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SUSTAINABLE ENVIRONMENTAL SANITATION AND WATER SERVICES

Experiences, information and knowledge on hygiene promotion

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BANGLADESH IS ONE of the most densely populated countries in the world. Most of the people in the villages and slum suffer from economic hardships, lack of education and dwelling space, unhealthy and unhygienic environment. In Bangladesh, most of the illnesses occur due to lack of safe water for personal and domestic purposes and adequate sanitation.

Ninety seven percent of the population in Bangladesh now has access to clean or safe drinking water from a tubewell, ring-well or tap. But 46% of the population still uses pond, river or other surface water for household work and only 40% of the population used sanitary latrines (Ministry of Women and Children's Affairs, 1999). About 35% of the people wash hands with soap after defecation (Shahid *et al.*, 1996). The use of sanitary facilities remains limited in the densely populated communities of the country, an enormous quantity of human excreta is discharged every day in and around the household courtyards and in open water bodies like canals and rivers. It makes the surface water dangerously polluted, and the grounds infested with parasitic worms. Specific diseases caused by unsafe drinking water and poor sanitation include cholera, gastroenteritis, diarrhoeal diseases, typhoid and paratyphoid fever, infectious hepatitis, amoebiasis, and intestinal parasites.

Intervention programmes

The Department of Public Health Engineering (DPHE) and UNICEF have pursued an "integrated approach" whereby safe water and sanitary latrines were presented as a package: to get a tubewell, user groups were required to build a target number of latrines (GOB and UNICEF, 1999). Hygiene education plays an important role in reducing diarrhoeal morbidity and mortality by improving personal hygiene. A relief project administered by CARE was the Water and Sanitation/Hygiene (WASH) project (Brahman, 1994). WASH responded to the immediate need for potable water after a cyclone and resultant tidal surges, which destroyed many water systems in the area. The Ministry of Health developed the Teknaf Dysentery Project in Teknaf, one of the poorest areas in Bangladesh (Rahaman and Na Pombejr, 1979). Slab latrines were built in some areas of Teknaf, and villagers were encouraged to upgrade personal hygiene standards. The Water Supply and Sanitation (WSS) project conducted by the NGO Forum in a rural area of Bangladesh also provided sanitary latrines (Hoque and Hoque, 1994).

An earlier integrated water supply, sanitation and hygiene (WSH) education intervention project was run by the ICDDR,B over the period 1983-87 which provided hand pumps, promoted latrine construction and hygiene education in the intervention area. In the project, diarrhoea morbidity in children in intervention area was reduced by 25% compared to the children in the control area (Aziz *et al.*, 1990).

The national survey carried out by Mitra and Associates in 1991 identified that handwashing after defecation, after cleaning up a child's bottom, and prior to preparing or serving food was practiced by over 90% of respondents. However, most handwashing was done with soil or only water. After defecating or cleaning up a child, almost 20% of rural residents and about 30% of urban slums/fringes respondents reported using soap to wash their hands (Mitra, 1992).

Behaviour change

Various studies have been carried out in support of the water, sanitation and hygiene education activities in Bangladesh. Some of these studies included aspects related to hygiene behaviour and beliefs. The national survey by Mitra (1992) also indicated that although over 90% of families with a sanitary latrine use it regularly, only 10% of children under five and 50% of the older children use the latrine. A recent WHO study found that 25% of the latrines were used by all members of the family (WHO, 1993). Latrine use is higher and more regular among women and girls than men and boys. Also, people in urban slums and fringes are more likely to use the latrine than people in rural areas (Mitra, 1992).

Methods used during hygiene promotion activities

The important methods employed during various studies on hygiene promotion issues have included hand washing, health education, installation of hand pump and latrines, promotion of safe water use and food hygiene maintenance. The target audiences included poor rural mothers, infants and crawling children, urban slum communities, tube well users, school children and teachers. Some selected methods used in studies related to hygiene promotion activities and their output are shown in Table 1.

Table 1. Selected methods used in studies of hygiene promotion in Bangladesh

Author	Year	Methods used	Targeted audiences	Output
Ahmed <i>et al.</i>	1994	Teaching of germ theory	Community mothers	Adopted hygiene practices at rates ranging from 65 to 100%
Shahid <i>et al.</i>	1996	Hand washing	Peri-urban slum dwellers	2.6 fold reduction of diarrhoeal episodes
Alam <i>et al.</i>	1989	Water supply through hand pump	Children	40% reduction of diarrhoeal cases
Aziz <i>et al.</i>	1990	Installation of latrines	Children	25% fewer episodes of diarrhoea in children
Bateman <i>et al.</i>	1995	Child to child activities and school programmes	School children and teachers	66% reduction in diarrhoeal cases
Stanton and Clemens	1987	Hygiene education	Urban communities	26% protective efficacy for diarrhoeal disease ($p < 0.0001$)
Khan <i>et al.</i>	1984	Use of Alum Potash	Families of index cholera patients	Decrease secondary infection rates in cholera out breaks

Gaps and constraints

In implementing the water and sanitation interventions over the years different barriers and problems have been identified. No systematic attempt to use the information available on the factors that limit the success of water and sanitation in achieving targets was observed. Linkage of sanitation and health is not yet fully understood by the general public. Until recently, sanitation interventions have concentrated on providing hardware support with little emphasis on hygiene education and awareness of the benefits of sanitation. Efforts at hygiene education and motivational campaigns remain inadequate in spite of recognition of their importance.

