



Health and hygiene education programme: Northern Pakistan

Dr. Tameez Ahmad and Dr. Karim Alibhai, Pakistan

THE MORTALITY RATE in Pakistan for children under the age of five (5) is 165 deaths per 1000 children, which is 20 times higher than those of the United States, France, and the United Kingdom. Deaths due to water and sanitation related diseases are the major contributing factors to this high mortality (UNICEF, 1997). Water and sanitation related diseases are responsible for 60% of the total number of child mortality cases in Pakistan (Editorial, Daily Dawn, November 19, 1999). In Pakistan about 700,000 children die every year due to diarrhoea, tetanus, acute respiratory infections, malaria, diphtheria, measles, tuberculosis, polio and others preventable diseases. It is alarming to note that out of 700,000 deaths, diarrhoeal diseases alone kill 228,000 children. A national survey shows that every child in Pakistan can expect on average five (5) episodes of diarrhoea per year (Iliyas, 1997). The situation of water and sanitation related diseases in northern Pakistan (Northern Areas and Chitral) is even more acute than the rest of Pakistan. Data collected from hospitals located in Northern Areas revealed that 47152 cases of cholera were reported resulting in more than 100 deaths during the cholera outbreak that struck in the summer of 1999. If we include the number of non-reported cases and deaths, these figures would probably increase by 2 to 5 times. Examination of data of the District Headquarter Hospital Gilgit alone showed 7109 cases of typhoid, malaria, trachoma, and hepatitis and 56641 cases of worm infestations.

In order to improve health conditions and hence, the quality of life in the Northern Areas and Chitral, Pakistan, Aga Khan Planning and Building Service launched the implementation phase of the Water and Sanitation Extension Programme (WASEP) in 1997. The main objective of the WASEP is to substantially reduce the risk of food & water-borne diseases (specifically diarrhoeal diseases) as a public health problem in northern Pakistan. WASEP is expected to complete its interventions in 105 villages by the end of 2001 and at present WASEP is working in more than 40 partner communities.

Past experience and research carried out in different parts of the world has shown that maximum impact on reduction of diseases can be achieved by adopting an integrated approach towards water and sanitation intervention (Cairncross, 1990; Esrey et al., 1997). Provision of safe water supply and sanitation facilities can help in preventing water and sanitation related diseases but it is also strongly influenced by hygiene behaviour (Boot & Cairncross, 1993; UNICEF, 1995; Gorter et al., 1997). Therefore, in order to achieve programme objectives, WASEP's strategy is to

works with partner communities by providing safe drinking water supply systems, sanitation facilities, and health and hygiene education. Health and hygiene education programme of WASEP primarily consists of three components: i) Community Health Intervention Programme (CHIP), ii) School Health Intervention Programme (SHIP), and iii) Monitoring and Evaluation. This paper will throw light on the main characteristics of each component and will also discuss results achieved, and lessons learnt during the implementation of the programme.

Community Health Intervention Programme (CHIP)

By gender roles at the household level, WASEP initiated CHIP in July 1998 and identified women as the target group where its activities can achieve the most significant impact on improving community health and hygiene. The main objectives of the programme are to create awareness on health and hygiene, facilitate the target group to adopt and sustain healthier behaviours so as to reduce occurrence of water and sanitation related diseases and to ensure proper usage and maintenance of the hardware (water supply and sanitation facilities) implemented by the WASEP. The main topics of the hygiene education programme include latrine promotion and the usage and/or safe disposal of human faeces; domestic, environmental, and personal hygiene; safe water; food hygiene; transmission routes of water and sanitation related diseases; prevention and cure of diarrhoeal diseases and intestinal worms; and water usage & management issues related to operation and maintenance (O&M) of the water supply systems.

In order to reach the target group (women) in more than 40 communities located in all three regions (Gilgit, Baltistan, and Chitral) of northern Pakistan, WASEP has employed female health and hygiene promoters (HHPs) who have relevant professional backgrounds and can speak local languages. Typically hygiene education is conducted with a group of women using different techniques such as group discussions, posters, role-playing, demonstration, and relating anecdotal information as communication tools. These sessions focus on finding local solutions to a given problem based on mutual discussion. In addition, household visits for monitoring purposes provide unique opportunities both for HHPs and families for sharing experiences on a given hygiene behaviour. The process of hygiene education starts soon after the selection of partner communities (villages) for intervention and continues for a period of two years. At the initial stage a

female member from each village is also selected by the communities for the position of Water and Sanitation Implementer (WSI) to take care of the health and hygiene activities being undertaken in her village. WSI's being members of the Water and Sanitation Committees (WSC) enjoy the support of the WSC in particular and other community members in general. Apart from WSC's support other actors in the communities like schoolteachers, religious leaders, health workers and other groups provide invaluable support to the health and hygiene activities undertaken.

