Water Supply and Sanitation Problems in the Slums of Mohammedpur, Dhaka

June 1997

WaterAid ACTIONAID VERC

Acknowledgements

We would like to acknowledge the enormous contribution of Robert Gallagher to this research. He was the team leader, the principal researcher and the primary author of this report.

The researchers who assisted, Md. Masud Hasan of VERC and Md. Hasem Ali of ACTIONAID, also deserve special acknowledgement, as does Veena Khaleque of ACTIONAID who provided co-ordination.

We would also like to extend our sincere thanks to the members of the Mohammedpur slum communities who answered questions, spoke about their lives, and assisted the researchers to understand their situation.

Executive Summary

Introduction

This report summarises the findings of a study of water and sanitation problems in the slums of Mohammedpur, Dhaka. The study was carried out jointly by WaterAid, ACTIONAID and VERC, during the period August to November 1995. The aim was to gain a better understanding of the water and sanitation situation in Dhaka's slums, and identify specific measures which could be taken to improve the situation. Mohammedpur was chosen for a case study because ACTIONAID was already working there, and had good local knowledge of the area.

Mohammedpur

Mohammedpur is one of 15 *thanas* in Dhaka. Located on the west side of Dhaka, about three to five miles from the city centre, it has been developed fairly recently. Up till the late 1950s it was still agricultural land. At the time of this study, its population was about 350,000, which was roughly 5% of the total city population. A survey carried out by ACTIONAID in January 1995 estimated that overall there were 125,000 people living in slums in Mohammedpur, which was approximately one-third of the thana's population, or 23,000 households.

The slums are scattered all over Mohammedpur. They vary in size, from small clusters of just a few dwellings, to massive areas with thousands of dwellings. The small clusters are mostly on private land, while the bigger colonies are mostly on government land. Most of the slums are temporary constructions, built of bamboo and thatch, corrugated iron and plastic sheet (known locally as 'kutcha' dwellings). They are on land which is currently not being used - usually low-lying land, such as ponds and river flood-plain, and also roadsides and embankments. The low-lying land is more expensive to develop than the higher ground, as it requires filling to a depth of 10-15 feet to take it above the flood level. Hence, the slums are constructed here as a temporary measure. Many are built on bamboo stilts, to keep them above the flood level.

Household Survey

To find out more about the origins of these slums, a short survey was carried out of 155 families in 7 major slums. Questions were put to each family about the length of time they had lived in Dhaka and this slum, where they lived before this slum, why they moved here and whether they rented or owned their dwelling.

The results of the survey showed that most of the slum-dwellers are *not* new-comers to Dhaka, but have lived in the city for quite a time. Of the households surveyed, nearly half had been in Dhaka for 10 years or more, and 83% had been here for 5 years or more. Only 10% had come to the city within the past 3 years. Overall, half of the interviewed slum-dwellers had lived at the same slum for 5 years or more, and two-thirds had been at the same slum for 3 years or more. In other words, they had lived long enough at the same slum to justify making physical improvements to the water, sanitation and drainage. Three-quarters of the slum-dwellers had lived at some other place in Dhaka before moving to this slum, and most of them (70% out of 75%) had lived somewhere else in Mohammedpur.

Only one-quarter of the slum-dwellers had come to the slum directly from the rural areas. The two main reasons for coming from the rural areas were for employment, and because of river erosion destroying their land and homes.

The proportion of households paying rent (as opposed to living rent-free in homes which they built themselves), varied greatly from one slum to another. For example, at Beribad embankment, about 90% of households lived rent-free, whereas at Katashor-Boretola about 90% of households paid rent and only the landlords lived rent-free.

Categories of Slum

The slums of Mohammedpur can be divided into several broad categories based on ownership and status:

Government land:

- Permanent (Official/legal) e g Sweeper Colony, Geneva Camp

- Temporary (unofficial/illegal) e.g. Agargaon, Tikkapara, Beribad
  - ◊ slums on land earmarked for a specific purpose (and thus more likely to be cleared at an early stage),
  - ◊ slums on land not yet earmarked for a specific purpose;
  - ◊ slums on land beside a public facility, such as a roadside, embankment, or railway line

Private land:

- Permanent (homes built for rent) e.g. Kutteshor-Boretola

- Temporary (homes or land, rented as a short-term measure) e.g Housing Society land
  - ◊ the occupant lives rent-free, and acts as unpaid guard for the owner;
  - ◊ the occupant pays ground rent to the owner, and builds his own dwelling;
  - ◊ the owner builds the dwellings (usually kutcha structures) and rents them out. In this case the owner will often provide some services as well, such as a tubewell and latrines.

Water Supply and Sanitation Problems in Four Types of Slums

Slums on Housing Society Land

Some owners on housing society land allow their land to be occupied by low-income families, either for rent, or else rent-free in return for safeguarding the land. Other owners are content to leave their plots vacant and some owners have constructed semi-pucca housing with all facilities (water, electricity, sanitary toilets) as an investment.

The overall environment of these slums is not too bad at present, at least in comparison with other slums in Dhaka. They are not so crowded; they are fairly well-drained; and they are surrounded by open spaces. The water and sanitation problems tend to vary with the season. In the wet season, water supply is less of a problem for most areas , in the dry season, however, the latrines are less of a problem (except for being uncovered and a breeding ground for flies), while water availability is more of a problem - the tubewells are only shallow, and dry up, and the ponds used for bathing are no longer available.

Physical improvements to water and sanitation in these slums are reasonably straightforward. For water, deeper tubewells, or better still, connections to the mains water supply. For sanitation, pit latrines would be a good solution: there is enough space, and the ground is high enough, to install pit latrines. However, the main obstacle to carrying out any improvements is the *temporary nature* of these slum settlements. Many of them will not be here in a few years time.

Katashor-Boretola: An Example of Slums Built Legally for Renting

Katashor-Boretola has been built by local landlords specifically for renting. It is estimated that there could be 500 units on stilts, and 1,500 slum dwellings in the Katashor-Boretola area altogether (which includes units on higher land beside the road).

The worst environmental problem in this slum is polluted flood water during the rainy season, caused by industrial waste from the tanneries at Hazeribagh about half-a-mile to the south.

Water is supplied to Katashor-Boretola via legal, metered connections to the mains water supply. During the rainy season the pipes are under water, so any leaks will result in the water being contaminated (especially as the water pressure is low). The main problems at these water points are that they are grossly overcrowded, they are right next to the latrines and in the rainy season the flood water rises above the floor of the first floor, and people have to stand in it to wash, right in the discharge of the latrines.

Improvements could include: siting the latrines further away, at a safer distance, providing more space and separate cubicles for women to wash , installing water tanks to allow a reserve to accumulate during the night, and providing proper platforms for cleaning pots and pans.

The main obstacle to such improvements, however, is cost, and the landlords' disinterest in spending the extra money. For example, to create more space would require giving up one room which could otherwise be rented for Tk.500-600 per month. Similarly, other improvements cost money, which the landlords have no desire to spend. The second obstacle is lack of awareness of the risks associated with the present conditions.

Improving the sanitation situation is technically far more difficult. There is no possibility of installing pit latrines here, as there is no land to put them on.

For NGOs wanting to improve conditions for the slum-dwellers, this is a most difficult slum to work in. A further complication is that its future is uncertain. The landlords told the researchers that the dwellings have only a limited life-span - after a few years they would be knocked down and rebuilt. If the whole area were drained, it may be developed with more permanent housing, or else the landlords may invest in land-filling and pucca housing.

Slums on Land Owned by Housing and Settlement Directorate (HSD)

The slum areas known as Johuri Moholla, Bijli Moholla, Tikkapara and Aziz Mohalla have been settled over a period of 15 years (or even longer), and during this time the landlords have made arrangements to make connections to the mains water supply. The exact number of these connections, most of which are understood to be illegal, is hard to estimate but is probably in the order of 30 to 120.

The main problem is not so much the availability of water, as the condition of the water points. The second main problem is the *cost* of this water, both to the slum-dwellers, and to city residents as a whole. The slum dwellers pay a very high price for their water, and receive a very poor service in return. The water points are unhygienic and the slum-dwellers have to queue due to the large number of households using each point, and to face regular interruptions to supply. WASA experiences a large loss of revenue due to the unofficial nature of these connections.

For water, the first priority is to improve the standard of the water points: for example, a tank to store water, a concrete washing platform, proper drainage of waste water, and cubicles for women to wash in. The second priority is to give the slum-dwellers better service at less cost. In other words, to try to ensure that the money they pay goes into providing a better service by encouraging WASA to crack down on illegal connections and provide legal connections instead.

For sanitation, the aim must be to convert the kutcha latrines into a sanitary system

Slums on the Beribad Flood Embankment

On this embankment, water supply is much more of a problem than in many other slums, while sanitation is less of a problem. Because the dwellings are built on the sides of the embankment, they are generally well-drained, and above flood level. Hence drainage is not a problem here. The latrines are all kutcha latrines, built on the inner (east) side. Drinking water is supplied entirely by tubewells. There are no WASA lines in the area. There are about 18 tubewells to serve 1,500 families - i.e. approximately 1 tubewell per 83 families, on average.

There may be scope to install more tubewells here. It is much more difficult to know what to suggest for sanitation. Pit latrines are not a good option, as it is very undesirable to dig pits into the embankment, as this could lead to failure of the embankment at times of high flood. There have also been proposals from government departments to build a service road on the inner side of the embankment (and the crest of the embankment is intended to be used eventually for a main road). Hence these long-term government plans also affect what kind of sanitation system might be feasible in the short and long term.

Having slum-dwellers live here would not be incompatible with constructing a road on the embankment in the long-term. A land policy study carried out in 1993 recommended that squatters should be allowed to live on the embankment, and that the government should plan for this accordingly, giving the residents leases in return for commitment to look after the embankment properly. The solution recommended was to design the embankment so that it *could* be safely settled by squatters (by making it slightly wider), and then giving groups of low income households responsibility for maintenance of their area in return for annual leases on the inner side of the redesigned embankment. A similar approach has been adopted in the rural areas, on other BWDB embankments in rural areas in the past.

Affordability of Improvements

Improvements to water, sanitation, and other facilities *can* be afforded by the slum-dwellers. They are already paying a large amount for the meagre facilities they receive - for example, Tk.50 per month for a very inadequate water supply; Tk.50 per month for a single electric light bulb.

A 1993 land policy study reported that "even with deep landfilling of 10 to 15 feet, low land (of the kind owned by HSD) can be developed for the relatively poor. Current estimates of repayment costs of Tk.400/month/dwelling cover development, including fill costs". Since most slum-dwellers are already paying monthly rents of Tk.400-600, it would therefore be possible for the government to supply them with serviced plots of low-land in Mohammedpur without having to provide a subsidy.

Local Priorities

During the study it became apparent that security of tenure was the slum dwellers' main priority, and was a more important issue to them than either water supply and sanitation. The issue of land ownership and permanence of the slum settlements has great impact on what NGOs, government agencies and slum dwellers themselves will be able to achieve in terms of infrastructure improvement.

NGO Activities in Mohammedpur's Slums

There are at least a dozen NGOs working in Mohammedpur Thana. NGOs have found it very difficult to work on improving Dhaka's slums, and some have decided to abandon such work. Although quite a number of NGO have worked on water and sanitation in Dhaka, only a few NGOs have extensive experience in this field.

There has been some official co-operation between government agencies and NGOs over slum improvement work in Dhaka, but overall, there is very little formal co-operation at present.

In future, it would be beneficial if NGOs could harmonise their approach to slum improvement, in particular the issue of cost recovery. Some NGOs argue strongly in favour of a cost-recovery approach, for several reasons:

- the beneficiaries take more care of the facilities if they have to pay for all or part of them
- the wider problems of slums in Dhaka can only be tackled if costs are recovered, otherwise, the available funds will never be sufficient to extend services to all parts of the city
- support from the senior people in government (for slum improvement) is more likely to be forthcoming if they realise that the task is achievable, and need not be a huge drain on public resources
- slum dwellers are already paying *in full* for all of the services they receive: through high rents, water charges, electricity charges, and so on. What an NGO (and the government) can offer is a better service, at less cost Hence slum dwellers will still receive a great benefit, even if they pay full cost

Government Slum Improvement Programmes In Dhaka

Dhaka City Corporation's Slum Development Department started around 1991. It was established to implement a slum improvement programme funded by UNICEF. The UNICEF programme began in the mid-1980's in other towns in Bangladesh, but did not start in Dhaka until 1992, several years behind schedule. It ended in 1996, and has been replaced with a new UNICEF programme called 'Urban Basic Services Project', which is similar, but gives more emphasis to community health and less to infrastructure.

The slum improvement programme was well designed, with a strong emphasis on community participation and a package of physical improvements (drains, footpaths, streetlights and dustbins) as well as water, sanitation, primary health care and savings groups. However, the programme has been somewhat hampered by a relatively small scale, slow pace and disappointing quality and maintenance of facilities.