A recent UNDP review study characterized Bangladesh's urban water supply and sanitation sector as not aiming for sustainable services with intermittent poor and low quality piped water supplies and general neglect of systems due to inadequate operations and maintenance associated with a lack of ongoing training opportunities. Required budget allocations are of low priority while municipal authorities are weak in manpower and management capability (GOB-DPHE-ADB, 1995).

Knowledge gaps

In 2002, ICDDR,B held consultations with stakeholders as part of a scoping study for the WELL Resource Centre Network programme. The scoping study's aim is to identify knowledge and information gaps in hygiene promotion in Bangladesh. The consultations identified that knowledge gaps exist at various stages of the execution phases. These may be broadly classified as:

1) Knowledge-gaps persisting at the community level on health & hygiene awareness;

- 2) Knowledge gaps at the institution level in which the institutions - irrespective of their hierarchy - are ignorant of the needs of society in particular fields;
- 3) Knowledge gaps in information management, which remains to be channeled in a proper way so as to activate stakeholders at the level by which societal goals in the sector can be achieved;
- 4) Knowledge gaps in co-ordination and interaction between stakeholders carrying out WatSan health and hygiene promotional activities in the field.

Generate & share knowledge

It is a matter of utmost importance that there should exist an improved understanding and exchange of views and sharing knowledge between various agencies working in the health & hygiene promotion and WatSan sector. It has been noticed that similar activities are being carried out by a number of NGOs along with GOB agencies in the same areas without any communication between them nor any co-ordinated actions. In the circumstances, the following issues may be addressed cohesively with concerted effort.

These ideas were generated from discussions held with the stakeholders for the WELL scoping study:

- 1) Synchronized efforts toward fulfilling societal goals
- 2) Reduction of duplication of efforts between agencies in the same area of operation
- 3) Sharing knowledge on the development efforts achieved and common goals
- 4) Exchange of resources in various programs to strengthen the bonds and experience
- 5) Division of labour in a concerted way so as to utilize and optimize all efforts

Table 2. Key issues recommended by stakeholders for promotion of hygiene in Bangladesh

Output	Activity	Indicators	Remarks
Improved knowledge sharing & generation	Awareness building at community level. Holding workshops in the project area between end users. Research study to improve information management. Proper documentation of hygiene promotion from field level offices. Hold sharing meeting for dissemination of information.	Increased & spontaneous co-operation from the community. Capacity building of the end users. Better flow of information. Proper compilation of information from field. Better exchange and co-ordination between end-users.	Filling in the prevailing knowledge gaps.
Material published for knowledge sharing	Material development for hygiene & health in form of magnetic media & audiovisual assistance. Publication of hygiene promotion related case studies. Developing appropriate toolbox for IEC campaign.	Better dissemination of information. Archiving of materials & reports. Enhanced communication with end-users.	Better dissemination of hygiene information.
Capacity building	Proper staff orientation & training courses on "hygiene promotion". Devise appropriate human resource development (HRD) for "project planning & implementation".	Improved staff in promoting hygiene education. Improved staff in project planning & implementation.	Improved institutional arrangement.
Gender equity	Ensuring participation of women at all level of community activities. Motivational programme for males in empowering women at all levels.	Improved participation of women at community level. Better understanding of gender participation and equity.	Improved social mobilization.

Recommendations and conclusion

In Table 2 some key issues which need to be considered for the promotion of hygiene and related behaviours in Bangladesh have been mentioned. These activities were proposed during the present consultation study with various stakeholders.

A dramatic improvement in the drinking water supply system has been achieved with ninety-seven percent of the population has access to a safe source of drinking water. But the use of safe water for all domestic purposes including drinking is not yet practiced in many rural areas; 46% of the population still use ponds and rivers for household purposes (Ministry of Women and Children Affairs, 1999) and thus they are susceptible to waterborne diarrhoeal diseases. Recent surveys on tubewell waters of various upazillas of the country have detected arsenic in 53 districts out of 64 districts which include 210 upazillas out of 464 upazillas. In this perspective the access to safe water is now estimated to be 70%. About 32 million people (26% of the population) are potentially at risk of arsenicosis (Bangla-

desh Bureau of Statistics and UNICEF, 2000). Therefore future approaches to empower the members of rural households to protect their children and themselves against a variety of waterborne pathogens should emphasize the concrete and synchronized effort with proper understanding of community perceptions.

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