School Health Intervention Programme (SHIP)

In order to further maximize the benefit of water, sanitation, and hygiene interventions, WASEP launched the School Health Intervention Programme (SHIP) in September 1999 to facilitate school going children to plan and take action to improve health and hygiene status. The curriculum developed for SHIP consists of eight topic *viz.* clean hands; safe disposal of faeces/latrines usage; diarrhoea; worms; clean and safe water; safe food; personal hygiene; and water usage and management issues related to water supply systems. The Institute for Education Development (IED) of the Aga Khan University also provided guidance on the development of the curriculum. The direct target groups of SHIP are the children in class III-V while the indirect target groups are children in other classes, younger siblings and parents; and other non-school going children in the communities. The HHPs facilitate hygiene education sessions in schools located in the partner villages. Use of active methods like group discussion, posters, stories, role plays, surveys, demonstration, painting, and poems etc. is central to teaching methods used in SHIP. WASEP has adopted the Child to Child (CtC) approach for SHIP. The six steps of CtC approach include (i) choosing the right idea and understanding it well (ii) finding out more (iii) discussing what we are finding and planning for action to be taken (iv) taking action (v) evaluating the results and (vi) doing it better next time. These six steps are incorporated in lesson plans prepared for each topic mentioned above. It usually takes three days (about 44 to 60 minutes per day) to complete one topic. On the 1st day step 1 is done in school while step 2 is completed by the children in their home/village. Step 3 is carried out in schools on the 2nd day while step 4 in homes/villages on the same day. On the third day steps 4 and 5 are done in schools. Step 6 is continued until a new topic is introduced during the next round of visit by HHPs. Preliminary analysis shows that the CtC approach has been very effective in facilitating children to take and plan actions in their schools, homes and villages to improve hygiene status.

Monitoring and evaluation

In order to assess the impact of health and hygiene activities undertaken in programme villages, WASEP has established an elaborate monitoring and evaluation

system. Information on various domains of hygiene behaviour *viz.*, water storage practices, food hygiene, cleanliness of houses and general environment outside houses, presence of faeces around the houses, condition and use of latrine, and other parameters of domestic and personal hygiene is collected periodically (on average in every six weeks) from every household located in the partner villages. Surveys are also carried out to measure changes in knowledge and attitude of target groups (women and school going children in partner villages) related to water, sanitation, hygiene, and diseases. Incidence of diarrhoeal diseases is monitored to evaluate impact of the interventions. Information on each indicator collected through spot and rating checks are transformed into numerical scores such that the sum of the score/weightage becomes 100. This is done to determine the overall level of hygiene status, which is a function of a number of selected individual indicators and this can have a score in the range of 0-100. In order to locate each household in the village and monitor it within WASEP's Management Information System (MIS), every household in a particular village has been assigned a unique number code.

Results and Discussion

While implementing CHIP and SHIP interventions in over 40 partner communities (15 in 1998 and 26 in 1999) over 20000 household visits, 600 hygiene education sessions in more than 60 schools and 560 hygiene education sessions with women have been conducted. Apart from these improved water and sanitation facilities have been put in place. As a result of both hardware (water, and sanitation) and software (hygiene education and capacity building) interventions significant improvement in health and hygiene status has been achieved in the programme area. Figure 1 shows the typical variation of overall hygiene status at a programme level (based on the average score for all partner villages selected in 1998) with respect to baseline data. It can be seen from this figure that hygiene status increased from a baseline value of 44.1 in July 98 to 83.6 in May 2000 resulting in a 90 % improvement. Table 1 shows a comparison of baseline data for some selected indicators to those collected after 8 months. This table shows significant improvement despite the fact that interventions have not as yet been completed. Similarly results of KAP (Knowledge, Attitude and Practice) surveys carried out after 8 months of the baseline survey in five schools are shown in Table 2. The positive change in children's knowledge as results of SHIP interventions is visible from data presented in this table.

Data on the incidence of diarrhoeal diseases (periodically collected over a period of one year) from different partner villages was analyzed both internally (pre and post comparison or longitudinal study) and externally (case-control/with and without interventions/cross-sectional study) to see the degree of reduction. Pre and post comparison after one year of intervention for the same period of the

year (in summer with peak diarrhoeal incidence) unveiled an average reduction of 50.4% for the partner villages implemented in 1998. Figure 2 shows typical situation for one of the partner village (Datuchi) located in Gilgit region.