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ACRONYMS

ADB	Asian Development Bank
ARBAN	Association for the Realisation of Basic Needs
ASD	Association for Slum Dwellers (an NGO)
BAWPA	Bangladesh Agricultural Working People's Association (an NGO)
BCRS	Bangladesh Red Crescent Society
BWDB	Bangladesh Water Development Board
DCC	Dhaka City Corporation
DSK	Dushtya Shasthya Kendra (an NGO)
DUS	Desh Unnayan Sagstha (an NGO)
GK	Gono Shasthya Kendra (an NGO)
GoB	Government of Bangladesh
HSD	Housing and Settlement Directorate
MSS	Manobik Shahajo Sangstha (an NGO)
NGO	non-government organisation
OSAD	Organisation for Social Action and Development (an NGO)
PIC	Project Implementation Committee (SIP)
SIP	Slum Improvement Project
SPIC	Sub-Project Implementation Committee
TDH-N	Terre des Hommes Netherlands (an NGO)
Tk	taka
UBSDP	Urban Basic Services Delivery Project
UNCHS	United Nations Commission for Human Settlements
VERC	Village Education Resource Centre (an NGO)
WASA	Water and Sewerage Authority
WDB	Water Development Board

GLOSSARY OF BANGLA TERMS

bustee	slum/squatter settlement
crore	10,000,000 (10 million)
katha	a measurement of area equivalent to 726 sq ft or 2 decimals
khana	household; the collection of houses located in an enclosure where all members of the extended family reside
kutcha	not permanent, usually means not concrete; in housing terms a kutcha house is one made of bamboo, plastic sheeting and corrugated iron sheets, a kutcha latrine is one without a closed pit
lakh	100,000 (one hundred thousand)
mastan	local muscleman or "mafia" leader
mistri	an artisan (mechanic, carpenter, mason, smith etc)
pucca	permanent, good quality
thana	administrative unit of local government; in urban areas the area covered by one police station

1. BACKGROUND TO THE STUDY

1.1 Aims of the Study

This report summarises the findings of a study of water and sanitation problems in the slums of Mohammedpur, Dhaka. The study was carried out jointly by WaterAid, ACTIONAID and VERC, during the period August to November 1995.

The aim was to gain a better understanding of the water and sanitation situation in Dhaka's slums, and identify specific measures which could be taken to improve the situation. Mohammedpur was chosen for a case study because ACTIONAID was already working there, and had good local knowledge of the area.

1.2 Methodology

The study was carried out by:

Robert Gallagher - Consultant for WaterAid, and team leader
Md. Masud Hasan - Assistant Co-ordinator, VERC
Md. Hasem Ali - Community Organiser, ACTIONAID

and co-ordination was provided by Ms. Veena Khaleque, Project Director of ACTIONAID's Tikkapara Project.

The main research activities were as follows:

- a reconnaissance survey of 12 main slums in Mohammedpur (to give an overview of the situation)
- a short questionnaire survey of 155 slum families, to find out where they came from, and how long they had lived there
- case studies of water points and latrines in 8 selected slums (to find out about conditions, usage, and costs)
- interviews with local residents, to find out about social relations in the slums (e.g. home ownership, rents, and unofficial water and electricity connections)
- interviews with NGOs and government organisations, to find out about water and sanitation programmes in Mohammedpur (and other parts of Dhaka)
- analysis of government policies and programmes for slums in Dhaka (from published sources).

2. BACKGROUND ON SLUMS IN DHAKA AND MOHAMMEDPUR

2.1 Dhaka

Dhaka is one of the world's fastest growing cities. It is also one of the poorest. Dhaka had a population of about 3.5 million in 1981 and in 1991 it had a population of 6.95 million. The city's population is likely to reach 9 million by 2000 AD, 15 million by 2010 and over 25 million by 2025 AD.[1] It was estimated in 1988-89 that 44% of the urban population in Bangladesh fell below Poverty Line I income (an income which is only enough to provide for the minimum daily requirement of 2122 calories per capita), and that 20% fell below Poverty Line II (1805 calories/day/capita).[2]

Dhaka is a city of contrasts. Some neighbourhoods contain luxury housing, better than most housing in the West. There are also large estates of reasonable middle-class housing. In addition, there are slums in many parts of the city, some of which are among the worst in the world.

Estimates of the extent of the slum problem in Dhaka vary widely (no doubt depending on the criteria used). In 1989 a government study estimated that there were 0.34 million people, 7% of the (then) population of Dhaka, living in slums.[2] By 1985 a Planning Commission report stated that 30% of the city population, some 2.25 million people, were slum dwellers.[2] Most reports assume figures of 20% or more.

Although the term "slum" is widely used, there are wide disparities about what it actually means. Should such figures include Dhaka's "floating population"; the people who sleep on the footpaths, at railway stations, mosques or markets, or at their workplace? The term 'slum', if applied only to clusters of sub-standard housing, in fact describes only part of the overall shelter problem in Dhaka.

Moreover, there are wide disagreements as to what type of housing actually constitutes a slum. For example, when the Centre for Urban Studies carried out a survey of Dhaka's slums in 1988 (probably the most comprehensive survey yet carried out), the Centre did not include clusters of housing with less than 10 households. Thus their estimate of 30% of households understates the total slum population, though we do not know by how much.

The problem (of definitions) was illustrated in this survey of slums in Mohammedpur. When asked to list the main slums in the area, the VERC and ACTIONAID team members mentioned several slums which later turned out to be part of the same large slum. And some slums were not mentioned at all, because the team members felt they lacked permanency and therefore did not qualify (e.g. roadside dwellings).

Hence few of the published figures on slums in Dhaka are very reliable, and in general they understate the real extent of the housing problem. It should be noted that about 60% of the city's people are "absolutely poor[3], and this may be a more realistic estimate of people in sub-standard accommodation.

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1 Nazrul Islam, quoted in 'Study of Urban Poverty in Bangladesh', Government of Bangladesh Planning Commission, Asian Development Bank, May 1996.

2 Bangladesh Bureau of Statistics, 'Statistical Yearbook of Bangladesh 1992'

3 Centre for Urban Studies, Dhaka University Geography Department, 1990 The Urban Poor in Bangladesh' (10 volumes) Quoted in Nazrul Islam, 'Urban Research in Bangladesh', Centre for Urban Studies, Dhaka 1994

2.2 Mohammedpur

Mohammedpur is one of 15 *thanas* in Dhaka.[4] Located on the west side of Dhaka, about three to five miles from the city centre, it has been developed fairly recently. Up till the late 1950's it was still agricultural land. At the time of this study, its population was about 350,000, which was roughly 5% of the total city population.

2.2.1 Government-Planned Estates

In the 1950's and early 60's, a major programme was undertaken by the government of East Pakistan to provide land and housing for Muslim refugees who came to Dhaka after the partition of India. Large tracts of agricultural land were acquired in Mohammedpur (and Mirpur) and divided into plots. Services were installed, and the plots leased to people to build their own houses. Some government staff housing was also built.

These government-planned estates today cover about one-third of Mohammedpur. They are in reasonably good condition - laid out in a grid pattern, with wide roads and public open spaces, and enjoying most urban facilities such as gas, electricity, water and piped sanitation.

KEY STATISTICS ON MOHAMMEDPUR

Area	4.5 square miles (11.65 sq. km)
Population, 1981	220,000
Population, 1991	316,000
Annual growth rate	4.6% (1981-91)
No. of households, 1991	57,551
Average household size	5.5
Wards, 1991	7 (1981 = 3)
Mohollas, 1991	48 (1981 = 31)

Source: Bangladesh Population Census, 1991, Dhaka Zila Statistics; Bangladesh Bureau of Statistics, April 1993

2 2.2 Private Sector Housing Estates

More recently, the main role in land development has been taken over by the private sector. During the 1970's and early 80's, private housing societies began to buy up the low-lying land on Mohammedpur's western fringe. These housing societies were basically businessmen, who used the advance deposits of prospective buyers as capital to acquire the land. They then drew up a layout plan, and allocated plots accordingly.

[4] A thana is an administrative unit of local government. Originally created by the British as the area covered by one police station, it is today the main unit of local government in the rural areas, below the district level In the urban areas, however, the thana is relevant only to the police, as the boundary of local police stations. For other purposes the main units are the Wards, a Commissioner is elected for each Ward, to represent local people on the City Corporation There are 93 Wards in Dhaka, though the number is constantly rising as wards are subdivided and boundaries changed

Today there are half-a-dozen major housing societies in the Mohammedpur area. Upper-middle class housing is sprouting up all over the area - typically 4-5 storey buildings with apartments for renting, and the ground floor devoted to car parking.

2.2.3 Other Land in Mohammedpur

At the southern end of Mohammedpur is a neighbourhood known as Rayerbazar, which has steadily developed since the 1950's. Situated immediately west of the planned residential areas of Lalmatia and Dhanmondi, it is typical of private development in Dhaka - narrow lanes, odd shaped plots, mixed land uses, and very densely populated.

The remainder of Mohammedpur is very low-lying land, bordering the Buriganga River. During the rainy season this land floods to a depth of 12-20 feet. In the dry season it is used for paddy fields. However, following the serious flood of 1988 which inundated much of Dhaka, a flood protection embankment was constructed around the city. This passes through Mohammedpur's low lands, and the land within the embankment is now very attractive for urban development.

2.3 Slums in Mohammedpur

A survey carried out by ACTIONAID in January 1995 estimated that overall there were 125,000 people living in slums in Mohammedpur, which was roughly one-third of the thana's population, or 23,000 households.

The slums are scattered all over Mohammedpur. They vary in size, from small clusters of just a few dwellings, to massive areas with thousands of dwellings. The small clusters are mostly on private land, while the bigger colonies are mostly on government land.

Most of the slums are temporary constructions, built of bamboo and thatch, corrugated iron and plastic sheet (known locally as 'kutcha' dwellings). They are on land which is currently not being used - usually low-lying land, such as ponds and river flood-plain, and also roadsides and embankments. The low-lying land is more expensive to develop than the higher ground, as it requires filling to a depth of 10-15 feet to take it above the flood level. Hence, the slums are constructed here as a temporary measure. Many are built on bamboo stilts, to keep them above the flood level

Details of some of Mohammedpur's main slums are found in the box below :

SOME OF THE MAIN SLUMS IN MOHAMMEDPUR

1 Agargaon

This is probably Dhaka's biggest slum, with an estimated 15-20,000 households. The land is owned by different government departments, and will one day be the site for a new government secretariat. People have lived here for at least 20 years, and are highly politicised Many NGOs are working here. The land is slowly being cleared piecemeal, as individual government buildings are constructed.

2 Beribad and Katashor Embankments:

This is probably Mohammedpur's second largest slum area, with around 3,000 households at the time this study was carried out (Aug/Nov '95). The population has since risen to approximately 9,000 households as of mid 1997. The dwellings are built on either side of a 2-mile stretch of flood embankment (which was constructed in 1989-90).

3. Johuri Moholla, Bijli Moholla, Tikkapara, and Aziz Moholla.

Although referred to as separate slums, these in fact all constitute one single large slum (population. around 1,500-2,000 households) The land is low-lying, mostly a derelict pond, owned by the Housing and Settlement Directorate. Around the pond, on the higher land, is a government staff colony, of 4-storey buildings Most of the slum housing is built on stilts, or else on the side of the pond. Some of the longest-settled residents claim ownership of their plots, though they do not have papers to prove it.

4. Ring Road and Bowshbari.

This is shanty housing built at the side of Mohammedpur's ring road. The dwellings have been here as long as the road (i e about 10 years or so) Estimated number of dwellings: 300 and 250 respectively.

5. Housing Society land at Shekertek, Adabor, and Mohammedia (Mohammedia HS, Baital Aman HS, Pisciculture HS)

Unlike the other slums, these slums do not have clearly defined boundaries. Dwellings are scattered in clumps throughout the undeveloped land of the housing societies, though on the map the various societies are more or less adjacent. Very hard to estimate the number of slum dwellings here - possibly around 1,000 altogether

6 The Bihari Camps (Geneva Camp, Mohammedpur Camp, Market Camp)

These slums constitute a 'special case' - the Biharis are also known as 'stranded Pakistanis'. They are migrants from India who supported the Pakistanis during the War of Liberation After the War they took refuge in very densely populated camps, which have now become semi-permanent. Although many of the camp occupants are quite well-off, the camps they live in are extremely overcrowded and unhealthy However the occupants hope to be resettled in Pakistan, and this makes it difficult to plan long-term improvements to the camps.

7. Katashor-Boretola.

This is a remarkable area of slum housing built on bamboo stilts on the western edge of Mohammedpur Most of the bamboo housing is 2-storied, and some is even 3-storied. The houses are on privately-owned low-lying land, and the landowners have constructed dwellings for rent. The latter are supplied with electricity, gas and piped water (all legal connections). Rents are slightly higher here than in many other slums.

SOME OF THE MAIN SLUMS IN MOHAMMEDPUR (cont'd)

8. Sweeper Colony, Mohammedpur.

This is a housing colony built for the City Corporation's sweepers. It consists of semi-pucca buildings, and has piped water connections, a reservoir and bathing area, and sanitary latrines connected to mains sewers The inhabitants are by no means poor - many of the households have TVs, tape cassette players, and even VCR's in a few cases.

9 Other Slums:

Also scattered throughout Mohammedpur are hundreds of small clumps of slum housing - typically less than a dozen units on a single plot, and mostly on private land, built as an investment by the landowner, who often lives in one of the units himself These are mostly kutcha or semi-pucca dwellings, and constitute 'islands' of slums in otherwise middle-class areas.

2.4 Results of the Household Survey

To find out more about the origins of these slums, a short survey was carried out of 155 families in 7 major slums. Five questions were put to each family. The questions were:

a) How long have you lived in Dhaka?
b) How long have you lived at this slum?
c) Where did you live before this slum?
d) Why did you move here?
e) Do you rent or 'own' this dwelling?

