

Water, sanitation and hygiene in Bangladeshi slums: an evaluation of the WaterAid-Bangladesh urban programme

Suzanne Hanchett, Shireen Akhter and Mohidul Hoque Khan – summarized by Stephen Mezulianik and Vicky Blagbrough

Suzanne Hanchett PhD is a social anthropologist working as an independent consultant. She is a partner of the US-based company, Planning Alternatives for Change, LLC, Oregon.

Address: PO Box 8952, University Station, Portland, Oregon 97207, USA; e-mail: shanchett@igc.org

Shireen Akhter MSS is an anthropologist living in Dhaka, Bangladesh, and working as an independent consultant. She conducted in-depth interviews and took responsibility for qualitative analysis. She is an associate of Planning Alternatives for Change.

Address: Sheltech Apartments, Farmgate, Dhaka, Bangladesh; e-mail: shireen@dhaka.agni.com

Mohidul Hoque Khan MSc & MBA is director of Pathways, Inc, a Dhaka, Bangladesh, survey research firm. He had responsibility for the household survey and quantitative analysis; e-mail: mohid@bangla.net

Stephen Mezulianik is a freelance researcher; e-mail: steve-m@steve-m.fsnet.co.uk

Vicky Blagbrough is WaterAid's Programme Learning Facilitator; e-mail: vickyblagbrough@wateraid.org

SUMMARY: *This paper describes the WaterAid-supported programme of water, sanitation and hygiene education implemented by local NGOs in the "slums" of Bangladesh's two largest cities, Dhaka and Chittagong. This includes descriptions of the design and management of community-managed water points and sanitation blocks. The paper also summarizes the findings of an external evaluation of their effectiveness and discusses the difficulties of reaching the poorest while also getting full cost-recovery from users (which is required if the millions of urban dwellers in need of improved provision are to be reached with the limited funds available).*

I. INTRODUCTION

WATERAID HAS BEEN supporting integrated water, sanitation and hygiene projects in Bangladesh since 1986; it was not until 1996, however, that WaterAid-Bangladesh's support extended to urban slums.

Initially working with just one local NGO partner, Dustha Shashthya Kendra (DSK), in the Mohammedpur area of Dhaka, the WaterAid-Bangladesh Urban Programme has expanded steadily until, by 2001, there were seven NGO partners implementing WaterAid-supported projects in around 150 different slums in Dhaka and Chittagong (Box 1).

Box 1:	WaterAid's NGO partners in its urban water and sanitation programmes
---------------	---

- ARBAN (Association for Realization of Basic Needs)
- ASD (Assistance for Slum Dwellers)
- BAWPA (Bangladesh Agricultural Working Peoples' Association)
- DSK (Dushtha Shashthya Kendra – specialists in health services for the very poor)
- PHULKI – an organization specializing in day-care services within the Kellyanpur slum
- PRODIPAN – a Khulna-based development organization specializing in solid waste management
- PSTC (Population Services and Training Centre)

Partner NGO field staff are trained and supported by WaterAid's programme team in technical issues, participatory methods for baseline studies, community mobilization and capacity-building, and hygiene education.

Programme services provided by partners include:

- water points supplying water through legal connections to metropolitan water authority lines;
- the installation of tubewells;⁽¹⁾
- the construction of sanitation blocks combining water points, bathing stalls and hygienic latrines;
- community/cluster latrines with septic tanks;
- household water-seal, pit latrines;
- the construction of footpaths;
- drainage improvements;
- solid waste management; and
- hygiene education.

Most, but not all, facilities are provided to slum residents on a full cost-recovery basis, and resident users agree to repay construction costs in instalments. WaterAid's partner organizations use repaid funds for additional slum projects.

Although entirely focused on water, sanitation and hygiene education, the WaterAid-Bangladesh Urban Programme has a demonstrable impact on life in the slums where it operates. Obviously, providing facilities offers clear health benefits, but having legal water connections and paying for water supplies can also have the benefit of creating a sense of "citizenship". This is one area, at least, in which the low-paid, socially marginalized residents of Dhaka and Chittagong have the same rights and responsibilities as other city residents.

II. SOCIAL CONTEXT

THE BANGLADESH BUREAU of Statistics defines a slum (*basti* in Bengali) as:

"A cluster of compact settlements of five or more households that generally grow very unsystematically and haphazardly in an unhealthy condition and atmosphere on government and private vacant land."

