

822 BD98

Government of Bangladesh
Ministry of Local Government
Rural Development and Cooperatives
Department of Public Health Engineering

Library
International
Sanitation
Tel: +81 705
Fax: 131 01

Government of the Netherlands
Ministry of Foreign Affairs
Directorate General of
International Cooperation

18DTP A DPHE Project working with Dutch Aid
Drinking Water..Sanitation..Hygiene Education



822-BD-15775

Project Office : 190 Arambagh, Motilheel C/A, Dhaka-1000 Bangladesh

Government of Bangladesh
Ministry of Local Government,
Rural Development and Co-operatives
Department of Public Health Engineering

Government of the Netherlands
Ministry of Foreign Affairs
NEDA, Netherlands
Development Assistance

NETHERLANDS - BANGLADESH DEVELOPMENT COOPERATION PROGRAMME
DPHE-DUTCH ASSISTED WATER SUPPLY, SANITATION AND DRAINAGE PROJECTS

18 DISTRICT TOWNS PROJECT

**WOMEN IN DEVELOPMENT
AND HYGIENE EDUCATION
IMPACT STUDY**

EXECUTIVE SUMMARY

DECEMBER 1998

PROJECT OFFICE, 17/A MONIPURI PARA (SANGSHAD AVENUE), DHAKA

LIBRARY IRC
PO Box 93190, 2509 AD THE HAGUE
Tel: +31 70 30 689 80
Fax: +31 70 35 899 64

BARCODE: 6 7 7 5
LO 822 8098

This report was written by Suzanne Hanchett with assistance of 18DTP staff and consultants: Cindy Geers, Rafiqul Islam, Qumrun Nahar, and Jennie van de Weerd. Survey interviews and data entry were conducted by PRAXIS (Mohidul Hoque Khan, Director). Technical assistance for 18DTP is provided by a consortium of three Netherlands consulting firms, DHV, IWACO, and BKH, and three Bangladesh consulting firms, AQUA, BETS, and DEVCON.

List of Abbreviations

18DTP	18 District Towns Project for Water Supply, Sanitation and Hygiene Education
BBS	Bangladesh Bureau of Statistics, Ministry of Planning
CSC	Community Sanitation Centre
NGO / CSC	All-female team hired on contract to do hygiene education, sanitation promotion, and other duties
DANIDA	Danish International Development Agency
Division	A project-defined grouping of towns, not identical with national administrative division
DPHE	Department of Public Health Engineering, part of the Ministry of Local Government, Rural Development, and Cooperatives (counterpart agency for 18DTP)
HEP	Hygiene Education Program
HTW	Hand tubewell
<i>kacca</i>	Roughly, crudely built; rural style (contrasted with <i>pucca</i>) [pronounced: <i>kuchha</i>]
NGO	Non-Governmental Organization
ODS	Organizational Development Specialist; over-all supervisor of project division or pourashava-level project work
PD	Project Director, a DPHE official
PO	Project Office, under direction of Team Leader
<i>pucca</i>	Proper, well made; used to refer to concrete, urban-style buildings (contrasted with <i>kacca</i>) [pronounced: <i>pukka</i>]
PWSS	Pourashava Water Supply Section (managed by PWSS Superintendent)
SAE	Sub-assistant Engineer
SDE	Sub-divisional Engineer
SMC	School Managing Committee (made up of local people and government employees; every primary school has one)
TEO	Thana Educational Officer
UNICEF	United Nations Children's Fund
WATSAN Committees	A network of thana-level or union-level committees established by DPHE and UNICEF to manage local water and sanitation improvements
XEN	Executive Engineer

Women in Development and Hygiene Education Impact Study

Table of Contents

Executive Summary

Part 1.

Summary Report

- 1.1 Background and Introduction
 - 1.1.1 The 18 District Towns Project (18DTP): Background Information
 - 1.1.2 Terms of Reference
 - 1.1.3 Evaluation Methodology
 - 1.1.4 Outline of the Report
- 1.2 Women in Development: Summary of Findings
 - 1.2.1 Trial and Error in Women in Development (WID)
 - 1.2.2 NGO/CSC Teams
 - 1.2.3 The Hand Tubewell Caretaker Training Program
 - 1.2.4 Gender Training: Introduction
- 1.3 Evaluation of the Hygiene Education Program
 - 1.3.1 The Hygiene Education Program: A Brief Overview
 - 1.3.2 Program Impact Indicators: Household Survey Findings
 - 1.3.3 Evaluation of the 18DTP School Program
- 1.4 Community Participation: General Comments

Part 2.