The results are summarised below.

2.4.1 How Long Have You Lived in Dhaka and How Long at This Slum?

Firstly, most of the slum-dwellers are *not* new-comers to Dhaka, but have lived in the city for quite a time. Of the households surveyed, nearly half had been in Dhaka for 10 years or more, and 83% had been here for 5 years or more. Only 10% had come to the city within the past 3 years. (Appendix 1).

The length of time people had lived at a particular slum varied a great deal from slum to slum, reflecting the history of that particular slum. For example, at Kateshor-Boretola, none of the families had lived there for more than 2 years, because during this time the slum had been completely rebuilt by the landlords.

At the Beribad flood embankment, most of the slum dwellers moved in soon after the embankment was built in 1989-90, so most had lived there for about 5 years.

Shekertek is a new slum. It is on private land belonging to a housing society, which has not yet been developed. Temporary units have been put up by the landowners, or by slum dwellers with the landowner's permission. This provides the owners with a rental income from the property, and also safeguards their land against landgrabbers. At this slum, most people had lived here for only a year or so.

Some of the oldest slums were on government-owned land. At Bijili Mohollah, on land owned by the Housing and Settlement Directorate, one-quarter of the residents had lived here for 15-20 years, and half had been here for more than 5 years.

Overall, half of the interviewed slum-dwellers had lived at the same slum for 5 years or more, and two-thirds had been at the same slum for 3 years or more. (Appendix 1, Table 2.2). In other words, they had lived long enough at the same slum to justify making physical improvements to the water, sanitation and drainage.

2.4.2 Where Did You Live Before This Slum and Why Did You Move Here?

Three-quarters of the slum-dwellers had lived at some other place in Dhaka before moving to this slum, and most of them (70% out of 75%) had lived somewhere else in Mohammedpur.[5] (Appendix 1, Table 2.3).

Why did they move? The most common reason for half of the households was because they had had to leave their previous accommodation at the owner's request. (Appendix 1, Table 2.4). Many had previously lived on undeveloped housing society land elsewhere in Mohammedpur. The private landowners, as we have seen, were happy to allow them to live here. (On land-filled sites, the site cannot be developed for the first few years, while the soil is settling). However, once the owner was ready to develop the land, the slum-dwellers were asked to leave. At Beribad embankment, for example, 22 out of 30 residents (73%) had previously lived on Mohammedia Housing Society land.

The second most common reason for moving was to obtain better accommodation. People moved to other slums to gain better facilities - for example two-thirds of the people interviewed at Katashor-Boretola moved there because it had better facilities such as electricity, gas, and running water. People also moved to slums on higher land which was less prone to flooding - such as Tikkapara, Bijli Moholla, the Ring Road, and Katashor-Boretola. Hence for nearly one-third of the slum dwellers who moved within Dhaka, the move was a step-up in their living conditions (and probably was accompanied by higher rents).

The third most common reason for moving within Dhaka was to save rent. This applied particularly to people who moved to the roadside and to Beribad embankment (many of whom lived rent-free).

Only one-quarter of the slum-dwellers had come to the slum directly from the rural areas. The two main reasons for coming from the rural areas were for employment, and because of river erosion, destroying their land and homes. (Appendix 1).

2.4.3 Do You Rent or Own This Dwelling?

The proportion of households paying rent, as opposed to living rent-free in homes which they built themselves, varied greatly from one slum to another. For example, at Beribad embankment, about 90% of households lived rent-free, whereas at Katashor-Boretola about 90% of households paid rent, and only the landlords lived rent-free.

[5] The other 5%, who had lived elsewhere in Dhaka, had previously lived in Mirpur and Sobhanbagh.

In general, the older the slum, the higher the proportion of rented (as opposed to rent-free) accommodation, and similarly, on private land the proportion rented was usually higher than on government land.

However, there were plenty of exceptions to these rules, and we should be careful not to generalise too much. For example, on housing society land (privately owned), it was quite common for landowners to allow people to live on their property rent-free, on condition that they guarded the property, and moved on when the landowner wanted to develop it. Sometimes the occupants were people known to the landowners, for example from their home district.

Slum houses also exist unofficially on some government-owned land, where a well-developed rental market has emerged.

Hence there were great differences from one slum to another, but overall, the majority of slum-dwellers rent their homes (either legally or unofficially), and the older the slum, the higher the proportion of rented accommodation.

2.5 Categorising the Different Types of Slum

It is useful to categorise the different types of slum, as their problems, and the most appropriate responses, vary from one slum to another. However, there are so many different types of slum that categorising them is not easy.

Probably the best way to define them is according to the slum-dwellers' *security of tenure*,[6] and here four main categories can be identified:

CATEGORIES OF SLUM

Government land	
1a Permanent (Official/legal)	e.g Sweeper Colony Geneva Camp
1b Temporary (unofficial/illegal)	Agargaon Tikkapara Beribad
Private land	
2a Permanent (homes built for rent)	Kateshor-Boretola
2b Temporary (homes or land, rented as a short-term measure)	Housing Society land

Within these main categories, there may be several sub-categories. For example, within Category 1b. (slums occupying government land illegally), there can be differences in the level of security at different slums :

[6] Alison Barrett, in the 'Urban Slum Feasibility Study' for WaterAid (Dec 1994) also states that "the most important factor in any (slum) situation is the tenure position" (p.3).

1b.i.	slums on land earmarked for a specific purpose (and thus more likely to be cleared at an early stage);
1b.ii.	slums on land not yet earmarked for a specific purpose,
1b.iii.	slums on land beside a public facility, such as a roadside, embankment, or railway line

Similarly, Category 2b. (temporary slums on private land) can also be sub-divided according to different tenurial relationships with the owner. For example, on housing society land in Mohammedpur, the following rental arrangements were found (sometimes all on the same plot) :

2b.i	the occupant lives rent-free, and acts as unpaid guard for the owner,
2b.ii.	the occupant pays ground rent to the owner, and builds his own dwelling,
2b.iii.	the owner builds the dwellings (usually kutcha structures) and rents them out. Often the owner will provide some services as well, such as a tubewell and latrines.

In practice, the dividing line between the different categories is often not clear. For example, many slums on government land are more like private rented housing - built by private landlords, who collect rent for them, and are quite securely established.

On the other hand, all dwellings on private land are to some extent temporary, because as soon as the landlord has accumulated enough money, he or she is likely to build pucca dwellings, and ask the occupants to leave (though ironically they were the people who financed the improvement).

In Mohammedpur - as in most other parts of Dhaka - the majority of slum-dwellers have very little security of tenure at the places where they live, that is, they come under Categories 1b. and 2b. The following discussion of water and sanitation problems now focuses mainly on the conditions existing in these slums.

3. WATER AND SANITATION PROBLEMS IN MOHAMMEDPUR'S SLUMS, AND POSSIBLE ACTION

The following pages describe conditions in four distinct types of slums:

1. Slums on private Housing Society land
   (e.g. slums at Adabor, Shekertek, and Mohammedia;
   = Category 2b slums).

2. Slums built legally for private renting
   (e.g. Katashor-Boretola = Category 2a slum)

3. Slums on low land owned by the Housing and Settlement Directorate
   (e.g. slums at Johuri, Bijli, Aziz Mohallas, and Tikkapara, on government land earmarked for low/middle income housing in the long term = Category 1b slums)

4. Slums on the Dhaka flood embankment, which is owned by the Water Development Board (WDB) and Dhaka City Corporation
   (e.g. Beribad embankment = Category 1b slum).

3.1 Slums on Housing Society Land

The land occupied by private housing societies in Mohammedpur is in a state of transition. Originally agricultural land, it has been divided into plots, which are now being developed. The process of development is very uneven, and depends on whether individual owners have the capital to build or not.

Some owners allow their land to be occupied by low-income families, either for rent, or else rent-free in return for safeguarding the land. Other owners are content to leave their plots vacant and some owners have constructed semi-pucca housing with all facilities (water, electricity, sanitary toilets) as an investment.

Two examples illustrate the type of slum housing found in these areas. Both are taken from plots in Adabor, at the Baital Aman Housing Society:

EXAMPLE 1: SLUMS IN ADABOR

Plot size	=	5 kathas (3,630 sq. ft.)
No of units	=	14 single rooms, kutcha & tin roof, of which : 8 rooms, rented @ Tk 250-300/month each (each room approx 9'x10' feet) 5 rooms, built by the occupants, who pay ground rent of Tk 125-200/month each 1 room, rent-free for the 'manager'
Owner's income	=	Tk 3,000 per month, Tk 36,000 per year (roughly Tk 10/sq.ft/year
Water source	=	1 shallow tubewell for 14 families (70 people), in good condition with a washing platform. Reasonable supply in wet season, but poor supply in dry season.
Sanitation	=	1 kutcha latrine[7] for 70 people, over a pond 60 feet away from the tubewell People washing in the same pond only ten metres from the free fall of the latrine.

EXAMPLE 2: SLUMS IN ADABOR

Plot size	=	4 kathas (2,904 sq. ft.)
No. of units	=	20, of which : - ground rent only, @ Tk 200/month - room rent, @ Tk 350/month
Owner's income	=	At least Tk 5000/month (approx. Tk 21 per sq. ft /year), with no property taxes to pay
Water source	=	A mains tap in the landlord's house, 90 feet away, for which the slum-dwellers are charged Tk 50/month, and allowed to obtain water at two times of the day (up to 10 am, and again in afternoon/early evening)
Sanitation	=	2 kutcha latrines for approx. 100 people, situated 10 feet from the nearest house, and emptying over open land

[7] A "kutcha" latrine is one which has a platform and some screening but no pit, so faeces either piles up on the ground or drops into a pond

3.1.1 Problems

The overall environment of these slums is not too bad at present, at least in comparison with other slums in Dhaka. They are not so crowded; they are fairly well-drained; and they are surrounded by open spaces. Overall, they have something of a 'village' feel about them - cows and chickens wander about, and in the wet season boats ply the flooded low-lands.

The water and sanitation problems tend to vary with the season. In the wet season, water supply is less of a problem for most areas (with the notable exception of parts of Shekertek and Mohammedia HS, where slum-dwellers have to walk a long way, and queue a long time, to obtain water).[8] Sanitation is a greater problem, however. The kutcha latrines are close to the houses, and as described above, empty into ponds used for bathing.

In the dry season, however, the latrines are less of a problem (except for being uncovered and a breeding ground for flies), while water availability is more of a problem - the tubewells are only shallow, and dry up, and the ponds used for bathing are no longer available.

3.1.2 Solutions

Physical improvements to water and sanitation in these slums are reasonably straightforward. For water, deeper tubewells, or better still, connections to the mains water supply. For sanitation, pit latrines would be a good solution: there is enough space, and the ground is high enough, to install pit latrines which would function properly and not be flooded by the high water table in the wet season.

However, the main obstacle to carrying out any improvements is the *temporary nature* of these slum settlements. Many of them will not be here in a few years time.

Thus for NGOs and government organisations concerned with improving water and sanitation, these slums are not the main priority. Their conditions are not yet so bad, nor do most of them have a long future. NGO efforts would be better targeted at other slums which are in a worse condition, and more permanent.

3.1.3 Possible Action

Nonetheless, many of the slum dwellings on housing society land will remain there for many years to come. Not all plots will be developed at once, and some owners will continue to rent out low-income dwellings. Moreover, there will be more slum dwellings created in the future, on new housing society land to the west of these estates.

Hence, we should not ignore these slums altogether. Perhaps the best way to improve their water and sanitation condition is to encourage the private sector to raise standards - in other words, try to influence landowners, and more importantly the slum-dwellers, to demand better facilities and follow better hygienic practices.

[8] At one cluster of slum housing at Mohammedia Housing Society, for example, 30 families rely on a single water point located 100-200 metres away at the local bazar. Women from these households spend 2-3 hours per day fetching water - this can include queuing for water for 30 minutes to 1 hour at a time.

Private housing development in the area shows that better standards *are* attainable, if the residents demand it. For example, close to the plots described above, a cluster of better quality semi-pucca houses had been built, which are very clean and well-serviced:

EXAMPLE 3 - SEMI-PUCCA HOUSING IN ADABOR

Plot size	=	4 kathas (2904 sq.ft)
No. of Units	=	10 semi-pucca rooms, (tin roof, brick walls) of which; 9 rented @ Tk 500 /month (10'x11') 1 for the 'manager'
Owner's income	=	Tk 4,500 per month, T 54,000 per year (or roughly Tk 19 per sq ft./year)
Water source	=	Mains supply to a tap located in the compound, with a bathroom (cubicle) for washing
Sanitation	=	3 on-site sanitary latrines with brick walls
General comment	=	Very clean compound in front of the rooms

It was not possible to ascertain if water bills were included in the rent or not. At any rate, the owner's income from the property was similar to that in Example 2 above, (though the latter did not spend anything on facilities, and so his outlay would be less, and thus his profits greater)

The tenants' rents were not very different either (especially if the Tk.50/month for water of Example 2 is added to the rent).

Hence it should be possible to provide better facilities to such plots, especially sanitation, if people can be motivated for it. For example, 3 sanitary latrines at each of Plots 1 and 2 above would cost an additional Tk 6,000 per plot,[9] which, if the investment were written off over one year, would cost around Tk 1 per family per day (assuming no subsidy), or roughly 10% of their current rental costs. (However, this figure does not include the cost of emptying the latrines, nor the cost of land).