Some of the criteria used by the Bureau to identify slums include predominantly poor housing, poor quality or no sewerage and drainage, inadequate drinking water supplies, insufficient or no street lighting, and few or no paved streets or paths.⁽²⁾ In addition, many of the slums covered by this study were found to be located near polluted water bodies, swamps or putrid drainage canals. A 1995 study⁽³⁾ of slum populations estimated that almost half (47.5 per cent) of the total population of Dhaka lived in slums or squatter settlements; and a 1997 census⁽⁴⁾ revealed that in Chittagong, slum households represented 13.5 per cent of all urban households. Average household size in slum areas is 4.1 in Dhaka and 4.2 in Chittagong.

While a slum is the single most common place where low-income families live, it cannot be assumed that every family living in a slum is extremely poor – some do have televisions, satellite dishes and other domestic comforts in their homes. Dhaka and Chittagong are expensive cities with high rents and slums represent the most affordable housing option to many low-income families, including a proportion whose income exceeds the poverty line.

A 1996 study⁽⁵⁾ defined the household poverty line at the equivalent of UK£ 44 per month; and census data on household expenditure⁽⁶⁾ found that the bottom 5 per cent of households had very low incomes of around UK£ 15 per month. Urban poor households spent a higher proportion of their income on food (67 per cent) compared to non-poor urban households (51

1. Tubewells draw water from underground aquifers and are fitted with simple suction hand pumps (in the case of shallow tubewells) or hand-operated lift pumps (in the case of deep drilled tubewells).

2. Bangladesh Bureau of Statistics (1999), *Census of Slum Areas and Floating Populations 1997*, Volume 1, pages 2–3.

3. Centre for Urban Studies (1996), "Survey of slum and squatter settlements in Dhaka".

4. See reference 2.

5. See reference 3.

6. See reference 2.

per cent). Those with low incomes also generally had low levels of education, thus restricting occupational options to low-skilled, lowly paid jobs such as driving cycle-rickshaws or pulling rickshaw-vans (a type of hand-cart), or working as unskilled manual labourers, petty traders, industrial labourers or domestic servants. Also, the quality of housing within slums can vary greatly, ranging from a shelter or tent made of plastic sheeting hung from string or stretched over a light wooden framework, to structures extending over swamps and supported by long bamboo poles, to relatively decent types of housing such as tin sheds or brick-walled houses.

Accordingly, standards of health also tend to be worse than for the non-poor, partly due to less adequate nutrition but also because of reduced access to safe water and sanitation. Bangladesh Bureau of Statistics research in 1977⁽⁷⁾ revealed that in Dhaka's slums, tubewells (39 per cent) and taps (31 per cent) were the most frequently used drinking water sources, as was the case in Chittagong slums (66 per cent and 18 per cent, respectively). Approximately 3 per cent of Dhaka slum households and fewer than 2 per cent of Chittagong slum households drank surface water from ponds, rivers or canals. Four per cent of Dhaka slum households drank non-tubewell water but almost 8 per cent of Chittagong slum households did so.⁽⁸⁾ Only an estimated 6 per cent of Dhaka slum households and 12 per cent of Chittagong slum households were found to have sanitary latrines such as water-seal pits, septic tanks or sewer connections.

Most individuals and households who live in slums have lives characterized by vulnerability and a lack of security, and they live with constant threats to their meagre livelihoods from banditry, theft, being cheated out of their money, physical threats and assault, police harassment, rape and abandonment of women.⁽⁹⁾ The ever-present danger of eviction is particularly threatening. This is especially true for those people who illegally occupy public lands, but even those renting space more or less legally are vulnerable to the demands and whims of locally influential people. Nonetheless, more than half of all Dhaka and Chittagong slums surveyed in 1997 had been in existence for more than five years. Approximately half were on land owned by government or semi-government agencies, and half on private or other land.