Women in Development

- 2.1 Trial and Error in Women in Development (WID)
 - 2.1.1 The Rise and Fall of the Female Masons
 - 2.1.2 WID and the Water Supply and Sanitation Committee (WSSC)
 - 2.1.3 NGO/CSC Teams
- 2.2 Hand Tubewell Caretakers
 - 2.2.1 The Hand Tubewell Caretaker Training Program
 - 2.2.2 Economic Status of the HTW Caretaker Households
 - 2.2.3 Hygiene Education Levels
 - 2.2.4 Practical Experiences and Constraints
 - 2.2.5 Spreading Knowledge to Others
 - 2.2.6 Attitudes Toward Women Doing Tubewell Repair
 - 2.2.7 Further Training Needs and Tool Distribution
 - 2.2.8 Comparison Between Towns
 - 2.2.9 Summary and Conclusions

- 2.3 Gender Training
 - 2.3.1 Introduction
 - 2.3.2 Description of Group Sessions and Initial Reactions
 - 2.3.3. Project Office Post-training Communication
 - 2.3.4 Six Month Follow-up Findings
 - 2.3.5 Field-level Planning for Future Gender Training
 - 2.3.6 Summary and Conclusions

Part 3.
Hygiene Education

- 3.1 Overview of the Hygiene Education Program and NGO/CSC Teams
 - 3.1.1 The Hygiene Education Program: A Brief Overview
 - 3.1.2 Hygiene Education Methods
 - 3.1.3 The NGO/CSC Teams: Status, Constraints, and Skills
- 3.2 Program Impact Indicators: Household Survey Findings
 - 3.2.1 Demographic Characteristics of Sample Groups
 - 3.2.2 People's Perceptions of Project Hygiene Education Services
 - 3.2.3 Domestic Water Use
 - 3.2.4 Sanitation
 - 3.2.5 Hand Washing Practice
 - 3.2.6 Solid Waste Proposal
 - 3.2.7 Water and Sanitation Knowledge
 - 3.2.8 Family Health Status
 - 3.2.9 Summary and Conclusions
- 3.3 The 18DTP School Program
 - 3.3.1 Introduction
 - 3.3.2 The 18DTP Hygiene Education School Curriculum
 - 3.3.3 Monitoring the School Program
 - 3.3.4 Teachers' Comments on Child Health
 - 3.3.5 Problems, Successes, and Future Plans
 - 3.3.6 Impact of the School Program
 - 3.3.7 Summary of Findings
 - 3.3.8 Conclusions

Annexes

- 1.1 A Terms of Reference
 - B Impact Assessment of the 18DTP Women in Development, Hygiene Education, and Community Participation Programs, Preliminary Findings and Recommendations
- 2.3 Gender Training Materials and Notes
- 3.2 A Brochures Distributed to Beneficiaries
 - B Questionnaire
 - C Supplementary Data Tables
- 3.3 Sample Curriculum Materials. 18DTP School Program

Women in Development and Hygiene Education Impact Study

Executive Summary

Table of Contents

Introduction

Women in Development (WID) Program Evaluation

- Original Connection to Community Development Objectives
- Rise and Fall of the Female Masons
- WSSCs and WID
- NGO/CSC Teams
- Hand Tubewell Caretakers
- Gender Training

Hygiene Education Program Evaluation

- An Overview of the Program and Organizational Issues
- Program Impact Indicators: Household Survey Findings
 - Domestic Water Management
 - Sanitation
 - Personal Hygiene
 - Solid Waste Disposal
 - Water and Sanitation Knowledge
 - Family Health Status
- The 18DTP School Program

Community Participation: General Comments

Executive Summary

Introduction

The 18 District Towns Project started in 1988 on the basis of an earlier water supply project (12DTP). It has expanded and changed its approach to water and sanitation during its ten years of operation. The project began with a commitment to make sure that water supply improvements were complemented by sanitation facilities, and that "in order to derive full benefit from [the facilities], ..their proper use and the health awareness of the beneficiaries should be increased through health promotion campaigns."