Therefore improved conditions *are* affordable, and the main constraints to achieving them are:

- lack of demand (for better sanitation) from the householders, due to lack of appreciation of the benefits relative to the cost;
- likewise for the plot owner (plus the disincentive to use space for latrines that could otherwise accommodate another rented dwelling);
- the problem of emptying the latrines properly and regularly, once installed.

[9] Assuming a single-pit latrine costing Tk 1000 for 5 rings, Tk 600 for one slab, and Tk 400 for the superstructure.

Hence for NGOs, the best ways of improving sanitation in these areas may be:

- To educate people about the health of benefits of hygienic practices and good sanitation, to stimulate demand for improvements.

- Setting up a private firm (or an NGO, or the City Corporation) to provide a pit latrine installation service, and selling the latrines to the landlords in these areas. (Costs might be slightly subsidised to begin with, to help launch the programme).

- Developing ways to empty the latrines on a commercial basis (perhaps by selling the waste), to ensure that latrines are emptied regularly and properly.

- As a short-term measure, encourage people to convert their kutcha latrines into 'home-made' latrines (i.e. a kutcha latrine over an earth pit), wherever possible.

3.2 Katashor-Boretola: An Example of Slums Built Legally for Renting

In one sense, the housing at Katashor-Boretola is unusual, because it is 2-storey bamboo housing On the other hand, it is not so untypical of slum housing in Bangladesh, because it is built on stilts over low land. Thus the technical obstacles to improving water and sanitation in this slum are similar to those in stilt housing elsewhere in urban Bangladesh.

Katashor-Boretola has been built by local landlords specifically for renting. It is estimated that there could be 500 units on stilts, and 1,500 slum dwellings in the Katashor-Boretola area altogether (which includes units on higher land beside the road) :

The landlords in this area own many houses. The largest is reputed to own 250 rooms, and there are others who own 50-150 rooms each. Altogether, there could be as many as 30 to 40 main landlords in the area.

The housing on stilts certainly deserves to be called 'slums'. The rooms, about 9 feet square, are very dark, poorly ventilated, and open onto dark corridors (on the lower floor). They look 'Dickensian', and one lady resident said that it was like living in a 'jail khana' (i.e. a jail).

Nonetheless, the housing is regarded as of a better standard than many other slums, because of its facilities of running water, electricity for lighting, and gas for cooking. This is reflected in slightly higher rents, of Tk.500-600 per room (this includes all services). Katashor-Boretola is regarded as a big improvement over, for example, slum housing on the Beribad embankment, because of its facilities. It is also more secure (being legally constructed), and closer to markets and centres of employment.

3.2.1 Problems

The worst environmental problem in this slum is polluted flood water during the rainy season, caused by industrial waste from the tanneries at Hazeribagh (about half-a-mile to the south). Local people said that if you dip your foot into the water (which was black and devoid of life), it itches badly. Landlords said that the tin roofs corroded much more quickly here, because of chemicals in the water.

Pollution used to be less of a problem here, because the river used to flush away the polluted water. However, the construction of the flood embankment in 1989-90 means that the pollution is now trapped, and concentrated.

Action to stop the pollution would require action by the Department of the Environment, and the Dhaka Water and Sanitation Authority (WASA), which is responsible for the city's drainage. According to newspaper reports, the Department of the Environment served notices on the tanneries in mid-1995.

3.2.2 Water and Sanitation

Water is supplied to Katashor-Boretola via connections to the mains water supply. According to one landowner, there are about 14 landlords in the several bamboo complexes, and hence about 14 (legal) water connections to the WASA mains supply. Each line costs about Tk.5-10,000 to install (depending on the length of plastic pipe). The connections are all officially metered, and a landowner quoted a monthly bill of about Tk.400 for each of his two water points. He had 2 water points for 100 rooms, hence his monthly water bill was around Tk.800. This is a low figure and probably reflects some kind of unofficial arrangement. His average water bill of Tk.8 per household per month is in contrast to the Tk.20/household/month charged to slum-dwellers at Shekertek, and Tk.50 per household/month at Adabor - with the latter receiving a much poorer service.[10]

Each connection consists of a plastic pipe from the mains to a tap/standpipe. During the rainy season the pipes are under water, so any leaks will result in the water being contaminated (especially as the water pressure is low).

The main problems at these water points are:

- They are grossly overcrowded (25-50 families to a tap, and no privacy for women washing).
- They are right next to the latrines, so there is a high chance of the diseases being spread by foot - especially as the water points are used for all purposes, including preparing food and washing pots and pans.
- In the rainy season, the flood water rises above the floor of the first floor, and people have to stand in it to wash, right in the discharge of the latrines.

[10] The landlord's bills are still very low, even when the capital cost of the water connection is taken into account. The capital cost of line installation was around Tk. 100 - 200 per household (Tk 5-10,000 divided by 50 households)

3.2.3 Solutions

Technically, it should not be difficult to improve the standard of the water points in these slums. Improvements could include:

- Siting the latrines further away, at a safer distance
- Providing more space, and separate cubicles for women to wash.
- Installing water tanks to allow a reserve to accumulate during the night. (Some taps suffered from low flow).
- Providing proper platforms for cleaning pots and pans.

The main obstacle to such improvements, however, is *cost*, and the landlords' disinterest in spending the extra money. For example, to create more space would require giving up one room which could otherwise be rented for Tk.500-600 per month. Similarly, other improvements cost money, which the landlords have no desire to spend.

The second obstacle is lack of awareness of the risks associated with the present conditions.

Improving the sanitation situation is technically far more difficult. There is no possibility of installing pit latrines here, as there is no land to put them on. The main options seem to be:

- Watertight holding tanks beneath the existing latrines (which would be very expensive, and require regular emptying to be successful)
- Providing community latrines on the higher land adjacent to the housing. (The problem here is that people would not be willing to walk a long way to reach the latrines, especially if they had to be paid for)
- To adapt a small-bore sewage system (of the kind currently being installed in Mirpur) to stilt housing

Since the higher land is distant from many of the dwellings, the third option (a small-bore sewage system) would seem the most feasible. This would involve 20-50 households connected via small-bore pipes to a septic tank.

Again, the main drawback to installing this system is cost. Based on the costs of small-bore sewage systems in Mirpur, the cost at Katashor-Boretola could well be Tk.3,000 per household or more.[11]

[11] Assuming that the system costs Tk. 1.5 lakh, to serve 50 households

3.2.4 Possible Actions

All of the possible improvements to the environment at Katashor-Boretola cost money, and the main obstacle to carrying out such improvements is people's unwillingness to pay for these improvements. In the case of the polluted water, the duty lies with the tanneries to stop discharging toxic waste. In the case of the water points, the duty lies with the landlords to provide more space and more hygienic washing points. In the case of the latrines, the cost would lie with the tenants, in the form of higher rents.

For NGOs wanting to improve conditions for the slum-dwellers, this is a most difficult slum to work in. A further complication is that its future is uncertain. The landlords told the researchers that the dwellings have only a limited life-span - after a few years they would be knocked down and rebuilt. If WASA install pumps to drain the whole area, it may be developed with more permanent housing, or else the landlords may invest in land-filling and pucca housing. Hence with this uncertainty over the future of this particular site, it would perhaps be better not to invest a lot of money here.

However, the site raises important questions :

- how do we persuade private landlords to provide better facilities for their tenants?
- how do we develop a suitable sewerage system for housing on stilts?

3.3 Slums on Land Owned by Housing and Settlement Directorate (HSD)

Most of the land owned by HSD in Mohammedpur was acquired in the 1950's and 1960's. The high land has largely been developed with government employees' housing, but the lower land is more expensive to develop, as it requires filling, and so it has remained vacant. It is on this lower land that (illegal) slum housing has been constructed, usually on stilts.

The main concentrations are at Johuri Moholla, Bijli Moholla, Tikkapara and Aziz Mohalla. These four slums are all on the same low land, so they can be regarded as, in effect, one large slum.

It is extremely difficult to estimate how many dwellings occupy this slum., and the researchers of this study disagreed among themselves. Hence any numbers quoted below are highly subjective.

3.3.1 Rents, Ownership, and Costs of Slum Housing

It is estimated that the total number of dwellings in the J-B-T-A slum is under 2,000. Most of the inhabitants rent their accommodation. Only 15-20% live in their own rent-free dwellings, and many of these are landlords.

There is a very well-established rental housing market. The housing sheds are put up mainly by well-off landlords, who own a considerable number of units. The biggest shed-owner in the area has about 100 to 150 units; the next biggest owner has about 50 units, and there are lots of landlords with 15 to 30 units. Altogether, there could be about 150 main landlords in the slum, plus a good number of smaller owners with one or two units each.

In mid 1995 there was a major fire at Johuri Mohalla, which destroyed more than 50 units and killed several people. At the time of this study (October 1995), five months later, new sheds were already being built at the same site over the pond. Approximately 140 dwellings were being built, in half-a-dozen sheds, by 10 owners. These were to be rented out at Tk.600 per month each. This seems high in relation to the cost of construction, as the capital cost of constructing these housing units was around Tk.10,000 each, for a room of 10'x10' with a tin roof. In addition to the initial cost is the cost of repairs over the 10 year life of the dwelling - estimated at around Tk.5,000 over 10 years. This means the rent of Tk.600 per month per unit would repay the construction cost, *plus* all repairs over 10 years, within 25 months (excluding interest).

This seems like an extremely good investment for the owners; however, other costs and risks must also be taken into account. The rent includes the facilities of water supply and electricity (see below), and other hidden costs incurred by the landlords, such as gifts to officials. There is also a lot of risk attached to such constructions, such as the risk of fire, cyclone damage, and demolition. Taking all these factors into account, the rent level, though high, is not quite as exploitative as it seems at first glance.

3.3.2 Water Problems

The slum (J-B-T-A) has been settled over a period of 15 years (or even longer), and during this time the landlords have made arrangements to make connections to the WASA mains water supply. The exact number of these connections, most of which are understood to be illegal, is hard to estimate (the research team members estimated any where from 30 to 120 such connections).

The main problem is not so much the availability of water, as the condition of the water points. In practically every case, the water point is in a terrible state: no taps, no platform, and no drainage.

The second main problem is the *cost* of this water, both to the slum-dwellers, and to city residents as a whole. To obtain their unofficial water lines, the landlords are believed to pay Tk. 2,000 to 5,000 per line (depending, among other things, on the length of the line).

In the absence of metering, monthly unofficial payments are understood to be around Tk 300 to 400. As none of this money ever reaches WASA, the annual loss to the authority in water bills from this slum alone could be as much as Tk 3 lakh.[12]

The slum-dwellers do not benefit from this cheap water. Their water bill is included in their rent (as is the electricity bill - see below). However, those households which don't pay rent (because they live in self-built dwellings) must pay Tk.40-50 per month for using the water. This is paid either to the landlord who controls the water point, or else directly to the WASA employee.

In other words, the slum dwellers pay a very high price for their water, and receive a very poor service in return. The unhygienic condition of the water points has already been mentioned. In addition, the slum-dwellers have to queue due to the large number of households using each point, and to face regular interruptions to supply. (See case studies below)

[12]Assuming water payments of Tk 400 per month, for 60 water points.

CASE STUDY 1 - WATER POINT AT TIKKAPARA

No of households sharing the tap	=	40
Distance of tap from homes	=	2 - 15 metres
Volume of water flowing	=	Sufficient, except during power cuts
Regularity of supply	=	Whole day
Length of queuing	=	15 - 20 minutes
Water point used for...	=	All purposes

CASE STUDY 2 - WATER POINT AT BIJILI MOHOLLA

No. of households sharing the tap	=	12
Distance of tap from homes	=	2 - 8 metres
Volume of water flowing	=	Very poor
Regularity of supply	=	am - 30 mins, pm - 30 mins
Length of queuing	=	A huge queue (slum-dwellers often go to neighbouring staff quarters to collect water and may spend 2 hours a day just fetching water)

3.3.3 Sanitation Problems

The sanitation system throughout the slum is simply 'kutcha' latrines: i.e. bamboo cubicles on stilts, over the pond. In other words, faecal waste is simply dropped into the pond.

There are so many kutcha latrines that the pond water is highly polluted, and no-one washes in it now (which is just as well, as there would be a serious health risk if they did). Nonetheless, there is still a health risk from mosquitoes breeding in the stagnant water and other insects walking on the faeces and then on food and other surfaces.

Most latrines are built by the landlords for their tenants, though the tenants do not have to pay for using them. At first glance, this sanitation system would seem to be the 'least cost' approach. But in fact it is not as cheap as it seems. Even the kutcha latrines have a construction cost - around Tk.500-1,000, depending on the length of bamboo poles and the quality of superstructure. At Tikkapara, a latrine's construction cost was as follows:

Bamboo	- Tk.300
Fence	- Tk.200
Making charge	- Tk.300
Total	Tk.800

In addition, there is an annual repairing cost of around Tk.250-400, due to wear and tear of the bamboo platform and the kutcha superstructure.

If we compare the cost of kutcha latrines with sanitary pit latrines, the two are actually not so different. Over 3 years, which is roughly the life of a kutcha latrine, the total cost, including repairs, could be around Tk. 1,600-2,000, which is almost as much as a pit latrine. However, the pit latrine

also has the cost of regular emptying, and there is the problem of finding suitable land on which to put it. At J-B-T-A slum, most of the available high land is occupied by dwellings, whereas the kutcha latrines are built over vacant low land (and thus have effectively no land cost).