III. IMPACT STUDY OF THE WATERAID-BANGLADESH URBAN PROGRAMME

a. Rationale and methodology

IN NOVEMBER 2001, WaterAid commissioned an external study to evaluate whether its approach and that of its partner NGOs was, and had been, delivering tangible benefits to the urban poor, including the poorest of the poor in the slums of Dhaka and Chittagong. The evaluation was conducted using a combination of qualitative (observation, group discussions and key informant interviews) and quantitative (household questionnaires) research methods. Approximately half of the 1,130 surveyed households were programme beneficiaries. The demographic characteristics of both the beneficiary and non-beneficiary sample groups were found to be generally similar, and women were the main respondents in questionnaires. Approximately half of the households were in areas covered by the lead WaterAid partner, DSK, and half in areas covered by five of the other six partners. (The area of one working partner, BAWPA, was excluded from the survey

7. See reference 2.

8. "Taps" are connections to the city's piped water supply system; "non-tubewell water" is surface water and/or water taken from an unprotected dug well.

9. Zillur, H. et al. (1998), *Poverty Issues in Bangladesh: A Strategic Review* DFID, Dhaka

Table 1: Median monthly slum household incomes (Tk)		Very poor	Middle poor	Solvent
Beneficiaries	Tk 2,500	Tk 3,100	Tk 5,500	
Non-beneficiaries	Tk 2,500	Tk 3,000	Tk 5,000	

for security reasons.) In each slum, equal numbers of beneficiary and non-beneficiary households were selected by random sampling and interviewed, with a minimum of ten interviews in any one slum. The number of households selected within the area covered by each partner NGO was more or less proportional to its percentage of the total estimated number of urban programme beneficiaries.

For the purposes of this study, three categories of poor were defined, based on a range of criteria, including household income, the number of children in the household who attended school, the number of rooms in the house and the materials used in the house structure, and whether money had to be borrowed to buy food. Table 1 shows the median monthly incomes for the very poor, middle poor and solvent beneficiaries and non-beneficiaries of the programme.

b. Examples of the facilities provided⁽¹⁰⁾

As noted above, provision for water was generally improved through water points linked to metropolitan water authority water mains, while provision for sanitation was improved through the construction of sanitation blocks combining water points, bathing stalls and hygienic latrines or community/cluster latrines with septic tanks.

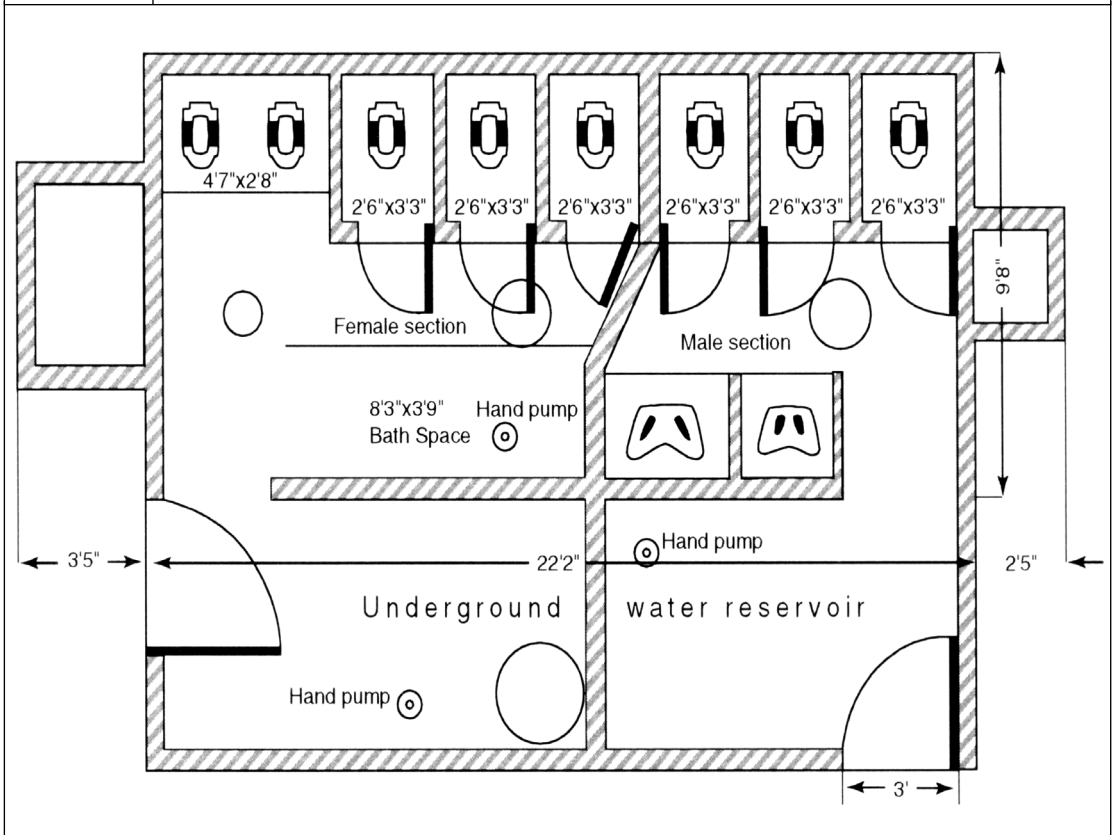
Water points provide the means by which slum dwellers can access the formal water supply system (Photo 1). They consist of an underground storage reservoir, two hand-operated section pumps and space for