Considerable effort is made to ensure sustainability of project gains by paying attention to human factors in the water/sanitation sector. One is institutional development. Strengthening local (*pourashava*) municipalities' capacity to manage the new facilities is an important objective of the project. This evaluation focuses on two other important "software" or human/social aspects of the project: its women-in-development activities and hygiene education. The terms of reference also require comments on final-stage community participation activities.

This evaluation study has depended heavily on a team of full-time staff members intimately familiar with program concepts, history, and operations. An outside research firm was engaged to conduct a household survey. Ample staff time and project resources allowed for the use of multiple evaluation study techniques: document review, interviews of present and former staff, checklist interviews (with teachers, staff, and various beneficiaries or others), observations (of households and schools) in project towns, focus group discussions (with hand tubewell caretakers), workshops, situation analysis (of gender training), follow-up questionnaires (gender training participants), and the above-mentioned household questionnaire survey.

Women in Development (WID) Program Evaluation

The 18DTP uses a 1980s-style "women in development" (WID) approach, rather than the more neutral "gender" approach of more recent projects. WID programs basically try to ensure that women benefit from a project at least to the extent that men do. The initial impetus for such programs came from 1970s research by Esther Boserup and others demonstrating that technical projects supposed to benefit a society actually could decrease women's social and economic status. Since that time many researchers and other development specialists have found that socio-economic effects of technical projects are never evenly distributed, and that social impacts usually are not gender neutral. Current "gender" studies allow for the possibility of men losing out and try to study differential impacts from a more neutral perspective.

As the Phase III Project Document states, "In this Project much effort was made to improve the position of women. The Project attempted to contribute [to] women's development in a number of disciplines.... Involvement of women has been done at most stages of Project

implementation" (1995.9,11) The best statement of 18DTP WID objectives was made by a consultant, Sharmeen Murshid, in 1992. "For 18DTP," she wrote, "WID means the increased participation and involvement of women within each specified component of the project, which would aim at skill development, income generation, gender awareness and visibility of WID within the framework of the project."

Original Connection to Community Development Objectives

A "community development" approach shaped the project's early programs, although the approach probably never had the levels of support from the Project Office or counterpart (DPHE) that it would have needed to survive. The holistic concept embraced women-in-development (WID), hygiene education, and community participation objectives. The heart of this approach was the "Community Sanitation Centre" (CSC). Intended to survive the end of the project, the CSC was envisioned as a place *and* a self-sufficient local institution. The vision was that latrine parts would be produced there by trained female masons. It was anticipated that woman-chaired "Water and Sanitation Surveillance Committees" (WSSCs) would also use the CSC as their base of operations, making lists of the "poorest of the poor," who would receive free ring-slab latrines in exchange for a promise to install and use them properly, and solving any local problems that arose. Hygiene educators and sanitation promoters (later, NGO/CSC teams) would work there too. And the Pourashava Water Supply Section (PWSS) office also would be located in the CSC.

Ten years later the CSC still exists as a physical place, but it is not the thriving, multi-purpose community resource that its founders had envisioned. The female masons are gone. The WSSCs, who never had used it, are gone too. The PWSS and NGO/CSC teams' offices are still there.

Rise and Fall of the Female Masons

The female masons program was abandoned, as the project turned away from the community development concept. Approximately 100 women were trained in 1992 to manufacture concrete latrine pans, goosenecks, slabs, foot-rests and rings. Actual production began in 1993 and went on until early 1996 in 11 towns. Cancellation of the program at the beginning of "Phase III" (mid-1996) occurred for several reasons, official and unofficial.

The strongest argument against the program came from private latrine producers, who complained about unfair competition. Before the first latrine was produced the Project Office was persuaded by this argument and decided that the female masons program was a bad idea. Other reasons were: presumed cultural objections to women doing manual labor and the supposedly slow pace of production (probably the result of inadequate supervision by DPHE and a weak project commitment to development of trainees' new skills). Rumors suggest that corruption also was a factor--that the program arrangements prevented fraud and theft of construction materials--although the Project Office was unaware of it.

This experiment has lessons to teach future project planners, many of whom still wish to help poor women and promote the self-sufficiency that was envisioned. Four important lessons are:

1. Unpopular policies and programs need genuine management support; without it they cannot succeed
2. Programs for poor women should include careful orientation of senior managers, who are not adequately familiar with such women's needs and life styles.
3. Social development goals (including poverty alleviation) may compete with economic development goals (such as privatization). A balance in a large project can be maintained only if planners devote attention to balancing official and unofficial agendas.
4. Well-funded programs such as this one have a responsibility toward poor people: to avoid raising false hopes, to not waste their time, and to not blame them for organizational problems over which they have no control whatsoever.