There are several other significant costs of the present kutcha sanitation system, which should be borne in mind when considering the cost of alternatives. Firstly, the ponds could produce a lot of fish, if they were kept clean and properly managed. (The pond in front of the High School was given to the school for safe-keeping, but does not produce much income at present, partly because the pond is so polluted). Secondly, the people of the neighbourhood could use the pond for recreation, if the water was clean.

3.3.4 Solutions

Water: For water, the first priority is *to improve the standard of the water points*: for example, a tank to store water, a concrete washing platform, proper drainage of waste water, and cubicles for women to wash in. (Interestingly, these have all been installed recently at Johuri Moholla by the City Corporation's Slum Development Department, following the fire which burnt down half the slum).

The second priority is *to give the slum-dwellers better service at less cost.* In other words, to try to ensure that the money they pay goes into providing a better service. This means changing the arrangements (i.e. reforming WASA and cracking down on illegal connections).

Sanitation: For sanitation, the aim must be *to convert the kutcha latrines into a sanitary system.* Here there would seem to be three main options:

- install pit latrines
- develop a system of small-bore sewerage suitable for use in the existing stilt housing
- filling-in the land (or parts of it), and then installing a sanitation system (e.g. small-bore sewerage and septic tanks, or else latrines) on the reconstituted plots

There *is* scope to install pit latrines in some parts of this particular slum: for example, in Bijili Moholla, World Vision (an NGO) had provided a single 5-ring pit latrine free of cost, and three landlords built the superstructure. (This latrine is used by 12 households).

However, given the high density of population in this slum, (which will increase in future), and the large number of dwellings built on stilts, pit latrines are not a solution for most parts of the slum.

A better alternative might be to develop a system of small-bore sewerage suitable for use in stilt housing.

Another alternative would be to fill-in the low land (or parts of it), and rebuild slum dwellings on a planned basis, installing services as part of the overall rehabilitation of the site. This would not necessarily mean that the slum-dwellers would have to be displaced - according to a recent ADB-

funded land study in Dhaka, land filled to a depth of even 10-15 feet could be affordable to low-income groups, if the plots are small and services are shared.[13]

3.3.5 Possible Actions for NGOs

How can NGOs set about improving the existing water points? There are basically 3 alternatives:

- direct implementation (i.e. establish new water points, of a good standard);
- implementation through the landlords (i.e. improve the existing water points, through some kind of agreement with the landlords);
- implementation through WASA (i.e. by encouraging WASA to crack down on new illegal connections, legalise existing ones and bring watch points up to a proper standard).

However, there are significant obstacles with each of the above options. Establishing new water points controlled by the users themselves is an approach that several NGOs have already tried, with success (e.g. DSK, Proshika - see next chapter). However, their experience shows that this is not an easy exercise, due to opposition from local people whose interests are threatened.

In the J-B-T-A slum, there are very powerful interests controlling land and water, and it would be very difficult to challenge these interests by setting up rival water points, (except on a small scale, say a few water points only).

The second option is to work through the landlords, improving water points with their agreement. The aim would be to show what is possible in the way of good water points, and thus have a demonstration project. However, there are problems with this approach too. Improving water points connected to unofficial lines and maintained by unofficial payments could, justly, provoke criticism as implicitly condoning and continuing unsatisfactory arrangements.

Feasibility of the third option, to try and bring about reforms within WASA may depend on the outcome of a major project (currently underway) sponsored by the World Bank, in support of change and development of WASA. This is understood to include some element of privatisation and changes in the system of collecting water charges (e.g. giving bonuses to employees who collect more revenue), An NGO like WaterAid, with its connections with its connections with the UK water industry might well play a part in such change. However, this may be a very slow and long-term process.

Hence none of the options are ideal, and perhaps the best approach would be to try all of them, simultaneously, on a small scale - i.e. set up some new water points, through NGOs; reach agreement with some landlords to improve their water points, to demonstrate good practice; and begin to establish links with WASA, to assist the reform process, albeit in a small way.

3.3.6 Improving Sanitation

What are the best actions that NGOs could take to improve sanitation in this particular slum?

[13] Culpin Planning Ltd et al , "Formulation of Land Development Controls and Procedures for Dhaka City', (ADB TA 1609-BAN), for ADB/GoB/RAJUK, Draft Final Report, Vols. I and II, August 1993.

One approach for improving the slum would be to fill it in and rebuild it with proper roads, footpaths, services, and community facilities such as schools and open spaces. Since the slum is so large, it would be too disruptive to attempt to do it all at once, and hence it would be better to do parts of it at a time (e.g. the area around the pond at Johuri Mohalla/Bijili Mohalla). This would also make it easier to deal with potential opposition from the unofficial landlords.

In practice, the slum is going to be gradually filled-in anyway, by HSD and private individuals, except that in the present set-up the slum-dwellers will gradually be displaced as filling proceeds.

Since government agencies are not thinking along these lines at present, NGOs therefore have an important advocacy role to play - that is advocating area improvements which benefit the people living there. The NGOs could also offer their assistance in implementing such area improvements.

Such a strategy will take a long time, and a lot of hard work, before results are seen. In the shorter term, the alternative for improving sanitation may be to try to persuade the unofficial landlords to install pit latrines and small-bore sewerage systems.

3.4 Slums on the Beribad Flood Embankment

The flood embankment to the west of Mohammedpur was built in 1989-90, following serious floods in Dhaka in two successive years (1987 and 1988). Soon after the embankment was completed, squatters started to live there. By mid-1993 there were about 1,800 families living in a continuous line from south of Hazaribagh to 100 metres south of the pumping station at Kallyanpur (i.e. a 4.5 km stretch of embankment).

Since 1993 the number of squatter dwellings has increased considerably, and is still increasing. In 1993 there were no dwellings on the outer (western) side of the embankment, nor on its crest, and dwellings were only one to two deep on the inner side. But as of the time of this study (1995) there were dwellings on both sides, and many more of them.

It is very difficult to estimate how many people live there now. (One of the research team members started to count, and gave up). A rough guess would suggest perhaps 1,500 families on the northern section (Kallyanpur pumping station to the new road junction at Adabor road), which is double the number of 1993, and perhaps 3,000-4,000 families altogether. In other words, there could be 23,000 people living on the embankment now, which is the population of a small town.

This survey looked at only the northern section (i.e. about 1,500 households). It was found that most of the households lived in accommodation which they had built themselves. There was very little renting - perhaps less than 5% of the population. The remainder lived rent-free. A few units were rented out, but only by families who lived in adjacent dwellings. The biggest 'landlord' had only three dwellings, and rents were only Tk.200 per month. However, in the future no doubt a rental market will emerge.

Most of the people had moved here from other places in Mohammedpur. The most common origin was the Mohammedia Housing Society. According to an ACTIONAID survey, there were about 700 dwellings on the Society's land in June 1989. It was low land that had been filled in by the Society's owner and in the two to three years that the earth was settling, he allowed people to live there free of charge. But once the land was ready to be developed, they had to move. Fortunately for them, the embankment was built at this time, so they had somewhere to move to.

3.4.1 Water and Sanitation Problems:

This survey was conducted during the wet season, and conditions were generally better than in the dry season, when there is less water available.

On this embankment, water supply is much more of a problem than in many other slums, while sanitation is less of a problem.

Because the dwellings are built on the sides of the embankment, they are generally well-drained, and above flood level. Hence drainage was not a problem here. The latrines were all kutcha latrines, built on the inner (east) side. No-one used the west side for going to the toilet, not even children, as far as the team could see. The western side was used for bathing in the river, and people were very particular about crossing over the embankment to use the kutcha latrines on the other side. Dwellings were higher than the latrines, so sanitation caused less problems here than in other slums (though the open latrines are a health problem nonetheless).

Drinking water was supplied entirely by tubewells. There are no WASA lines in the area. There were about 18 tubewells to serve 1,500 families - i.e. approximately 1 tubewell per 83 families, on average. They were located about 100 yards apart. The tubewells were installed by various NGOs and also by private organisations, as follows :

World Vision	5
DUS (an NGO)	3
ASD (an NGO)	3
Brick company owners	3
Local mosques	3
Private tubewell	1

The tubewells installed by NGOs were equipped with deep-set Tara I's. They were between two and four years old, and mostly in good working order. Pump maintenance groups and caretakers set up by the NGOs seemed to be effective at keeping the pumps maintained. The NGO tubewells also had good concrete platforms.

The private tubewells, however, were generally in a poor state.

Before the tubewells were installed, slum-dwellers used to use river water for all their needs, sterilising the drinking water with chemicals which cost about Tk.2 per family per week. Now they got their drinking water from the tubewells, while the river was still used for bathing and washing pots and pans (for those not living close to the tubewells). In the dry season, however, the river water drained away, and then washing became a real problem. People said that they washed either at the tubewells, or at their homes from containers of water.

3.4.2 Possible Actions

There may be scope to install more tubewells here. The current level of provision is very low, and the population is growing all the time, putting more pressure on the existing tubewells. The approach adopted by the NGOs who have worked here, of organising groups to take care of maintenance, should be continued. The main questions are: (i) how many tubewells should be

installed? (ii) what level of cost recovery should be aimed at? Different NGOs have followed very different approaches to this, from very small community contributions to installation (e.g. World Vision) to almost full cost recovery (e.g. DUS).

It is much more difficult to know what to suggest for sanitation. Pit latrines (i.e. kutcha latrines with an enclosed earth pit) are not a good option, as it is very undesirable to dig pits into the embankment, as this could lead to failure of the embankment at times of high flood (if the pits were dug into the water table which exists within the embankment at the time of a high flood).

There have also been proposals from government departments to build a service road on the inner side of the embankment (and the crest of the embankment is intended to be used eventually for a main road). Hence these long-term government plans also affect what kind of sanitation system might be feasible in the short and long term.

The main sanitation options therefore seem to be:

- construction of pit latrines or home-made latrines on the inner (eastern) side of the embankment, using raised pits rather than digging pits into the embankment.

- small-bore sewerage systems for 20-30 households connected to a septic tank (again, using raised septic tanks rather than digging into the embankment).

Both of these approaches have drawbacks. Both would be costly, requiring a lot of earth to build up platforms around the latrines or septic tanks (and obtaining the earth could be a problem). Both would require careful engineering supervision. There is also the usual problem of emptying the pits/septic tanks when they are full (even more difficult here as there is no proper access road at present). But most importantly, the sanitation systems cannot be installed without agreement from the government agencies who own the land (BWDB - 775 acres, and DCC - 107 acres), nor without a clear idea about the long-term future for settlers on the embankment.

Hence water supply can be improved fairly easily (as has been done by several NGOs already); but sanitation improvements will be much more difficult, because they will require a high level of co-ordination (among slum-dwellers and also with government departments), and also a decision about the long-term future of the settlement.

3.4.3 The Long-Term Future of Beribad

In every slum, the slum-dwellers' main priority was for some security of tenure. The same priority was voiced by the people of Beribad. What is their future? This depends on what the embankment is used for in the future.

When the embankment was originally constructed, the government expected that it would eventually become a main road. Hence one day it is very likely that the embankment will be widened to accommodate a road on its crest.

Having slum-dwellers live here would not be incompatible with constructing a road on the embankment in the long-term. This question was examined in a land policies study carried out by consultants for the Government and ADB in 1993.[14] The study recommended that the squatters

[14] Culpin Planning Ltd et al , "Formulation of Land Development Controls and Procedures for Dhaka City', (ADB TA 1609-BAN), for ADB/GoB/RAJUK, Draft Final Report, Vols I and II, August 1993 See also pg 24, Culpin Planning Ltd., et al , op. cit

should be allowed to continue to live on the embankment, and that the government should plan for this accordingly, giving the residents leases in return for commitment to look after the embankment properly.

The study concluded that the current practice of cutting terraces in the embankment to make platforms for dwellings was potentially hazardous if not properly managed:

> "Examples of some of the damaging activities include soil excavation, excavation for foundations of sheds or temporary structures, removal of top soil and turf from the surface, removal of the protective surface cladding. In addition, ...some settlements may interfere with the maintenance or repair activities of the embankments....It could become a major problem in times of serious flooding."[15]

In general, the problem was not considered too serious at present, but "if such terracing has cut below the likely water table within the embankment at the time of a major flood, then the destruction of the part above the cut will be rapid if a major flood occurs".[16]

The solution recommended by the consultants was to design the embankment so that it *could* be safely settled by squatters (by making it slightly wider), and then "in return for annual leases on the inner side of the redesigned embankment, groups of low income households should be given responsibility for maintenance of their area of embankment".[17] A similar approach has been adopted in the rural areas, on other BWDB embankments in rural areas in the past.

In 1993 negotiations were taking place between ADB and the Government about funding a major reconstruction of the western embankment, as it had not been properly built in the first place. It is assumed that this reconstruction has now been carried out, as the outer (western) wall now has a protective concrete surface. However, there has not been any recognition of the squatters' right to live there, so this remains an issue to be addressed in the future.

If the slum-dwellers at Beribad could gain a legal right to settle there, then permanent improvements to their living conditions could be implemented (e.g. piped water supply, gas, electricity, and sanitation), and the residents could protect the embankment from failure, rather than undermining it as at present.