10. Additional material on costs and on the design and management of water points and sanitation blocks was supplied by Dibalok Singha from DSK.



WaterAid/Liba Taylor

Photo 1: Water points consist of an underground storage reservoir, two hand-operated pumps and space for bathing and laundry

Figure 1: Design of a sanitation block

bathing/laundry. One handpump is connected to the reservoir while the other is connected directly to the supply line. The reservoir is needed because of the irregular flow from the mains water supply. The cost of constructing a water point and connecting it to the mains water supply is around Tk 60,000 (UK£ 750), although more recent designs have reduced this capital cost. The construction of a water point is funded by an interest-free loan from the partner NGO, which is paid back over a 30-month period from revenue raised by selling the water. Water points are designed to serve 500 people and to last 5–10 years.

The water points are managed by a committee of eight women who live in the settlement. They are supported by an advisory committee of five men, elected annually, whose role includes negotiating with local leaders and helping with water point security to ensure their safe construction and continued smooth running. The management committee is responsible for determining water prices, repairs, cleaning and maintenance, revenue collection, payment of water bills and loan repayments.

Sanitation blocks are water points, as described above, with the addition of bathing facilities and up to 12 latrine stalls and two urinals linked to a septic tank. They are managed by the community in the same way as water points. A sanitation block is also designed to serve up to 500 people and costs around Tk 250,000 (UK£ 2,778). Figure 1 shows the design of a sanitation block and Photo 2 shows a completed sanitation block.



Photo 2: Sanitation blocks, which include latrine stalls, urinals and bathing space, are designed to serve up to 500 people

c. Findings on access to safe water

Table 2 compares the main domestic water sources of slum households that have been using the programme’s facilities (beneficiaries) and those who have not (non-beneficiaries). Water sources used are located either inside or outside the slum areas.

As Table 2 demonstrates, more than 98 per cent of beneficiaries have access to supply water (water drawn from the metropolitan authority’s mains) or tubewells within their slums, compared to just over 77 per cent of non-beneficiaries. This represents a 27 per cent overall improvement in access. Comparing the situations of different socioeconomic groups shows that very poor households have gained the most. The proportion (just under 99 per cent) of very poor beneficiary households with convenient access to safe water is 38 per cent greater than the proportion (just under 72 per cent) of very poor non-beneficiary households with convenient access.

Despite the fact that there are very poor people using and benefiting from programme facilities, not all can afford them. While some caretakers or community programme committees allow destitute neighbours some access, the most they can expect is a couple of pots of water for drinking and cooking, as the following case study illustrates.

A five-member household in the Ahura slum consists of a woman working as a maid, her husband (a beggar) and their three children. Sometimes they cannot feed their children. The family pays Tk 400 per month in rent and Tk 60 per month for water from the water point. They pay Tk 2 daily for their water, but they do not always have the money to spare and the family cannot get enough water without paying. On such days, the wife goes to the swamp to bathe.

The requirement that beneficiaries pay for the facilities they use – because it is not possible to make loan repayments or pay the metropolitan authority’s water bills without some means of recovering the cost of the scheme – can exclude the very poor who do not have enough money