Individual reduction for different partner villages ranged from 2% to 97%. A review of literature on impact of water and sanitation facilities on diarrhoeal morbidity (Briscoe, Feachem, and Rahman, 1985; Esrey *et al.*, 1991; Gorter and

Table 1 : Pre and post comparison of selected indicators.

Name of indicator	Gilgit Region (% prevalence)		Baltistan Region (% prevalence)		Chitral Region (% prevalence)		Overall Situation (% prevalence)	
	Before	After	Before	After	Before	After	Before	After
Use of clean utensils	32	81	0.87	78.00	0.4	20	15	55
Covering of utensils against dust and flies	5	62	1	65	4	20	4	45
Provision of cover on water storage vessel	27	49	4	72	31	63	23	60
Presence of human faeces in courtyard	11	3.8	90	2.7	37	10	37	6
Presence of human faeces outside of houses	38	5	91	2.5	88	72	65	32
Presence of animal faeces in courtyard	80	50	99.6	57	100	99	90	72
Cleanliness of courtyard	31	64	1	44	1	1	23	60
Handwashing before eating	66	87	34.5	88.2	31.0	98.5	43.8	91.2
Handwashing after defaecation	21	50	20.0	32.4	65.5	93.4	35.5	75.3
Knowledge that dirty water may cause diarrhoea	6	39	7.3	70.6	40.8	76.6	18.0	62.0
Knowledge that flies may cause diarrhoea	19	39	1.8	33.7	9.2	68.6	10.0	67.1
Knowledge that germs may cause diarrhoea	2	18	0	13.7	5.6	43.1	2.5	44.9
Knowledge that open defaecation (faeces) may cause diarrhoea	4	37	3.6	2.0	5.6	48.2	4.4	29.0
Knowledge that dirty hands may cause diarrhoea	46	64	1.8	33.3	15.5	67.2	21.1	54.8

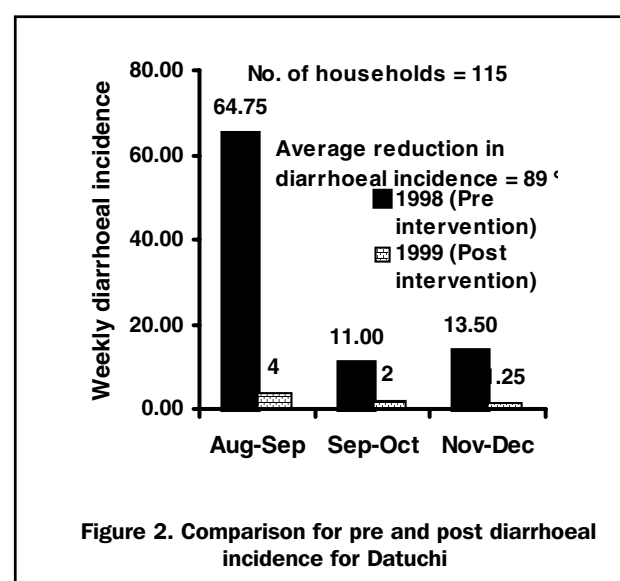
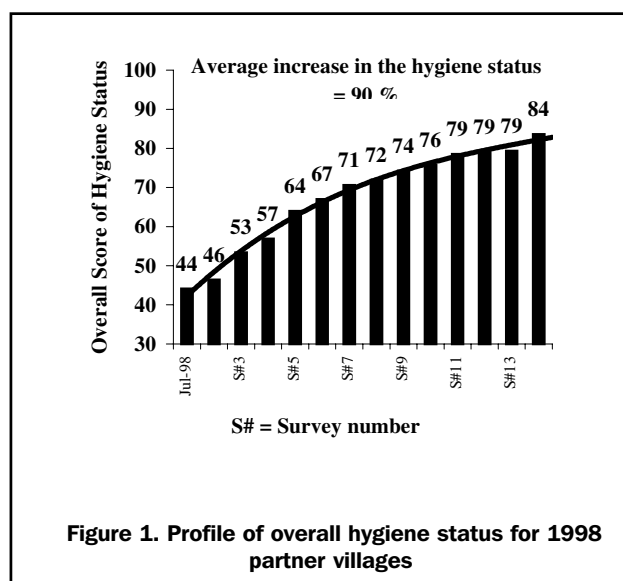


Table 2: Summary of results of KAP survey conducted in Primary Schools

Questions asked during KAP survey (inherent prevalent old notion).	Before(% agreed)	After (% agreed)
We don't need to wash our hand when there is no visible dirt.	66	9
Sweets may cause diarrhoea.	70	40
Less sleep may cause diarrhoea.	46	17
Too much hardwork may cause diarrhoea.	64	17
Open defaecation is a good practice during diarrhoea.	56	29
Sweet things may cause worm infestation.	87	56
Running water is always safe.	84	10
Only during illness clean water should be used.	93	18
I know how to make ORS.	3	82