WSSCs and WID

A ten-member Water and Sanitation Surveillance Committee, later re-named the Water Supply and Sanitation Committee (WSSC), was set up in every town as a possibly permanent municipal council having oversight responsibility for latrine and tubewell distribution, at first, and various local water and sanitation matters later on. It was under the authority of the pourashava chairman, but project guidelines required that it be chaired by a woman commissioner. Women commissioners, however, being appointed rather than elected, have minimal political strength.

The fact that the WSSC was chaired by a woman contributed to its failure as a genuine local body. Male members objected that the female chairmanship was humiliating to them. The WSSC rarely if ever made latrine and tubewell distribution decisions. Men (commissioners or chairmen) with greater political strength usurped the politically advantageous task. A 1997 workshop revealed that many WSSC members did not even know that preparation of facility distribution lists was supposed to be one of their duties. A duty they were aware of, hygiene education at the local level, was already being performed by paid NGO/CSC teams. So there was overlap and confusion as well as a political/power problem.

Project management officially supported the WSSC but support was limited to funding for meeting expenses. The project did not provide sufficient training or other much needed field-level support. Although problems were clearly identified by 1995 or earlier, the project chose to dismantle the WSSC rather than strengthen it. The decision was supported by the Joint Review Mission that evaluated the project in March 1998. However logical the decision to dismantle may have been, it represented a project WID failure.

NGO/CSC Teams

An all-woman team has been employed since 1995 in each town (and earlier in some towns) to promote use of sanitary latrines and conduct hygiene education activities. As they have proven themselves to be reliable workers, their scope of work has expanded. Two specifically WID observations about the teams are: (1) women are generally considered to be more honest than men by project staff and some local officials interviewed; (2) the women have a tough job enforcing project guidelines when these annoy locally powerful men. There are rumors that team members have at times been subject to abuse by such men. Further comments about the position of the teams are made in the sections on gender training and hygiene education.

Hand Tubewell Caretakers

The Phase III Project Document states that hand tubewell caretaker training "aims at the reduction of gender differentials in water supply activities at household level" (1995:23).

Tubewells are provided in women's names through the project; and only women are trained as caretakers. A large majority of the caretakers are also latrine beneficiaries. The caretaker training program began in August 1992; by July 1998 3224 women had received caretaker training. A large number of caretakers (23%) are yet to be trained; and some trainees have not yet received the tools the project is supposed to give to them.

These female caretakers not only repair tubewells; they also are expected to set an example and promote hygienic practices in their neighborhoods. Ninety-one percent of the 346 caretakers covered in the household survey had received intensive hygiene education services. The caretaker program thus is essential to the promotion of safe water use.

Until recently tubewell water was considered "safe" water. But arsenic contamination of tubewell water in six towns has changed the project's message, which now discourages tubewell water of unsafe wells for drinking or cooking in those towns.

Caretaker focus group discussions and interviews of caretakers' husbands shed light on the social impact of this unusual program. Men are somewhat annoyed by the fact that tubewells are installed in women's names, but they accept the situation in order to obtain tubewells. Female caretakers are confronted with some social objections to their doing this kind of work, but the objections are decreasing as others come to appreciate and depend on their skill. Most consider it necessary to enclose the tubewells so they can maintain *purdah* (seclusion). This practice, however, limits the extent to which others can freely use the tubewells for purposes such as bathing or utensil washing. Most women are prohibited by their husbands from buying spare parts on their own. They depend on men to buy spare parts.

In each town, nonetheless, there were a few capable caretakers who had no problem going to market and who felt confident in their ability as mechanics. An unexpected finding of the caretaker evaluation is that some women are training others in tubewell repair. Some also are repairing neighbors' tubewells for pay. The project may have unintentionally created an income generation scheme that is working for some.

Asked if trained women are equally capable as male tubewell mechanics with the same training, the great majority of questionnaire respondents said they were. But approximately half of the men interviewed in a less formal way said that it was not possible for women to be as good as men because they are less intelligent: women's brains, after all, *are* smaller than men's brains, they said.