Table 2: Main drinking water sources for households, both inside and outside slum areas (%)								
Main source	Beneficiary households				Non-beneficiary households			
	Very poor (n=154)	Medium (n=177)	Solvent (n=160)	Total (n=491)	Very poor (n=235)	Medium (n=217)	Solvent (n=187)	Total (n=639)
<i>Safe source</i>								
Supply (inside the slum)	37.7	44.1	53.1	45.0	31.9	46.1	55.6	43.7
Tubewell (inside the slum)	61.0	54.8	44.4	53.4	39.6	34.1	25.7	33.6
<i>Sub-total</i>	<i>98.7</i>	<i>98.9</i>	<i>97.5</i>	<i>98.4</i>	<i>71.5</i>	<i>80.2</i>	<i>81.3</i>	<i>77.3</i>
<i>Unsafe/ inconvenient source</i>								
Supply (outside)	1.3	1.1	2.5	1.6	23.4	17.5	17.6	19.7
Tubewell (outside)	0	0	0	0	5.1	1.8	0.5	0.2
Pond	0	0	0	0	0	0	0.5	0.2
Well	0	0	0	0	0	0.5	0	0.2
<i>Sub-total</i>	<i>1.3</i>	<i>1.1</i>	<i>2.5</i>	<i>1.6</i>	<i>28.5</i>	<i>19.8</i>	<i>18.6</i>	<i>22.8</i>
Total	100	100	100	100	100	100	99.9	100

to make full use of the scheme. Yet, for full cost-recovery to be achieved, and if low-income people are to obtain sufficient quantities of water for household use at an affordable price, there has to be a minimum number of paying users of a water point or sanitation block. Assuming that most families are willing to pay no more than Tk 30–40 per month for water, and assuming that a four-person household needs 140–160 litres of water per day at current rates, a minimum of 168–278 households are needed to cover water and maintenance (or caretaker) costs and to pay off the loan in full on a water point. This figure increases to 430–717 households in the case of a sanitation block.

Partner NGOs arrange a variety of ways for people to pay. In most working areas, users pay monthly (the average cost to a household is Tk 30–35 per month), with some users paying a monthly fee according to the size of their households. In other areas, water is sold only by the 20-litre pot, for 50 paisa (half a taka). However, it was found that those partner NGOs who charged by the pot were creating a situation in which a four-person household needed to spend at least Tk 3.50 per day, or Tk 106–107 per month, if they wanted to use safe water for all household purposes, including drinking, cooking, bathing and laundry. Many poor people were reported as saying that they were willing to spend Tk 1 per day (Tk 30 per month) on two pots of safe drinking water but, even then, they would have to reduce or sacrifice other necessities, such as food, medicine, soap or clothes, or small luxuries such as betel nut/leaf and hair oil. Another partner NGO reported that they had given up on the idea of monthly payments for 90 per cent of its water points because too many households failed to pay their bills.

The marginal incomes of the poorest and their spending choices between basic needs were reflected in reports from some partner NGOs of under-utilization of water points and sanitation blocks. Underutilization of facilities can also be due to their location at the edge of slums, in or near commercial areas, bringing them into competition with free (illegal) or lower-cost water sources.

It was found that, if they cannot pay for the use of programme facilities, very poor people use any other available water source. For example, public standpipes (hydrants) provided by the Dhaka Water and Sewerage Authority have water that is free to slum dwellers, but they are usually placed at the edge of a slum so most of the people who use them must walk long distances and wait in long queues. Another commonly used free alternative is the landlord's tubewell. A number of renters mentioned also using their landlord's latrines – usually “hang” or “open” latrines. And illegal connections to the Water and Sewerage Authority pipelines are created by some people in all or most programme areas; they sell the water to neighbours at modest monthly rates.

d. Findings on access to environmental sanitation

Sanitation improvement did not receive quite as much emphasis as safe water in the original WaterAid–Bangladesh Urban Programme. But although the programme has increased its emphasis on sanitation improvement, persuading people to change defecation habits can be extremely difficult. In both rural and urban areas, the cost of installing sanitary latrines is often mentioned as a reason for not using them. However, this is probably not the main reason for most non-use; rather, a lack of awareness is a more likely reason. Numerous field observations throughout Bangladesh find economically solvent people claiming that they cannot afford to install sanitary latrines. However, in congested slums, problems of space limit opportunities for installing latrines. For this reason, and also because of low average household incomes, three or four households almost always share a latrine, whether sanitary or not.

In general, more solvent households tend to use private household latrines. Poorer households make more use of cluster/community latrines – i.e. shared latrines with 1–5 stalls connected to a septic tank or to the main sewer system. The programme's impact on very poor households was demonstrated in the findings on the use of unhygienic defecation places. Table 3 shows, by combining the percentages of households using hang latrines, open spaces, slabs over drains or water bodies, that 37 per cent of very poor households in the beneficiary group and a larger proportion, 54 per cent, of very poor non-beneficiary households practice high-risk defecation behaviour.