Sandiford, 1997) indicate “measuring impact of water and sanitation is a challenging job and more or less all available for this purpose are not free from biases and subjected to complicated confounding variables and it becomes increasingly difficult when it comes to quantification of the impact of individual component of interventions viz. water, sanitation, and hygiene”. As mentioned above in one of the village despite the fact that safe water and sanitation facilities and hygiene education were provided there was little reduction (only 2%) in the diarrhoeal incidence. The possible justification for this might be attributed to the possible influence of hygiene behaviour of the target group under consideration. Comparison of programme villages (with WASEP interventions) with non-programme villages (without intervention) for 21 sets of data obtained from 16 pair of villages on diarrhoeal incidence (cross-sectional studies/case-control) indicated that villages with no intervention are on average 7 times more likely to have diarrhoeal diseases as compared to villages with interventions.

WASEP through integrated approach towards water, sanitation, and hygiene interventions produced significant change at grass root level. WASEP's approach of building a close rapport with communities through six weekly household visits and a series of hygiene education sessions provided impetus for adoption of healthier behaviour at the household level. The gradual improvement in hygiene status (Fig. 1) supports the view that hygiene education is not a one-time job but requires regular reinforcement. Feedback given to communities on the outcomes of monitoring surveys proved to be very a useful mechanism for establishing two way flow of information to achieve desirable results. Making issues on management of water supply system integral part of education both for women and school going children greatly improved O&M of the system through better tariff collection and proper usage of the facilities provided. Involvement of WSC's (in particular) and others key activist (e.g., teachers, religious leaders) in the process of hygiene education reinforces and helps adoption of hygiene behaviours.

Conclusions

As a result of an integrated approach towards water, sanitation and hygiene education and proactive involvement of women and school going children more than 50 % reduction in diarrhoeal diseases was achieved after one year of interventions. Other benefits of hygiene education included improvement in management of the water supply systems through better tariff collection and increased and proper usage of water and sanitation facilities. The current experience of WASEP suggests that without involving women in the process of behavioural changes, expected health benefit of the water supply and sanitation projects will be limited. Apart from this sustainability of such projects is also at risk if the important stakeholders (men, women, children) of the water and sanitation projects are not involved in identification, planning, implementation, operation and maintenance of the systems.

References

- BOOT, M.T. AND CAIRNCROSS, S., (EDS). 1993. Actions Speak: The study of hygiene behaviour in water and sanitation projects. IRC, The Netherlands and London School of Hygiene and Tropical Medicine.
- BRISCOE, J., FEACHEM, R.G., and RAHMAN, M.M., 1985. Measuring the impact of water supply and sanitation facilities on diarrhoea morbidity: prospects for case-control methods. World Health Organization.
- CAIRNCROSS, A.M., 1990. Health impacts in developing countries: New evidence and new prospects. *Journal of the Institution of Water and Environmental Management*. No.4. pp.571-577.
- ESREY, S.A., POTASH, J.B., ROBERTS, L., AND SHIFF, C. 1991. Effect of Improved water supply and sanitation on ascariasis, diarrhoea, draccunculiasis, hookworm infection, schistosomiasis and trachoma. Bulletin of the WHO No.69.
- GORTER, A. AND SANDIFORD, P. 1997. A literature review of the health impact of water supplies, sanitation

and hygiene on the incidence of diarrhoeal disease. Chapter 3 in *Childhood Diarrhoea and its prevention in Nicaragua*. Vormgeving en drukwerk, Uniigraphic, Universiteit Maastricht.

GORTER, A.C., et al. 1997. Hygiene Behaviour in rural Nicaragua in relation to diarrhoea. Section 4.4. in *Childhood Diarrhoea and its prevention in Nicaragua*. Vormgeving en drukwerk, Uniigraphic, Universiteit Maastricht.

ILIYAS, M. (ed), 1997. Community Medicine and Public Health. Time Traders, Urdu Bazar, Karachi, Pakistan.

TONGLET, R., ISU, K., MPESE, M., DRAMAIX, M., AND HENNART, P. 1992. Can improvements in water

supply reduce childhood diarrhoea? Health Policy and Planning, No. 7(3): pp. 260-268. Oxford University Press.

UNICEF, 1997, The State of the World's Children, Oxford University Press.

Dr. Tameez Ahmad and Dr. Karim Alibhai, Water and Sanitation Extension Programme, The Aga Khan Planning and Building Service, Pakistan