In conclusion, it may be said that the hand tubewell caretaker training program has been the most enduring and successful of all 18DTP WID activities.

Gender Training

After many delays the 18DTP began a series of gender training sessions in 1998. The purpose of the gender training was to "introduce gender sensitivity in the water supply program and to strengthen coordination linkages for better management of gender issues." A total of 68 project staff members were trained in four separate sessions in February-March 1998.

The evaluation of the gender training has two objectives: to assess its effectiveness and to learn from the content of discussions *what* project staff perceive to be the gender issues in the project.

A strength of the training was that trainers were both men and women. The curriculum was found to lack flexibility, however, and changing social patterns and economic class differences were not adequately taken into account. A tendency to depict women as victims alienated several participants, even some in favor of gender equity. The lack of connection to water and sanitation in training for the first two groups was, however, the most serious deficiency.

Sessions which made the best connection to water and sanitation and those which engaged participants' active participation were the most effective. A few male participants were thoroughly opposed to the whole training idea on religious grounds.

Seven critical project gender issues emerged from training discussions and participants' reactions:

1. Project staff have strong and differing opinions about women in development.
2. There is room for change in most (but not all) staff members' attitudes.
3. Male and female water and sanitation roles and needs differ.
4. Differing political opportunities of men and women have affected 18DTP community participation (i.e., functioning of WSSCs).
5. Social restrictions affect local officials' ability to communicate with all water users (especially housewives).
6. Men at the local level (e.g., caretakers' husbands) probably will accept some of the project's WID principles, if some effort is made to persuade them.
7. Gender and power conspire to create difficult obstacles to proper program implementation, when powerful men dominate and control the agendas of female staff members.

Future training for pourashava chairmen is under consideration before the end of the project, assuming that pourashava election are held in time. Careful preparation and development of clearer objectives is strongly recommended before such an activity is undertaken.

Hygiene Education Program Evaluation

An Overview of the Program & Organizational Issues

The stated goal of the program is, "to increase hygiene awareness among the target group and [to improve] their general health status." Target groups receiving most of the hygiene education through the 18DTP are poor women, especially those receiving project latrines, hand tubewells, and/or tubewell caretaker training, and primary school students.

The approach of the hygiene education program is a simple one, based on key messages and having a strongly practical relationship to latrine and hand tubewell use. It depends on frequent visits to beneficiary households and organizing other neighborhood-level educational sessions. Instructional materials consist of flip charts and brochures. Brochures depict in clear pictures (and words) proper latrine or tubewell use and maintenance. Messages concern: use of safe water for all purposes, protection of drinking water, use of hygienic latrines, washing hands, careful disposal of small children's feces, solid waste disposal in a fixed place, and other points.

The management of hygiene education and other tasks of the NGO/CSC teams has been marked by confusion. As they have proved themselves to be generally reliable workers, they have gotten more and more assignments from the project and the pourashava. With each new responsibility, they get a new boss/coordinator. Although they supposedly report to one person in the (Dhaka) Project Office, they actually are accountable to many others (some make conflicting demands on their time) as well. Pourashava chairmen and commissioners in some towns are known to interfere with their work or even to abuse them. Strong teams can resist these pressures and do a good job anyway, but not all the teams are strong.

The relationship of NGOs to the project has, in more ways than one, turned out to be much more complicated than was originally anticipated. The spirit of the arrangement was not one of partnership with local groups; rather, it was that the local groups identified staff who worked for the pourashava and project with no further involvement of the NGO itself. Contracts with several local groups have been canceled or changed. By the end of 1998 teams in eight towns were working directly for pourashava chairmen rather than NGOs. Of the ten remaining local NGOs at least two, set up by chairmen themselves, may or may not do other work in their pourashavas.

Four factors are assumed to influence a team's over-all effectiveness. First is the skill and motivation of team members themselves. Second is the level of support or interference they get from locally powerful people. Third is the volume of beneficiary contact, determined mainly by the schedule of latrine distribution. Finally is the size of the town. Some teams in very large towns are under-staffed.

Program Impact Indicators: Household Survey Findings

Questionnaire interviews were done in 2851 households, randomly selected from lists of project beneficiaries and others identified as non-beneficiaries in a 1997 survey of all town residents. The evaluation of impact was done using a quasi-experimental method in which hygiene education recipients (1938 households) were compared to people with no hygiene education, or "controls" (465 households). The two comparison groups were approximately similar according in economic status, education level, and religion; 50% and 53%, respectively, were poor/low income.