According to PRODIPAN staff, clustered latrines offer an affordable sanitation option for very poor households, since costs are shared by many neighbours. Five cluster latrines have been constructed by PRODIPAN, each with five stalls. They are used by a total of 145–150 households, although planning was for use by 100 households. The cost-recovery goal is 25 per cent of the total construction cost over two to three years. Households using the latrines pay an average of Tk 30 per month. If they have financial difficulties, for example being unable to afford both food and this payment, committees mostly accept Tk 10–15 rather than pressuring them to pay the full amount. As one staff member said:

“This makes the use of cluster latrines more affordable to very poor households than safe drinking water (from tubewells), for which we require 100 per cent cost-recovery.”

Overall, despite problems of motivation, space and cost, the programme has managed to provide sanitation improvements in 72 different slums, with 641 household latrines used by 2–10 households each, 13 cluster/community latrines used by 10–50 households each, and six sani-

Table 3: Defecation places of beneficiaries and non-beneficiaries (%)

H/h defecation place	Beneficiaries				Non-beneficiaries			
	Very poor (n=154)	Medium (n=177)	Solvent (n=160)	Total (n=491)	Very poor (n=235)	Medium (n=217)	Solvent (n=187)	Total (n=639)
Communal latrine	33.1	30.5	31.8	31.8	22.6	15.2	20.9	19.6
Household group	17.5	17.0	16.2	16.9	16.2	18.9	15.0	16.7
Household individual	13.0	17.5	18.3	16.3	6.8	10.6	27.3	14.1
Hang latrine	28.6	25.4	18.1	24.0	41.2	41.9	34.2	39.4
Open space	1.3	0	0	0.4	3.8	0.9	0.5	1.9
Slab over drain	2.0	2.8	3.7	2.8	6.0	4.6	0	3.8
Slab over water	4.6	6.8	11.9	7.8	3.0	7.4	2.1	4.2
Pit	0	0	0	0	0.4	0.5	0	0.3
Total	100	100	100	100	100	100	100	100

tation blocks with the capacity to serve 100–180 households each.

Sanitation block construction can cost up to Tk 500,000 (around UK£ 6,260). Most of those constructed to date have been established on a pilot basis, that is, with cost-recovery plans yet to be developed. For one built by PSTC, no cost-recovery is expected. DSK, however, is hoping to work out a plan for full cost-recovery on the four it has constructed and on others to be built in the future. According to DSK managers, the pay-back period would have to be at least six years, rather than the two or three years allowed for other types of facility.

If paid for over a six-year period, the interest-free loan repayments on a Tk 500,000 facility would cost around Tk 83,333 per year, or Tk 6,944 per month. Some DSK sanitation blocks have begun to pay for themselves, but full cost-recovery is yet to be achieved for any of the newer, more expensive facilities. Some facilities cover their costs and repayments by selling water, baths or toilet use to passers-by, rather than by resident users' fee payments.

Solid waste was found to be a critical issue in most of the slums covered by the programme, especially the more congested ones. Pathways, drains and water bodies are, invariably, filled with garbage unless some system is in place to collect it. In several locations, the evaluation team found that residents were paying small monthly amounts (Tk 1–10) for garbage collection services. In one or two locations, it was said that poor families did not always have to pay for the service.

In some places, but not all, the partner NGOs have provided small containers where garbage from a particular lane can be deposited. This, in turn, is collected by trolleys and deposited in large concrete dustbins built by the municipality near the boundaries of many slums. Thirty-five per cent of all household survey respondents, with a larger proportion of those receiving programme hygiene education (and a higher proportion of those with higher incomes), said that their households used garbage collection systems.

e. Findings on hygiene promotion

Programme activities in any given slum start with hygiene education and community mobilization – activities that are expected to create demand for the programme's water and sanitation facilities, and a willingness to

pay for them. Hygiene education is based around a number of simple messages aimed at breaking the cycle of water-borne and water-washed diseases, with the purpose of establishing a link in people's minds between unhygienic practices and disease.

Of 46 randomly selected sites visited by interviewers, the populations of 42 were found to be receiving regular hygiene and other health-related education services, either from the WaterAid partner alone (34 cases) or from another NGO working in the same area. Three sites were not receiving any hygiene education services and, for one site, there was no information.

