



## Sanitation: the crisis of the urban poor?

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IN BANGLADESH, urban sanitation is not a high profile subject. It does not appeal to the human senses as an attractive topic for discussion, particularly amongst politicians and policy-makers. However, access to urban sanitation is essential to the health, dignity and general well being of an urban population, especially the low-income sectors of society.

World Bank estimates cite that Bangladesh's population doubled from 55 million in 1961 to 111 million in 1991, its urban population grew almost nine-fold from 2.6 million to approximately 22 million. This trend is expected to continue in the immediate future. Various projections estimate the urban population in 2020 to be in the region of 70 million, three times current numbers.

Between 30-50% of that urban population live in informal settlements, slums or bustees. Using current estimates the bustee (slum) population in 1991 was between 6.6 to 11million, in 2020 it is predicted to be between 21 to 35million.

**Table 1. Current Profile of Urban Poor in Bangladesh**

Key issues	Profile
Own land they occupy	18% (Dhaka 3%, other metropolitan cities 11%)
Age structure	43% under 14years 26% between 15 and 29 years 30% above 30years 3% above 60years
Female headed households	10%
Settlements free from flood/water logging	13%
Sanitation situation	6% access to sewerage system 55% use unsanitary systems/ open defecation

Source: ADB, 1996

Table 1 indicates the current situation of the urban poor. By 2020, if trends prevail, the majority of the 21 to 35 million urban poor will:

- live in higher density communities
- not have access to safe sanitation
- be living on low lying, flood prone land upon which they have no legal tenure or land rights.

The tremendous challenges that Bangladesh faces in coping with the sanitation requirements of its rapidly growing urban population are further highlighted by the National Policy for Safe Water Supply and Sanitation

(1998) which states national objectives/goals for urban sanitation as follows:

- a sanitary latrine within easy access of every urban household
- public latrines in schools, bus stations and important public places and community latrines in densely populated poor communities without sufficient space for individual household latrines
- measures in urban areas for removal of solid and liquid waste and their use for various purposes

The current situation depicts a very different environment with rapid urbanisation, a decrease in urban infrastructure investment in the 1980s, only 5% of that budgeted for sewerage / solid waste management (ADB, 1996) and low current levels of urban sanitation coverage (as shown in Table 2).

**Table 2. Sanitation coverage (percentage of population with access)**

Sanitation service	Dhaka	District Towns	Thana Centres
Sewerage	37%*	0%	0%
Septic tanks		12%	4%
Sanitary Pit latrines	27%*	10%	5%
Hanging latrines	13%*	68%	56%
Open defecation	19%*	25%	35%
Total access to safe sanitation	64%	22%	9%

Adapted from figures presented by N. Islam, 1996 (\*Dhaka figures from ADB, 2000)

Government organisations, NGOs and other development agencies do not, as yet, give high priority to urban sanitation. Urban service delivery projects frequently concentrate on water supply with little investment or emphasis on sanitation and hygiene promotion.

However, water supply and sanitation are clearly not distinct entities. With a lack of planning and prioritisation of sanitation groundwater quality maybe compromised. A longer-term holistic approach is essential.

Studies documented by Cave & Kolsky (1999) showed reductions in diarrhoeal disease morbidity from improvements in sanitation alone 20%, hygiene promotion alone 33% and water alone 16%.

A small proportion of the urban, low income, unplanned settlements within Bangladesh are currently served

by ongoing urban sanitation work. This work is frequently undertaken as isolated remedies to a particular community's need and works separately to an essential (but as yet unformed) co-ordinated approach under the National Policy for Safe Water Supply and Sanitation 1998. A national urban sanitation framework or action plan is necessary; currently a lack of co-ordination exists.

### WaterAid's approach

WaterAid, as an international NGO, has three equally important cornerstones for development and advocacy. These are the integration of sanitation, hygiene promotion and water supply, all of which are based on a belief in community empowerment and participation.

### WaterAid Bangladesh's urban sanitation approach

WaterAid Bangladesh and our seven urban partner NGOs (ARBAN, ASD, BAWPA, DSK, Phulki, Prodipan and PSTC) are a few of the organisations working to enable slum dwellers to access sanitary facilities and to develop a process-orientated approach towards the provision of urban sanitation services.

The approach is two-fold:

- to provide safe and sustainable access to the urban poor through an holistic view of the key inter-relationships between social, technical, financial and institutional issues
- in recognising the magnitude of the issue and learning from our experiences in (i) encouraging discussion and raising the profile of urban sanitation within other organisations including Government.

### Lessons from past experience

Many organisations (including WaterAid Bangladesh) have previously concentrated on solving urban sanitation problems locally with little attention to the wider environmental consequences and necessary institutional linkages.

Although this approach to local problem solving has benefited a number of slum communities it is clear from the sheer numbers of slum dwellers and the current urban sanitation coverage figures that this is not adequate for the present or future situation.

### Experience to date

WaterAid Bangladesh and partners have been working towards the development of urban sanitation systems which attempt to incorporate the social, technical and financial challenges that face the urban poor.