3.5 Concluding Remarks on the Field Surveys

The survey of slums in Mohammedpur highlighted the great differences that exist between different slums, both in terms of physical and social characteristics. As a result the approach to improving them will have to vary considerably.

The differences in *physical* characteristics include:

- Is the slum on high or low land? This influences its drainage problems, and the type of housing constructed (e.g. is it on stilts?)
- Is it crowded, or thinly populated? This will influence the scope for putting in facilities such as washing platforms and pit latrines

[15] ibid, p.100
[16] ibid, p.173
[17] ibid, p 174

- Is it well-drained or not? This will influence the priority of drains and footpaths
- Is it close to mains water and sewer lines? This will influence the type of water points and latrines that can be installed.

Similarly, the differences in *social* characteristics include:

- Who owns the land? Is it government or private?
- Who controls the land (and services such as water, electricity)? Is there a local power structure that may oppose changes?
- Who lives there? Are the slum-dwellers well-off, or very poor?
- What is the long-term future for the particular site?

Hence we should be prepared for different approaches in different slums, and water and sanitation is not always the first priority. At Katashor-Boretola, for example, industrial pollution from the leather tanneries at Hazaribagh was arguably the most serious problem. In other slums (e.g. Agargaon) footpaths and drainage were high priorities. And in most slums (including Beribad embankment) some agreement with government agencies about settlement rights is arguably the most important improvement. This was certainly the slum-dwellers' view.

3.5.1 Local People's Priorities

Although the research team did not conduct a questionnaire survey to ask people their priorities, these became apparent as we talked to them. The first priority for nearly all slum-dwellers is *security of tenure*, though most of them never achieve it.

Clean drinking water was also a very high priority. This was apparent from the prices that people were willing to pay for their water.

The third priority, with respect to services, was definitely for *electricity and gas*. The reason is economic: gas, or electric rings, are a lot cheaper for cooking than firewood. For example, one family said that they spent about Tk.350 per month on firewood, whereas a single gas burner costs only Tk.150 per month (or Tk.250 for a double burner). Similarly a single electric ring is a lot cheaper (only Tk.50 per month at Tikkapara slum, using unmetered electricity).

The importance of services (water, electricity and gas) is reflected in the rent levels that different slums can command. For example, although Katashor-Boretola is a dreadful slum, it is still seen as a better place to live than Beribad embankment, (built as it is on a stilts over tannery waste polluted water) and can command a relatively high rent (Tk.500-600). The reason for this is the access to water, electricity and gas.

Sanitation was very low on everyone's list of priorities, and this is demonstrated by the almost complete lack of sanitary latrines. This reflects both people's ignorance of the real cost of poor sanitation (in health terms), plus the disinclination of landlords to spend money on it if the tenants do not demand it.

However, there was some willingness to pay for sanitation. At Beribad embankment, for example, a family who lived on the western (outer) side of the embankment had used a neighbour's kutcha latrine on the eastern side for a monthly charge of Tk.10. However, when the charge was raised to Tk.15, the family decided to build their own latrine. In collaboration with a neighbouring family, they constructed their own kutcha latrine for Tk.500 (i.e. Tk.250 per family). Allowing for repairs, after 2 years each family would begin to save money from it, and also have the greater convenience of their own latrine.

Hence sanitation *is* important, and people are willing to pay money, and collaborate, to improve it.

3.5.2 Affordability of Improvements

Finally, the surveys in Mohammedpur showed that improvements to water, sanitation, and other facilities *can* be afforded by the slum-dwellers. They are already paying a large amount for the meagre facilities they receive - for example, Tk.50 per month for a very inadequate water supply; Tk.50 per month for a single electric light bulb.

The 1993 land policy study reported that "even with deep landfilling of 10 to 15 feet, low land (of the kind owned by HSD) can be developed for the relatively poor. Current estimates of repayment costs of Tk.400/month/dwelling cover development, including fill costs".[18] Since most slum-dwellers are already paying monthly rents of Tk.400-600, it would therefore be possible for the government to supply them with serviced plots of low-land in Mohammedpur without having to provide a subsidy.

[18] "Formulation of Land Development Controls' (1993), op cit, page 168.

4. NGO WATER AND SANITATION PROGRAMMES IN MOHAMMEDPUR AND DHAKA

This chapter looks briefly at NGO programmes for water and sanitation in Mohammedpur, and also in other parts of Dhaka. The aim is to summarise some of the lessons and experience which might be relevant in the future.

4.1 NGOs Working on Water and Sanitation in Dhaka

Although quite a number of NGO have worked on water and sanitation in Dhaka, only a few NGOs have extensive experience in this field.

Many NGOs have installed the odd tubewell and latrine here and there, as a part of their main programmes of savings and credit, primary health care, education, and so on. Some have also been involved in hygiene education, again as a minor part of their health and education programmes.

Only a few NGOs have specifically worked on water and sanitation and slum improvement in Dhaka. They include:

- Proshika
- Concern
- Oxfam
- Terre Des Hommes (Netherlands)
- DSK (Dushtya Shasthya Kendra)

and possibly one or two others.

Hence apart from these NGOs, there is not a lot of experience on which to draw. Even the NGO Forum for Drinking Water and Sanitation, which is the main co-ordinating body for NGOs in this field, has, as yet, almost no direct experience of urban work.

4.2 NGOs Working in Mohammedpur's Slums

There are at least a dozen NGOs working in Mohammedpur Thana. Those which have done some water and sanitation work are marked with an asterisk:

- ACTIONAID
- Assistance for Slum Dwellers (ASD) *
- Bangladesh Agricultural Working People's Association (BAWPA)
- Desh Unnayan Sangstha (DUS) *
- Gono Shasthya Kendra (GK)
- Manobik Shahajo Sangstha (MSS)
- Nijera Kori
- Plan International *
- Proshika *
- Organisation for Social Action and Development (OSAD)

- Terre Des Hommes (Switzerland)
- World Vision *

Proshika has a large programme in Agargaon bustee, as well as in many other parts of Dhaka.

Plan International also works in Agargaon bustee, though more recently (from mid-1995) and on a smaller scale (8 tubewells so far, but no latrines).

World Vision has a 'child survival project' covering several parts of Dhaka, and as part of this programme, has installed a few tubewells and latrines in different slums in Mohammedpur (Beribad, Adabor, Bijili Moholla, Ring Road, Shekertek).

ASD and DUS are small Bangladeshi NGOs, who have installed a few tubewells (but no latrines) on Beribad embankment.

Since the NGO experience of water and sanitation in Mohammedpur is quite limited, the following sections now look at some of the main lessons from NGOs in Dhaka as a whole.

4.3 Lessons from NGO Experience

4.3.1 Difficulty of working in the slums

The first lesson from the NGOs is how difficult it is to work on improving Dhaka's slums. Several NGOs have given up such work. For example, in 1983 the Red Cross/Red Crescent started a programme to improve health conditions in Dhaka's slums. This focused on primary health care (paramedics, immunisation, basic health education, etc.), but a significant part of the project was for water and sanitation improvements. But after 10 years' work, and Tk.5 crore spent, the Deputy Secretary General was quite frank in admitting that the output on sanitation had been zero. The main problem was the difficulty of working with the unofficial landlords. As a result of this experience, when a proposal came from the Swiss Red Cross to do an urban slum project in Chittagong, using money left over from the 1991 cyclone relief programme, BCRS (Bangladesh Red Crescent Society) said 'no'.

Another example comes from CARE: in 1992 they proposed using 'food-for-work' to improve slum conditions in Dhaka, but eventually, after many discussions, did not begin the programme.

Concern, who have been involved in this work in Dhaka for more than 20 years, are now very reluctant to work on government-owned land unless proper drainage is installed first. (They, and Oxfam, have also had a generally disappointing experience with community latrines which they have installed).

Proshika have seen some of the slums in which they carried out improvements subsequently demolished by government order (e.g. at Mirpur Balurmat bustee, and at Mohakhali hospital bustee).

DSK had to work very hard to get WASA's permission to install a mains water connection, and then the first water point which they eventually set up was 'captured' by local mastans.

Hence overall, the experience with slum improvement work has been very discouraging.

4.3.2 NGO Co-operation with the Government

There has been some official co-operation between government agencies and NGOs over slum improvement work in Dhaka, but overall, there is very little formal co-operation at present.

The greatest co-operation so far has been between Concern and the Housing and Settlement Directorate. In 1989 Concern was one of the implementing agencies for a major UN-funded squatter resettlement project at Kalshitek and Bauniabad in Mirpur. Concern assisted in group formation, house building, and pit latrine installation.

But apart from this - and a few other specific projects in the past (e.g. Terre Des Hommes at Duttapara, Tongi) - there is at present no regular contact between NGOs and government agencies on slum improvement in Dhaka, at an official level at least.

In the past there have been some official contacts. In 1992 CARE was considering a programme of slum improvements (see above), and held extensive discussions with the Dhaka City Corporation. Also, when the City Corporation began its slum improvement programme in 1991-92, with UNICEF funding, several NGOs provided assistance in training their staff, (notably Proshika - training community organisers; Concerned Women for Family Planning - community health workers; and Ashania Mission - literacy).

However, at present there are no formal contacts between DCC and Proshika, nor with other NGOs, except for the Mayor's advisory group of experts on civic improvement, which includes several NGO representatives (in an individual capacity).[19]

Similarly, there are no formal contacts between NGOs and the Water and Sanitation Authority (WASA), although there are plenty of informal meetings, especially as quite a few NGOs have approached WASA for permission to establish *legal* water points for their group members (e.g. Proshika, DSK, ARBAN, and no doubt others).

4.3.3 Obtaining WASA Permission to Sink Tubewells

WASA permission is needed to construct deep tubewells in Dhaka, but according to a CARE report in 1992, not for shallow ones.[20]

However, shallow tubewells (i.e. those equipped with suction pumps, with their limited lift) have tended to run dry during the dry season (Jan-April) due to the falling water table (e.g. Terre Des Hommes at Dattapara, Tongi; and DSK at Bashantek, Mirpur). Hence most tubewells installed now are equipped with Tara pumps and Tara IIs, which can lift water from substantially greater depths. It is not clear whether official permission is needed to sink these, but at any rate, none of the NGOs are seeking such permission at present. This situation needs clarification.

This may be all right while the number of deep-set tubewells is small, but in the future, as the number of tubewells increases, and the water table continues to fall, this is going to be an issue which must be settled with WASA. The present practice, of avoiding bureaucratic problems by simply not informing WASA, will not be very satisfactory in the long term.

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[19] The Mayor's task force of experts includes academics, and several representatives from NGOs Dibalok Singha, co-ordinator of DSK, is one of the members of this committee.

[20] Discussion Paper on a Dhaka Slum Pilot Project, CARE, Dhaka (Undated, probably late-1992), page 16

4 3.4 Type of Slums in Which NGOs Have Worked

As far as the researchers of this study could ascertain, NGOs have not done any water and sanitation improvements in slums on private land. All their work has been on government land. Hence they have not had to deal with the tricky question of making agreements with private owners, (for example getting commitments not to raise rents) after improvement.

Most of their work on government land has been fairly small-scale (excluding official projects done with the government, such as Concern at Kalshitek). Usually, NGOs have put in only a few tubewells here and there, and likewise latrines. (Proshika, with its much larger programme, is an exception).

This is partly because the NGOs water and sanitation work has been supplementary to their main programmes, and partly also to keep a low profile.

4 3.5 Type of Programmes Carried out by NGOs

At the time of this study, none of the NGOs (including Proshika) had carried out other physical improvements such as footpaths and drainage. Hence their impact on overall conditions in the slums has been fairly modest so far, and this has probably limited the impact on the slum-dwellers' health.

To give one example, DSK at Begunbari slum, Tejgaon, had installed a water point connected to a WASA main line, and two sanitary latrines. But there are no drains at the side of the road where the slum dwellers live, and their huts are right on top of dirty, stagnant water, which must have an adverse effect on their health.

In Agargaon bustee, Plan International have recently installed 8 tubewells with concrete platforms. But the latrines are still open kutcha latrines, and there are no footpaths, so there is still a very high risk of spreading disease by foot and by other ways (e.g. by insects). (Plan International were intending to install latrines and footpaths in the near future).

Hence although the tubewells installed by NGOs have brought a lot of benefit to the slum-dwellers, the health impacts have probably been limited, because the NGOs did not implement a full package of improvements (i.e. latrines, footpaths, drainage).

4.3.6 Type of Equipment Installed

Tubewells

Most of the facilities installed by NGOs have been tubewells; latrines have been very few in number. Initially, NGOs installed shallow tubewells, but after the experience of the pumps running dry during the dry season, nearly all agencies have switched to deeper tube wells equipped with Tara pumps.[21] There have been a lot of problems with the Tara I pumps: as Vance Painter notes in his M.Sc. thesis, the pump handle on the Tara I can be extremely difficult to operate, as after some

[21] Shallow tubewells can still be used in some parts of the city, notably on the fringes, and in areas where there is a perched water table (See Vance Painter, "A Review and Analysis of the Water Supply and Sanitation Interventions Being Undertaken in the Slum and Squatter Settlements in Dhaka", M Sc , Thesis for Southampton University, Institute of Irrigation Studies, Sept 1995, page 14)

time the seals inside the pump wear and water leaks into the hollow pump rods. The operator then has to lift this water to operate the pump - a job which is very hard even for a strong man, let alone women and children.