Although there has been progress, providing hygiene education to urban slum populations is far more difficult than conducting sessions in rural villages. Almost all NGO staff mentioned that slum dwellers have difficulties actually practising what they learn in hygiene education sessions. Key problems mentioned were not having the space for hygienic facilities or not having the space for soap in latrines (mostly hang/open types). Field observations demonstrated that hygiene education has worked very well in certain places and certain homes, and less well in others. Differences seem to depend on several factors, especially slum dwellers' educational levels, pressures of time and space, and differences in programme staff members' communication skills.

The most serious constraints are the working conditions of slum dwellers, especially women and children. Garment workers, household maids, brick crushers and hawkers, many of them women, work 12-hour days, leaving them little time to keep their children and houses clean. Mothers have no days off in the week. Children are mostly cared for by older children and few attend school after the age of ten. Slum children themselves often work as garbage pickers, helpers on public transport, domestic servants or helpers in restaurants, all jobs with their own health hazards.

Respondents to the household surveys liked the hygiene education, but approximately 30 per cent – and an even larger proportion (39 per cent) of very poor hygiene recipients – said they could not practice all of what they had learned. The most difficult lessons to be put into practice were said to be keeping the house and children clean or using soap as recommended (soap is rather expensive relative to the budget of a very poor household, so many save it for bathing and washing clothes and may not use it for post-defecation hand-washing). Four per cent said that it was not hard to practice these things, but they just forgot or were too busy or just didn't feel like doing it. The lessons they remembered, in order of frequency, were keeping clean (68 per cent), washing hands after defecation (56 per cent), covering food (41 per cent), using sandals (30 per cent) and using clean water (22 per cent), but only 12 per cent remembered hearing messages about not defecating openly or about hygienic latrine use. (Table 4 shows responses to one question in the survey.)

The greatest impacts of hygiene awareness have been on hand-washing, understanding the spread of worm infections, using safe water and covering food.

f. Findings on community-based management

One social development side-benefit of the programme is an increase in self-respect and empowerment in those committees that are working according to the programme model. Sharing responsibility for new facilities and being actively involved in participatory baseline studies and hygiene education (when these are done skilfully) all contribute to people's ability

Table 4: Responses to the question, “Why is it important to use sandals when going to a defecation place?” (%)						
Response	Hygiene education status			Socioeconomic level		
	WaterAid hygiene education	Other hygiene education	No hygiene education	Very poor	Medium	Solvent
Worms can come in through the foot/ worms will affect you	32.1	32.2	14.6	17.7	28.2	24.7
To protect yourself from various diseases/ avoid germs/ prevent diseases	41.8	40.6	35.5	33.7	37.3	46.7
To stay clean/ make holy/ avoid dirt/ avoid mud/ be safe from latrine's garbage/ be safe from urine	39.1	37.2	53.7	55.0	42.1	36.9
To keep garbage from entering the home	1.1	0.0	0.2	0.5	0.5	0.6
Don't know	1.9	0.0	0.2	0.5	0.5	0.6

to analyze and take control of their living environments. In more than one instance, groups formed by the programme (or re-invigorated by it) have moved on to other self-help endeavours.

The poorest people have very little involvement in community decision-making, as illustrated in the following comments from partner NGO managers and field staff reports:

“Only people who can pay off the money are on the committees... poor people come to meetings but stop coming when they hear about our requirements to pay.”

“There aren't very poor people on the committees. We don't interfere. They decide who will and won't be on the committees... they want people who 'have a voice'. The whole system is set up in a way that the very poor person doesn't have much to say, and she is preoccupied with survival. Going to committee meetings can detract from time she can use for begging...”

Household survey findings served to confirm the poor's lack of participation. As shown in Table 5, the very poor are represented to any significant extent only on tubewell committees.

The committee ownership and management system is intended to be the core principle behind empowering slum dwellers in community decisions, particularly enabling them to run the programme facilities after “handover”. However, the committee system may be more appropriate, and more effective, in some places than in others. Internal distinctions

Table 5: Membership in programme facility committees by socioeconomic status (%)			
Facility type	Very poor (n=18)	Medium poor (n=21)	Solvent (n=48)
Water point	12	23	65
Tubewell	29	20	51
Latrine	17	42	41
Total (all types)	21	24	55

within slum communities mean that the poorest people have less status and influence. Even if they use the facilities, they are less likely to join facility management committees, although a few do.