WaterAid and our partners have carried out a number of participatory urban assessments. It is clear that the urban poor prioritised sanitation but a lack of co-ordination, capacity and technical, social and management options exist.

Participatory demand assessments have included the following findings:

Convenience includes factors such as location, time saving, use of the facility at night and ease of accessibility and acceptability by the elderly and children.

Women and men cope with a different set of inconveniences:

- men often have to walk long distances to find a place to defecate
- women face further restrictions and resort to defecating in tin cans and polythene bags in their dwellings. Excreta disposal is a problem and the polythene bags are often thrown into open drains
- children are allowed to defecate openly, often in front of the parent's dwelling or in open drains. Frequently children's faeces is believed to be harmless
- men urinate in the open, women have to wait until nightfall to relieve themselves

Women do not want to:

- be seen entering toilets
- queue at the roadside to use facilities
- queue in mixed sex groups
- use the same facilities as men

Toilets must be orientated in the north-south direction as Mecca is east-west orientation.

### Key technical challenges

The unplanned, informal urban settlements of Bangladesh further challenge the issue of providing adequate sanitation due to the technical difficulties encountered. These result from the high population density and consequent space constraint, high water table level, relative soil impermeability, low income levels and lack of land tenure.

Through community discussion and informal questionnaires the priority design features of a sanitation system were documented. It was clear that although a number of similar issues and concerns arose in each community discussion a flexible approach was essential to cater to the individual needs and restrictions of a particular community. A standard design was inappropriate.

The lack of land tenure and space constraint within the high density, informal settlements were paramount.

The issue of land tenure is complex. The threat of eviction and often transient nature of communities discourages household and private sector investments in infrastructure. Some bustee communities have tenanted their homes for over 20 years but have no legal land rights. The landowners' predominant interest is the profit to be made from the land, the more families on one plot of land the higher their income. Bustees are often evicted if the land becomes attractive for lucrative development or influential complaints are filed with authorities.

The following case study is such an example.

**Case Study of TTC Bustee, Tejgoan, Dhaka**

TTC bustee is an informal, unplanned, ribbon development bordering three low traffic roads. TTC bustee is adjacent to a high rise residential compound which houses post office staff and is referred to as the Colony. In May 1999 TTC bustee comprised 1700 families (circa. 8500 people) with no formal land rights and one communal unsanitary latrine facility. The latrine consisted of six wooden planks spanning an open storm drain with a wicker superstructure. Three persons were thus able to use this facility at one time squatting over the open drain.

Dustha Shasthya Kendra (DSK), one of WaterAid's urban partners, commenced community discussions in TTC bustee May 1998. The sanitation situation was acute and of high priority to the community. A demand for sanitation existed based mainly on privacy and convenience, not perceived health improvements. Individual sanitary pit latrines were not appropriate due to the severe space constraints. In discussion with the community a communal sanitary facility was described and design requirements documented. Key features of the community sanitation block were: separate entrances to female and male sections, full time caretakers for each section (female for women's section), washing area for women, children's squatting pans, water for handwashing, good ventilation, easily cleaned, direct connection to DWASA sewer, community management, recurrent cost recovery.

The design of the community sanitation block was finalised and submitted to Dhaka City Corporation (DCC) for building permission. Dhaka Water And Sewerage Authority (DWASA) permission was sought for sewerage connection. Both sets of permission were granted.

The Colony residents resisted the implementation of the community sanitation block believing that the structure would in some way legitimise TTC bustee. Complaints to the District Commissioner resulted in three location changes and increased the end cost due to wasted clearance and construction works. Construction works were halted on a number of occasions due to Colony, Army and Mastaan (local Mafia) interference.

The community sanitation block, designed for 500 users per day, was opened March 2000. The sanitation block remained open for two months in which time males paid the equivalent of US\$0.02 (2cents) per use, females US\$0.01 per latrine use and US\$0.04 per use of washing area, children used the facility free of charge.

TTC bustee was evicted 16<sup>th</sup> May 2000 with no relocation of families and no prior warning. Discussions with DCC, the District Commissioner's Office and DWASA are continuing.

The TTC experience was key in the development of the WaterAid Bangladesh approach to urban sanitation. Highlighting the need for institutional linkages between the community, DSK and Governmental organisations such as DWASA, District Commissioner's Office and DCC for technical and social remedies. Through DSK and the TTC community's perseverance the sanitation block was built, connected to DWASA services and opened. This is a huge achievement against substantial opposition. It is hoped that discussions with DCC, the District Commissioner and DWASA will be fruitful.

**Technical options**

WaterAid and partners' approach incorporates a variety of sanitation options which are dependent on the local circumstances and environment. These options include sanitary dual and single pit latrines, community sanitation blocks (both sewered and septic tanks) and cluster latrines (a number of latrines connected to one septic tank). A training programme exists and is being further developed for caretakers and operators.

**Financing/cost recovery**

All pit latrines are designed on a full cost recovery basis over a period of at least one-year, the duration is flexible dependant on the household's ability to pay. Payments are collected on a weekly or monthly basis dependant on household preference. These payments are deposited in a revolving fund loan account managed by WaterAid Bangladesh's urban partner NGOs, used to finance sanitation infrastructure elsewhere, which again is on a full cost recovery basis, and the cycle continues.