People's own perceptions of the hygiene education services were lukewarm. Although most said they had not learned much, some said they had. The most frequently mentioned benefit of the program was reduced diarrhea.

Detailed questionnaire interviews and checklist observations provided information on behavior and knowledge of hygiene education recipients and controls. Indicators were used to assess program impact were: "safe/unsafe" domestic water sources used for several purposes, cleanliness of tubewell platform, drinking water management, cleanliness of household latrines, evidence of hygienic latrine use behavior, age when children begin hygienic latrine use, disposal of young children's feces, hand cleaning after cleaning children's bottoms, post-defecation hand washing technique (reported), self-reported hand washing times, solid waste disposal, water/sanitation related health knowledge, and sample population health status. Statistical significance tests were used to assess differences between the two comparison groups.

Results varied considerably from one town to another, although none came out as strongly positive or negative on all indicators. Select findings were as follow:

Domestic Water Management

Findings on safe/unsafe water uses in all but three towns indicated minimal project impact. Project-educated households' water use patterns elsewhere were not significantly different from controls'. A widespread tendency to use "unsafe" water for hand tubewell priming was found in all towns.

In five towns hygiene recipients' hand tubewell platforms were significantly cleaner than those of controls. But in one town they were significantly dirtier.

Hygiene education recipients were found to manage drinking water only slightly better than controls. Drinking water containers are still kept on the floor, rather than in an elevated place, in more than half (51%) of all project-educated households, although controls had even more on the floor (60%). Containers were significantly more likely to be covered in four towns. But in three others hygiene education recipients were significantly less likely to cover their household drinking water containers.

Sanitation

The project has succeeded in promoting household latrine maintenance and cleanliness. Findings on this point are strongly positive. Cleanliness was measured according to multiple indicators: whether the latrine was filled up or not; and whether feces or feces smear was visible on the pan or in the latrine area. Each household latrine was given a score based on these indicators and others relating to latrine use (sandals, water pot, and soap or ash for hand cleaning)

Significantly more hygiene education recipients than controls were found in every town to have clean household latrines. Of a possible cleanliness-condition score of 100, hygiene recipients' mean score was around 85 in all divisions, whereas controls' mean score was only 30-60. Regarding latrine use behavior findings were positive, but less strongly so than for cleanliness. Hygiene recipients' behavior scores were better than those of controls. None of the scores was especially high.

Findings on children's latrine use varied greatly from one place to another. In three towns hygiene education recipients report that their children use latrines at significantly earlier ages — about one year earlier on average (around age 3) — than controls (around age 4). Elsewhere there were no statistically significant differences found. In six towns hygiene education recipients were significantly more likely to dump young children's feces in latrines, the hygienic option. Findings on cleaning the hands after cleaning children's bottoms were not positive. In one town only was there any evidence of project effect.

Personal Hygiene

Hygiene education recipients were found to be significantly more likely to wash two hands instead of one after defecation, and to use a separate cloth for drying the hands rather than a common towel or clothing. This indicates an important project impact on the most common means of infectious disease spread.

There was less difference between the other hand washing habits of project-educated women and controls than might be expected, considering the project's emphasis on hand washing. A positive finding was the greater tendency of project-educated women to mention hand washing 'after any work' (44% vs. 38%) and 'before/after eating' (72% vs. 65%). Fewer hygiene-educated women than controls, however, mentioned washing hands after latrine cleaning or washing a child's bottom (8% vs. 9%). These data are not as precise as those on post-defecation hand washing. Many answers were vague or general and may not have a close relationship to behavior.

Solid Waste Disposal

Households with hygiene education were less littered than control households (63% vs. 57% neat, a statistically significant difference). This is an important finding, considering the effort that NGO/CSC teams have made to educate the public about solid waste disposal.

Water and Sanitation Knowledge

Indicators all showed positive program impact. Respondents were asked to identify: (1) diseases related to latrine use, (2) ways that diseases spread, and (3) diarrhea prevention methods. Comments were spontaneous, given without any prompting for specific answers.

Knowledge of the connection between latrine use and four major illnesses — diarrhea (88% vs. 77%), dysentery (50% vs. 44%), cholera (38% vs. 35%), and worms (46% vs. 35%) — was found to be greater among hygiene education recipients than among controls. But there was no difference in knowledge of skin diseases, typhoid, or various other possible water/sanitation-related diseases.