Hence, a modified Tara was developed, using the same Tara components below ground, but with a Number 6 handpump head. The downward stroke of the No. 6 head is a lot easier than the upward lift of the Tara I head. However, the Tara II produces much less water per stroke, so it takes longer to pump. Also, the action of the pump handle causes a lot of wear and tear on internal components like the pump rod and rising main. Work is now being carried out by the national handpump R & D committee to develop an improved version of Tara II.[22]

The main disadvantage of the Tara pumps is their greater cost, compared with suction pumps. Typically, while a shallow well with a suction pump might cost Tk.3,000, a deep-set Tara with a No.6 pump head might cost between Tk.8,000-17,000, including installation charges (the cost varying according to the depth required, and also on which contractor is employed). Hence the deep tubewells cost three to five times as much, which makes any programme more expensive, especially for the slum-dwellers.

Most NGOs use contractors to install the tubewells (including Proshika). Some, like Plan International, also have engineering advisors to help guide them. Using contractors has its problems: Plan International found that the concrete washing platforms had not been properly constructed by the contractors, and had to be re-done.

All of the NGOs organise groups to run the tubewells, and maintain them. Usually a caretaker is nominated, and employed by the group. In some cases (as at Beribad embankment) the group simply makes a collection whenever repairs are needed. In other cases, the caretaker is employed by the group with a regular honorarium. However, some NGOs (such as DSK) feel that it is not sufficient to organise a group solely around water and sanitation. They feel that some other long-term purpose, such as savings and credit, is needed to help sustain the group in the long run.

Water Points

Several NGOs have negotiated water points for their members, obtaining official permission from WASA. For DSK, this was a long process, convincing WASA that the group should be allowed to sell the water to members (until it was pointed out that this is exactly what private landlords do all over Dhaka).

DSK has had mixed experience with its two water points to date. The first water point (installed in October 1992 at Koilar Colony bustee, Tejgaon) was taken over by the group's chairman, who kept all the money for himself. Although the water point is still running, the installation cost was not repaid, and it has become like other illegal connections (i.e. a source of revenue for a few individuals).

At DSK's second water point (Begunbari bustee, Tejgaon, established April 1994), DSK have been much more careful in establishing the managing committee. Responsibility for running the water point and paying the bills rests with the group: DSK simply acts as guarantor, and keeps an eye on the running of the group. Two female caretakers are employed by the group to collect charges and

[22] Vance Painter, op cit, page 15.

pay the bills. They are paid a monthly salary of Tk.500 each, paid out of the user charges, and are very active to keep the water point running well.

The installation costs for the second water point have now been paid back (Tk.20,000, which was the cost of the connection, a sunken tank, washing platform, and bamboo fencing), and the group is now considering using the surplus which has accumulated to build a tin shed bath-house.

Other NGOs have also established water points for their group members (e.g. Proshika at two locations at Mohakhali and Mirpur, though these were subsequently bulldozed, along with the slums, by the government). Other NGOs like ARBAN have set up some 15 to 20 water points for their members under unofficial, local arrangements. Subsequent requests to WASA get these water points legalised have not been successful to date.

Sanitation

Much less has been done by NGOs in providing sanitation. Proshika has a policy that every group which takes a tubewell must also install five water seal latrines (and pay for them, to a certain extent). But many NGOs install only tubewells.

Generally, where NGOs have provided latrines, they have provided household latrines. Only Concern and Oxfam, in the NGO sector, have experience of communal toilets, and their experience has not been altogether a good one. At Demra, Concern have operated communal toilets for a long time. There are currently 28 communal toilets in the Demra camp (20 built by Oxfam, and 8 by Concern in 1993-94). Each has 20 cubicles (10 male, 10 female). They are well-built, but the main problems have been: (i) their high cost (about Tk.2 lakh, or Tk.10,000 per cubicle); (ii) the ground not being sufficiently permeable to absorb the waste water which overflows from the septic tank.

As a result, Concern have decided to suspend their communal toilet programme in Demra from 1995, and are instead promoting improved household latrines.[23]

Vance Painter's conclusion was that communal latrines were generally not a good option for slum communities, unless acute lack of space made other options impossible.

NGO experience with latrines has not been very successful either. There have been both social and technical problems. The main technical problems are:

- lack of space in the slums to site the latrines
- rising water table in the wet season, leading to flooding of the chamber, making the latrine unusable
- soft ground causing the rings to sink, and the contents to spill out (making it in effect like a kutcha latrine)

The main social (or user) problems have been:

- people breaking the water seals when they became blocked

[23] Vance Painter, op cit, page 33 (Annexures).

- heavy use by a large number of households causing the latrine pit to fill up very quickly
- failure to empty the pits properly (usually the waste is simply thrown into the nearest drain, which defeats the object of the sanitary latrine)
- children not using the latrines, but defecating in the open

Another problem is that NGOs have usually not provided enough latrines to make an sufficient impact on the slum's overall sanitation. An extreme example was at Bijili Mohalla, where we found a single latrine which had been provided by World Vision. (World Vision provided the materials free of cost, while three local landlords who received the latrine paid Tk.450 to build the superstructure). Perhaps the aim was a demonstration effect, to get other landlords to install sanitary latrines too. If so, the idea did not spread in this slum, and the benefit of constructing just a single latrine seem doubtful.

Overall, the problems of latrines in Dhaka have not yet been solved, even in slum communities which have received a lot of attention from NGOs. For example, in Bauniabad bustee (Mirpur), where Concern was a contractor to the Housing and Settlement Directorate on a UN-funded resettlement scheme, and where every household was given its own twin-pit latrine, the households do not actually use the second pit (it is redundant), and instead clear out the waste from the one pit, and dump it in the nearest drain (to be washed down to the lake where people bathe and wash their clothes).

The same problem has been experienced at Duttapara camp, Tongi, where Terre Des Hommes are working. To quote Vance Painter:

> "A latrine construction programme began in 1995 (1985?) by the Government and Oxfam on a grant basis has supplied pit latrines to most households in the settlement. (roughly five households per latrine). Unfortunately, as the older latrines have filled, many owners, rather than emptying the latrines, have dug down and broken a hole in the side of the top ring and then taken a trench out from the break in the latrine to the nearest drainage swale. This procedure, while allowing the latrine to function, is causing a substantial health hazard, consequently TDH-N have started a pit replacement programme."[24]

Hence among the various problems with pit latrines, the problem of not emptying them properly seems to be the greatest, and one that no one has yet found an answer to.

4.3.7 Cost Recovery

Finally, NGO approaches to cost recovery have varied considerably, from almost zero to almost full cost recovery.

The trend over time has been to steadily increase the amount repaid by the beneficiaries. But even now, the level of recovery is quite low, for many NGOs. World Vision, provided materials free of cost, but asked beneficiaries to pay the carrying cost and installation cost (in the case of tubewells at Beribad), and superstructure cost (in the case of the latrine at Bijili Moholla). This was effectively only 20% or so of the total cost of providing the facilities.

[24] Vance Painter, op cit., page 6 (Annexures).

Plan International's tubewells at Agargaon (1995) cost about Tk.14,000 each, including the cost of the concrete platform. These were given as a grant to the groups.

Proshika's groups have to save a certain amount before facilities are provided. But overall, the level of cost recovery is less than 15% for tubewells, and around 30% for pit latrines.

At Dattapara squatter camp, Terre Des Hommes (Netherlands) provides a 60% subsidy to groups for both tubewells and latrines, to encourage their take-up. About Tk.900-1,000 is required for each new pit latrine installation, the household providing materials for the superstructure and labour.

Two NGOs which promote full cost recovery (except they do not charge for their administrative overheads) are DSK and DUS. At Beribad embankment, DUS collect Tk.200 per month from each group until the full cost of the tubewell has been repaid. This is quite a modest amount - about Tk.10 per household per month. DUS said that they had installed the tubewells from their own funds (they were doing health and savings programmes on the embankment), and this was why they decided on full cost recovery.

In DSK's case, it is a deliberate choice to go for full cost recovery, based on earlier bad experiences. DSK found that when facilities were provided free, or greatly subsidised, the people did not respect the facilities or take care of them. Hence for this reason, DSK now recover costs from their group members, and they have had a good response.

DSK argues strongly in favour of a cost-recovery approach, for several reasons:

- The beneficiaries take more care of the facilities if they have to pay for them.
- The wider problems of slums in Dhaka can only be tackled if costs are recovered. Otherwise, the available funds will never be sufficient to extend services to all parts of the city.
- Support from the senior people in government (for slum improvement) is more likely to be forthcoming if they realise that the task is achievable, and need not be a huge drain on public resources.
- Slum dwellers are already paying *in full* for all of the services they receive: through high rents, water charges, electricity charges, and so on. What an NGO (and the government) can offer is a better service, at less cost. Hence slum dwellers will still receive a great benefit, even if they pay full cost.

In future, it would be beneficial if NGOs could harmonise their approach to cost recovery, otherwise the good intentions of some (to attempt a high level of cost recovery) may be undermined by the good intentions of others.

5. GOVERNMENT SLUM IMPROVEMENT PROGRAMMES IN DHAKA

This chapter looks at the slum improvement work carried out by Dhaka City Corporation during the period 1991-95, under the 'Slum Improvement Programme' funded by UNICEF. The aim is to review the work done by the City Corporation, and identify lessons which might be helpful for future slum-upgrading activities.

First, however, it is worth considering the overall policy context in which the programme has operated.

5.1 Official and Unofficial Policies Towards Slum Improvement

Several initiatives have been taken by previous governments in Bangladesh to define a national policy towards slum improvement.

In 1989 the Ershad government set up a committee, chaired by the Ministry of Land, to look at the problem of slums in Dhaka.[25] The committee's main recommendation was to relocate squatters to the city's outskirts. In the short term (six months), 10,000 squatter families were to be resettled on the outskirts of the city. In the medium term (next 3 years) a further 40,000 families were to be resettled, and in the long term (to the year 2000) small townships were to be developed close to Dhaka, to stop the growth of new slums in the capital.

Most probably, such a major resettlement of population on the city's outskirts would not have been realistic, since people would have been too distant from their employment. However, the Ershad regime fell in 1990, and many of the regime's policies were abandoned. Only a few measures relating to squatter resettlement were implemented - notably a couple of 'City Pollis' (city villages) close to Kamalapur railway station. However, these 'city villages', consisting of a few hundred households relocated from previous settlements around Kamalapur, were often on poor sites; one was for instance, situated on a recent rubbish dump.

The National Housing Policy, 1993

In 1993 the new government published a draft national housing policy.[26] This contained some very enlightened views towards slum settlements. It proposed that forcible relocation of slum dwellers should be avoided, and that occupancy rights should be given and upgrading pursued wherever possible. Furthermore, forcible relocation was to take place only at priority sites where it was clearly in the public interest.

However, the new policy was not implemented. In 1994 and 1995 there were large-scale evictions of slum-dwellers at a number of major slums in Dhaka, including Agargaon, Kamalapur, Kallyanpur, Mohakhali and several others. These evictions continued in 1996.

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[25] Government of Bangladesh, Ministry of Land, "1989 Dhaka Mahanagari Bustee Shomosha Nirashan Committee Report" (Metropolitan Dhaka Slum Problem-Solving Committee)

[26] It was published on 13 December 1993

Government Concerns About Slum-Upgrading

Many government officials are concerned about the implications of slum improvements. They fear that if slums are upgraded, this will simply accelerate the migration of the rural poor to the cities.

There are counter-arguments to this, including:

- there is no evidence that poor slum conditions have discouraged migration in the past;
- rural migrants are attracted to the city by employment opportunities (and lack of employment in the rural areas). Unless employment is stimulated in the rural areas and district towns, migration to the cities will continue regardless of conditions in the slums;
- many of the slum dwellers are original inhabitants of the city (i.e. people born and brought up in Dhaka). There is no reason why these people should remain in bad housing in order to discourage others from migrating to the city.
- the urban poor already pay disproportionately more for their housing and services (i.e. relatively high rates for water, electricity, residential and commercial floorspace). Hence slum-upgrading does not necessarily require subsidies to the poor, but rather reducing the exploitation which they experience. This would result in better housing conditions at a lower cost.

Despite this, the reservations of government officials has had an impact on government practice. The lack of political influence of slum dwellers also plays a role in the allocation of resources to slum upgrading. Hence for these and other reasons, the national housing policy of 1993 has scarcely been implemented.

5.2 Overview of Dhaka City Corporation's Slum Improvement Programme

Dhaka City Corporation's Slum Development Department started around 1991. It was established to implement a slum improvement programme funded by UNICEF.[27] The UNICEF programme began in the mid-1980's in other towns in Bangladesh, but did not start in Dhaka until 1992, several years behind schedule. It ended in 1996, and has been replaced with a new UNICEF programme called 'Urban Basic Services Project', which is similar, but giving more emphasis to community health and less to infrastructure.

Organisation of the Slum Improvement Programme

The programme was well designed, with strong emphasis on community participation, especially women, and a package of physical improvements (drains, footpaths, streetlights, dustbins) as well as water, sanitation, primary health care, and savings groups.

The project was steered by a national co-ordination committee headed by the Joint Secretary, Local Government Division. The main implementing agency was the Local Government

[27] This was not the City Corporation's first involvement in slum upgrading - in 1985 a World Bank-funded environmental improvement project was initiated to improve three low-income areas in Old Dhaka, and improve the Dolai Khal (canal) in Old Dhaka

Engineering Department in Dhaka. A project office within LGED gave support to the local governments - to the Corporations in the four main cities, and Pourashavas in the smaller towns.