Community sanitation blocks and cluster latrines are being piloted and the level of capital cost recovery is currently under finalisation. Full recurrent costs are met

through user charges. Maintenance and management is wholly the responsibility of the community. To date WaterAid Bangladesh and partners have constructed three community sanitation blocks and three cluster latrines.

**The sanitation cycle**

Safe sanitation, as previously defined, is the safe storage, collection, transfer and end disposal of human excreta. This 'cradle to grave' approach to safe sanitation emphasises the need for a programme design encompassing the full cycle of urban sanitation from demand creation through to appropriate technical design and safe disposal mechanisms. Issues regarding production, storage, transport, treatment and final disposal of human waste should be tackled in such a way as to safeguard public health and ensure effective management and investment.

In encouraging on-site sanitation such as sanitary pit latrines and septic tanks the mechanism for emptying, transferring and disposing of that waste must also be considered and addressed. The prevailing situation in Bangladesh is the use of sweepers to empty pits and septic tanks. This involves an individual manually excavating the human waste and, due to a lack of disposal options, the human waste is frequently deposited in open drains or the closest pond. The health risks to the sweeper and wider community are clear. This current process is a matter of shifting the problem as opposed to solving it.

**Transfer & end disposal of human waste**

WaterAid Bangladesh and partners advocate a full sanitation cycle approach. The emptying, transfer and end disposal are difficult issues to address due to the current lack of options for high density areas which are frequently distant from sewer lines.

WaterAid Bangladesh and partners are currently piloting a mechanised pit or septic tank emptying machine called a vacutug. The vacutug is a simple mechanism of a motorised tank on wheels, which creates a vacuum within the tank and, through a plastic hose, sucks the human waste sludge from the pit or septic tank. The tank is then wheeled to an end disposal site, a pressure created within the tank and the waste pushed out of the tank into the end disposal site. Small-scale implementation of this system is proving successful in slums of Nairobi, Kenya, funded under the United Nations Commission on Human Settlements (UNCHS).

Due to the narrow lanes and relative inaccessibility of the high density bustees two designs of a similar concept will be piloted: i) 500litre capacity tank for the more accessible settlements, e.g. TTC bustee; ii) a 200litre capacity portable tank which will empty into a motorised 1500litre capacity tank for transfer to end disposal site. Both systems will encourage entrepreneur involvement and full cost recovery over a number of years.

The collection, transfer and end disposal raises a number of technical, financial and institutional challenges which stress the need for policy level discussion, planning and strategic development.

The collection and transfer facilities for urban sanitation are dramatically underdeveloped.

Firstly the options for safe disposal in the Bangladesh context are limited. Dhaka is the only city with a sewerage system and that has very limited coverage. Within Dhaka the two clear options are disposal to a sewer or direct to the sewage treatment works. Where a sewer is in close proximity this would be the chosen option however both these options assume DWASA's permission for use of the sewerage system and works. Clearly direct connection to the DWASA line would be the preferred option.

Where a sewerage line is not in close proximity safe disposal would mean transfer to the sewage treatment works (assuming DWASA permission). Depending on the distance to the treatment works this could substantially increase the running costs of the vacutug.

### Essential linkages

Sound urban sanitation management can only be achieved through strong links between Municipalities, WASAs, development organisations and communities. These institutional linkages are key to safe collection, transfer and end disposal. Due to the illegal status and lack of land tenure of the majority of the bustees difficulties can be encountered forging these links. Through raising awareness, perseverance and negotiation DSK, and other urban partner NGOs, have succeeded in DCC land use / building permission and connection to DWASA services ensuring the safe storage, transfer and end disposal for some urban sanitation systems.

Urban sanitation highlights the need for these linkages and the need for action from the responsible organisations.

The institutional linkages are closely aligned with prioritisation of urban sanitation. Through learning and experience sharing WaterAid Bangladesh and partners attempt to raise the profile of urban sanitation. This approach focuses on activities such as jointly organising workshops and brainstorming sessions with World Health Organisation. Participants from Department of Public Health & Engineering, NGOs, Local Government Engineering Division, DWASA, World Bank, UNICEF, bilateral donors, Regional Water and Sanitation Group and Intermediate Technology Network have attended sessions. This informal urban sanitation think-tank is at a preliminary stage, three sessions have been organised to date. Its current purpose is to raise the profile of urban sanitation, share ideas and look for ways forward.

### Sustainable urban sanitation?

To ensure even minimum standards of adequate sanitation for the urban poor a strategic sanitation action plan must be defined by Government with stakeholder involvement. In addressing urban sanitation far broader development issues will need to be discussed, the most obvious of these being land rights and tenure for informal settlements.

The development of a sustainable sanitation approach incorporates basic issues of consumer preferences, management of individual and communal facilities, willingness and ability to pay through to the broader developmental issues of institutional development, strategic planning (as opposed to crisis management), allocated budget and inter-ministerial co-operation.

However, at present urban sanitation is of low priority to policy makers. One does wonder how a policy maker would manage for one week in a bustee or perhaps they don't defecate.

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