Knowledge of disease spread causes also was better among hygiene education recipients than controls. This was especially true in the identification of insects and animals as contagion agents (62% vs. 54%), and to a lesser extent in the mention of feces (21% vs. 18%) or hands and fingernails (10% vs. 7%). There was little difference in the mention of barefoot latrine use, although this is a project emphasis.

Preventing diarrhea was found to be more well understood by project hygiene education recipients than controls, especially through proper food handling (70% vs. 59%), or -- to a lesser extent -- through cleaning hands or nails (9% vs. 7%).

Family Health Status

Data on specific health impact are not as easily used as are other indicators. This is because the public health effects of hygienic practices, especially of improved sanitation, are not confined to people actually adopting hygienic practices. Nonetheless, it was found that diarrhea and dysentery accounted for slightly less total morbidity in project-educated households (5.5% diarrhea/4.3% dysentery) than in control households (5.8% diarrhea/6.6% dysentery). But skin disease, or eczema, was more of a problem in project-educated households (2.6% vs. 1%). Similar percentages, around 12%, of child deaths (age 10 or less within the past five years) were caused by diarrheal disease in project educated and control households.

The 18DTP School Program

The project since 1995 has provided latrines (up to four each), hand tubewells, and hygiene education in primary schools of the 18 towns. A special curriculum was developed in 1995, and two teachers per school were trained in its use. The Ministry of Education (Primary Education) and the Ministry of Health (Bureau of Health Education) were involved in the program at first. The Ministry of Education in 1995 issued an order to all primary schools in project towns to use the special curriculum. The Ministry of Health was supposed to take an active role in curriculum development and teacher training, but it did not. These tasks were performed instead with assistance from the NGO Forum for Drinking Water Supply & Sanitation (Dhaka). A serious problem with the curriculum is that it was never reconciled with the already-existing national curriculum, *Paribesh Parichiti*, mandated for use in every primary school. Teachers, trained or not, have been confused about how the new curriculum fits into their lesson plans.

The curriculum itself is based on an innovative, "child-to-child" concept. It makes more use of rhymes, games, and role-play exercises than the national curriculum does. But many teachers do not see any difference between the project's curriculum and the national one.

In most schools the actual teaching is done by project NGO/CSC teams. When teachers were trained, it was assumed that the two trained per school would share their knowledge of new techniques with their colleagues. But this sharing did not occur to the extent anticipated. Teachers not receiving the training sometimes feel neglected and resentful -- as well as being confused about the overlap with the national curriculum. If trained teachers are transferred, no expertise with the curriculum remains in the school.

Some important exceptions have been found. In three towns (Lalmonirhat, Nilphamari, and Panchagarh), for example, at least six headmasters are known to be very enthusiastic about the entertaining instructional approach. In their schools NGO/CSC team members are not teaching, because teachers themselves are using the project curriculum.

As far as facilities improvement is concerned, general findings are not especially positive. Facilities are over-used and not (in the case of latrines) adequately accessible to school children. Not only is there too much pressure from within each school, but also neighbors and passers-by often insist on using school tubewells; they also try to use school latrines as public latrines. So several headmasters were found to lock the latrines. Schools are not properly maintaining the facilities.

The most difficult issue raised by the school program is that its hygiene education innovations will not survive the end of the 18DTP in most schools. The planned relationship between facilities improvement and increased hygiene awareness did not work out as well as planned in most places. The most positive thing that can be said about facilities is that, the project installed 67 latrines and a number of hand tubewells that would not otherwise have been in place.

Community Participation: General Comments

The main formal participation body, the WSSC (discussed above), has been dismantled. So there is not much to say about it, except that it was a bold idea with weak project support. It shared some deficiencies with DPHE-UNICEF's WATSAN committees — a network about to be dismantled and rebuilt on different principles. Both were new decision-making groups introduced according to a pre-set formula but without enough consideration of whether they were viable at the local level.

Less officially structured "participation" ideas being tried at the end of the project center on the formation of volunteer groups, some members of whom might be formerly active WSSC members, active hand tubewell caretakers, or others involved with the project. This new approach is recommended to be implemented with great care and focus on areas where interest and need both exist. Collaboration with local or national NGOs might enhance the effort.