene Promotion of BRAC WASH Programme</td>
<td>Bangladesh</td>
<td>Multiple</td>
<td>37 million people</td>
<td>At scale</td>
<td>Not known</td>
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<tr>
<td>Khistro &amp; Rahman</td>
<td>Assessing and Addressing Hygiene Issues of Internally Displaced Persons of Swat, Buner &amp; Dir</td>
<td>Pakistan</td>
<td>Multiple</td>
<td>Not known</td>
<td>Less than 100,000</td>
<td>Not known</td>
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<tr>
<td>Krukkert et al</td>
<td>Hygiene promotion for men - Challenges and experiences from Nepal</td>
<td>Nepal</td>
<td>Multiple - focus on men</td>
<td>Not known</td>
<td>Ongoing three year project</td>
<td>Not known</td>
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<tr>
<td>Nath et al</td>
<td>Study on Perception and Practice of Hygiene and impact on health in India</td>
<td>India</td>
<td>Multiple –</td>
<td>Not known</td>
<td>Not known</td>
<td>Not known</td>
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<td>Nguyen</td>
<td>Designing Evidence-based Communications Programs to Promote Handwashing with Soap in Vietnam</td>
<td>Vietnam</td>
<td>Singular – handwashing</td>
<td>1.8 million people</td>
<td>At scale</td>
<td>Not known</td>
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<td>Qutub et al</td>
<td>Who is Responsible for Soap in Pakistani School Toilets?</td>
<td>Pakistan</td>
<td>Multiple</td>
<td>38 schools</td>
<td>Pilot</td>
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<td>Riaz &amp; Khan</td>
<td>Beyond traditional KAP surveys</td>
<td>Pakistan</td>
<td>Multiple</td>
<td>Not known</td>
<td>Expanding</td>
<td>Not known</td>
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<tr>
<td>Shabnam</td>
<td>The Practice of Hand washing</td>
<td>Bangladesh</td>
<td>Singular – handwashing</td>
<td>1.5 million people</td>
<td>At scale</td>
<td>Not known</td>
</tr>
</tbody>
</table>

Note: 1 Cost described as US2,700 per Sanitary Napkin Production Unit

References


CAWST-Centre for Affordable Water and Sanitation technology. (2007) *The usefulness (or not) of health impact evaluations for household water treatment programs.*