A further obstacle to involving the very poor is their dependency, for their very survival, on some powerful individuals who rent houses to them and help them in other ways. These powerful individuals may be community-spirited or they can be otherwise, but they are going to be involved in any major local projects. In cases where most people live in rental housing, the idea of a committee actually owning a tubewell, latrine or other facility may not be appropriate. It is the landlords (resident or absentee) who make decisions about local improvements and who ultimately benefit financially from them. Many landlords have created *de facto* tubewell management committees from among their tenants in order to keep the platforms clean, etc. But this is not quite what the programme planners had in mind when the idea of "community ownership" was established as a principle of the programme.

IV. CONCLUSION

THE WATERAID-BANGLADESH Urban Programme has completed five years with its lead partner NGO, DSK, and approximately two to three years with its other partners. At the time of the evaluation study, substantial construction work had been completed – including 355 water points, tubewells or sanitation blocks – and team spirit was good, despite the ever-present threat of slum clearance and eviction undoing all the hard work.

Remarkable progress has taken place, both in terms of providing facilities and in terms of negotiations with city corporations and water and sewerage authorities. As one manager pointed out: *"Getting even one legal water point approval from Dhaka Water and Sewerage Authority was impossible six years ago."* Another added: *"Gaining any access is the number-one success of this programme."*

Because of this programme, all slum dwellers in Dhaka and Chittagong now have a chance of improved basic water and sanitation facilities, and of the health advantages that these offer.

The programme has improved the living environment of many poor people, but large numbers still cannot gain full access to programme facilities because they do not have enough money to use the facilities for all their water and sanitation needs. For example, a very poor household may be able to afford one pot of water per day for drinking purposes but not be able to pay for water for cooking, bathing and laundry. Or they can afford to pay for water but not for using the latrines. The study has found virtually unanimous agreement among the staff and managers of partner NGOs that the programme as organized at present cannot do much for the poorest of the poor. While cost-recovery is manageable for many poor households, it is not for the very poorest. Indeed, some partners mentioned selecting only working areas where people would be able to pay – that is, passing up areas where they could not. One partner NGO manager's comments reflect the opinions of others:

"We're reaching poor people, but not the poorest, because they are not able to pay. Poorest households' monthly income, such as that of a maid with 2–3 children and no husband, is less than Tk 500, more likely Tk 300, plus a little food. Rickshaw pullers also are poor because they can work only 20 days maximum in

a month, because of rain, strikes, 'mastans' (muscle-men). The work is so hard that most rickshaw pullers are aged 15-35."

Planning and management systems must be organized in a way that both respects the very limited time that the poorest people have for any personal business and acknowledges their social disadvantages. Attending meetings and active participation in committees may be unrealistic expectations, especially in committees that mix very poor people with others.

If the programme is to meet the water and sanitation needs of the very poorest, some new cost-sharing arrangements must be devised. Monthly or weekly payments rather than per pot charges are far more likely to ensure that very poor households get ample supplies of fresh water. Already, most seem to have arranged for minimal supplies to cover drinking and cooking needs. Most people probably can afford to pay the cost of the water they use, but many will be unable to help much with loan repayments. If the very poor are to be expected to share the costs of expensive construction projects, payment terms may need to be either extended beyond the present programme phase limits, or less than 100 per cent of costs.



Connecting research and practice to improve the lives of children and youth around the world

• Peer-Reviewed Journal • Field Reports • Searchable Resources • News and Information

CYE Issue 1 is on-line now, featuring:

- **A special focus on street children** in cities around the world, guest edited by Jill Swart Kruger with an Introduction co-authored by Judith Ennew
 - Six original papers report current research on street children in Indonesia, Brazil, India, Kenya, and Zimbabwe
 - Eleven republished papers provide a valuable resource of further information on street children, including global overviews and country-specific studies
- **Reports from the field** highlight innovative practices and approaches to improving children's environments in Africa, Asia, Europe, South and North America
- **Links** to environmentally focused organizations that are making a difference in the lives of children

Connect to <http://cye.colorado.edu> and connect to an innovative community of researchers and practitioners supporting the development of inclusive and sustainable environments for children and youth around the world.