In each urban area there was a project implementation committee (PIC). In Dhaka, the PIC's composition was as follows:

Chairman:	Chief Executive Officer (the post was delegated to him by the Mayor)
Secretary:	Project Manager (i.e. Chief Slum Development Officer of DCC)
Members:	Representatives of the concerned ministries and agencies (e.g. WASA, Min. of Health, Min. of Social Services, PDB, and so on)
	Chairmen/women of the Sub-Project Implementation Committees.

Under the PIC, a Sub-Project Implementation Committee was set up for each slum, to manage the project at the community level. The chairman/woman of the SPIC was to be from the slum and elected by the beneficiaries, with a vice-chairman of the opposite sex. The secretary was a local government employee, usually the community organiser.

The project's focus was on *women*. All of the community health workers were to be women, all of the training was to be given to women, two-thirds of the members of the SPIC's were to be women, and all of the income-generating loans were to be given to women only.

Slums were selected after the City Corporation had drawn up a list of all slums in the municipal area, and ranked them according to need. Before work began, agreements were to be signed with the land owners (whether government or private) not to raise taxes or rents within the next 5 years, nor to evict the tenants within the next 10 years.

There was strong emphasis on community participation. Following a baseline survey conducted by the community organisers, local groups of slum-dwellers were formed, and asked to identify needs. Group leaders were elected and given training (along with community health workers), and became members of the SPIC's.

The SPICs were responsible for developing an overall plan for the physical development of the slum, and selecting the mistris (skilled labourers) who would construct the facilities. The slum-dwellers were to contribute their own labour for the earthwork for footpaths and drains, and also be responsible for maintenance. A modest level of cost recovery was planned: Tk 500 for each tubewell and double-pit latrine; a token Tk.2 per household for dustbins; and Tk.1 per household for each streetlight.

The money was to be deposited in a welfare fund, together with an 8% service charge on any loans issued to group members. This fund catered for personal emergencies, and also maintenance of infrastructure such as handpumps.

Work Carried Out under Dhaka City Corporation's Slum Improvement Programme

Expenditure by DCC under the UNICEF-funded slum improvement programme totalled about Tk. 11 million ($ 0.275 mill.) up to 1995, in the following annual amounts:

1993 Tk. 3 million

1994 Tk. 5 million

1995 Tk. 3 million

In addition, DCC spent Tk.5 million of its own funds on slum improvement in 1994, and budgeted a further Tk. 20 million in 1995.

Work was carried out in about 18 slums.[28] The physical facilities installed up to August 1995 were:[29]

- 3 shallow tubewells
- 17 deep tubewells
- 164 water connections to WASA lines
- 195 latrines (seats)
- 6 biogas units
- plus... footpaths, drains, street lights, loans to community groups, block grants (e.g. 3 community schools).

In September 1995 the City Corporation started another slum improvement programme with Asian Development Bank funding (Tk. 7.3 crore over 3 years to 1997). Hence in 1996 the volume of work was greater.

5.3 Some Observations on DCC's Slum Improvement Programme

Between August and November 1995 the principal researcher of this study held numerous meetings with members of the Dhaka City Corporation Slum Development Department, and also visited 10 slums where DCC had carried out slum improvement work.[30] The following observations are based on these meetings and visits.

5.3.1 Scale of DCC's SIP Work

DCC's slum improvement programme is still very small in relation to the scale of the slum problem in Dhaka. Up to mid-1995 only 18 slums had been 'improved', (with another 33 planned under the ADB programme), out of more than 2,200 slums city-wide.

The financial allocations were also very small, in relation to DCC's overall budget. To give one example, in 1995 DCC budgeted Tk.41 million for the beautification of Dhanmondi Lake during 1995-97, which was more than the entire investment in the slum improvement programme up till then.

5 3 2 Timing and Pace of the DCC Programmes

The UNICEF-funded programme started several years late, and the ADB-funded programme also started 3 years late. In 1994, Tk. 5 million allocated from the City Corporation's own fund was still un-spent 6 months into the financial year;[31] and several potential slum improvement projects never materialised - for example, an initiative with CARE in the early 1990's, and a possible Tk.10 crore project with Saudi funding.

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28 Gonoktuli Sweepers Colony, I G Gate Colony, Wari 1, Wari 2, Mohammedpur (Johori Mohollah), Khilgaon Bagicha Bustee, City Polli 1, City Polli 2, Baunıabad A,B,C,D,E (Mirpur), Agasadek Road Sweeper Colony, Nayabazar Sweeper Colony, Balda Garden Bustee, Telaggu Sweeper Community at Outfall

29 Figures supplied to Vance Painter, though they may underestimate DCC's total output

30 The 10 slums visited were Johun Moholla in Mohammedpur; Baunıabad at Mirpur (Blocks A, C and D), Wari 1 and 2 sweeper colony, City Polli 1 (Dolpur), Pearabagh bustee at Moghbazar; City Polli at No 14 Outfall, Kallyanpur Pura bustee (proposed)

31 Alison Barrett, "Bangladesh Urban Slum Feasibility Study", for WaterAid (unpublished), December 1994, p.10

5.3.3 *Type of Sites Selected*

All of the sites chosen for the UNICEF-funded programme in Dhaka were on government-owned land. There were no projects in privately-owned slums, hence one important issue - how to negotiate with private landlords - was not addressed.

In addition, many of the sites chosen by DCC up to 1995 were untypical of Dhaka's slums. Some were sweepers' colonies, and others were also untypical in various ways.

Bauniabad, for example, is a large low-income housing project in Mirpur implemented by the Housing and Settlement Directorate in the late 1980's with UNCHS funds. Housing conditions are less serious here than in many other slums.

Johuri Mohollah slum in Mohammedpur was also untypical: this slum burnt down in April 1995, and DCC used SIP funds to rehabilitate the slum dwellers.

City Polli 1 and 2 were also untypical - these two locations (mentioned above) are resettlement sites for slum dwellers moved from other locations around Kamalapur.

The slums improved with DCC's own funds were also untypical. In 1995, the Tk.5 million from DCC's own funds was spent in three government sweeper colonies - Agasadek, Nayabazar, and Telaggu.

To a large extent DCC avoided controversial locations, and spent much of its funds on improving its own sweeper colonies. This limited the extent to which DCC's work could be a model for future work, (though it should be noted that when the ADB-funded programme started in September 1995, the work was more widely spread among other slums).

5.3.4 *The Quality of DCC's Slum Improvement Work, and Maintenance*

Compared with conditions before work was carried out, the SIP definitely brought some improvements. But generally, the quality of work carried out was disappointing, especially with regards to sanitation.

When CARE staff visited the first SIP project at Gonoktuly in 1992, they observed:

> 'This slum consists of 5 four-storey buildings ...erected to provide subsidised housing for government-employed sweeper families. ....The buildings are now surrounded by kutcha shacks, bringing the total population up to about 850 families. ....The 10 SIP latrines had actually been installed by the city 15 years ago and had merely been repaired 7-8 months ago. The day we visited the latrines were full. According to a community member someone should be cleaning out the latrines every 2-3 days, the length of time it takes for the latrines to become filled. Apparently the pipes to the septic tank are continually clogged. ....Children defecate in the open drains, which is probably safer than using the poorly maintained latrines.'[32]

The same situation was found at Wari Sweeper Colonies 1 and 2 in 1995. In the male latrines, 4 out of 11 cubicles were unusable, and overflowing with sewage. These were not installed under SIP, but they had not been improved either, despite SIP work in this slum. To some extent this was not DCC's fault, since the blockage may have been due to an overloaded WASA main sewer line. Similarly, lack of water in the reservoirs was probably due to low supply from the WASA water line.

[32] CARE, "Discussion Paper on a Dhaka Slum Pilot Project", Dhaka, undated (probably 1992), page 9

At Johuri Mohollа (Mohammedpur), DCC had installed 4 latrines, plus an enclosed water tank connected to a WASA line, and 2 bathrooms. However, the latrines emptied directly into the nearest ditch.

Generally, facilities installed by SIP were not being maintained properly. At City Polli 1, 3 out of 5 tubewells (repaired in 1995) were not working, and the small pucca drains were full of rubbish and stagnant water. The residents who benefited from the improvements were not looking after them.

5.3.5 Slum Dweller's Legal Rights at the Improved Sites

At several sites on government-owned land, where slum dwellers were supposed to have permission to live, none of the residents had any papers to prove their occupancy rights. At Johuri Mohalla, for example, where 40 families were re-housed by DCC and facilities provided by the SIP, none of the residents had any documents. Similarly, at Tittipara near Kamalapur, (also described as City Polli 2), 600 families were living on land allocated to them by the City Corporation (which was previously a rubbish dump), but none of the people spoken to had any papers.

The SIP has therefore followed an informal approach to this key issue of tenancy agreements and occupancy rights. This may be expedient in the short-term, but in the long term it could cause serious difficulties for the slum dwellers, if the authorities (or other parties) take the land for some other purpose.

5.3 6 SIP Staff

The engineers for DCC's slum improvement programme were provided by the Local Government Engineering Department, on secondment. This brought both advantages and disadvantages. On the one hand, the engineers were well trained and capable; there was also external reporting, which helped to strengthen verification of work done.

On the other hand, when the LGED engineers' secondment was completed, they left and took with them the experience they had gained. Since slum improvement is a relatively new area, and it is important that DCC's permanent staff should build up experience of this work.

There was also a lack of permanence among the community organisers. These were recruited as 'project staff' rather than permanent DCC staff. Hence their employment was limited to the duration of the project. In practice, most of the community organisers were expected to find further employment on the Urban Basic Services Project, which replaced the SIP. However, if Dhaka City Corporation wishes to strengthen its slum improvement work in the future, then it should consider bolstering its permanent set-up for carrying out this work.

Appendix 1
Results of the Questionnaire Survey of Slum Dwellers in Mohammedpur

APPENDIX 1

RESULTS OF THE QUESTIONNAIRE SURVEY OF SLUM-DWELLERS IN MOHAMMEDPUR

TABLE 2.1: HOW LONG HAVE YOU LIVED IN DHAKA?

No. of Years	Total (h/holds)	M	BM	T	RR	BD	S	KB
1	4		2				1	1
2	4			2				2
3	8						3	5
4	10		2		1		2	5
5	16		2	2	2	2	3	5
6	14		4	3			2	5
7	10		1	2	2	3		2
8	9		2	3	2		2	
9	6		1	2	1	2		
10	18	1			2	15		
11	1					1		
12	14	3	2		3	5	1	
13	3	2				1		
14	3	3						
15	9	4	2	2	1			
16	7	3	1	2		1		
17	5	4			1			
18	2		1				1	
19	-							
20	5		3	2				
21+	7		2	5				
Households Surveyed	155	20	25	25	15	30	15	25

Total HH in Area	1000	825	825	275	1500	1000	1000	
% of HH Surveyed	2	3	3	5	2 5	1 5	2 5	
Weighted years	10.7	17.7	12	9.4	10	5 9	4 4	

M = Mohammedia Housing Society slum
BM = Bijili Moholla
T = Tikkapara
RR = Ring Road
BD = Benbad embankment
S = Shekertek Housing Society
KB = Katashor-Boretola

TABLE 2.2: HOW LONG HAVE YOU LIVED AT THIS PARTICULAR SLUM?

No of Years	Total (h/holds)	M	BM	T	RR	BD	S	KB
<1	30		4	3			7	16
1	14		1	3		2	3	5
2	12		2	4	1	1		4
3	15		3	4	3	3	2	
4	11		3	3	4	1		
5	14	2		5	3	3	1	
6	23	3	2			17	1	
7	15	4	2	2	3	3	1	
8	6	4	1		1			
9	2	1	1					
10	4	2	1	1				
11-15	3	3						
16-20	5		5					
21+	1		1					
Weighted years		8 2	7.7	3 0	4 7	5 2	2 0	0 8
Household Surveyed	155	19	26	25	15	30	15	25

Total HH in Area	1000	825	825	275	1500	1000	1000	
% of HH Surveyed	2	3	3	5	2 5	1 5	2.5	

M = Mohammedia Housing Society slum
BM = Bijili Moholla
T = Tikkapara
RR = Ring Road
BD = Beribad embankment
S = Shekertek Housing Society
KB = Katashor-Boretola

TABLE 2.3: WHERE DID YOU LIVE BEFORE COMING TO THIS SLUM?

Previous Location	Total (H/holds)	M	BM	T	RR	BD	S	KB
Mohammedpur								
Mohammedia H.S	43	15			1	22		
Shekertek	13		1	5			2	5
Adabor	3		1	2				
Ring Road	4		2	1		1		
Tikkapara	6		2	2		1	1	
Tajmahal Rd	10		3	1	5		1	
Nurjahan Rd	9		1	1	5	1	1	
Katashor	6					1		5
Benbadh	7				2			5
Iqbal Rd	2			1	1			
Bawshban	5			2		3		
Other parts of Dhaka								
Mirpur	6					1		5
Sobhanbagh	1			1				
From outside Dhaka								
Sonorgaon	2						2	
Faridpur	10	2	5		1			2
Barisal	14	3	5	3				3
Tangail	3						3	
Manikganj	4						4	
Mymensingh	5		5					
Kishoreganj	1					1		
Patuakhali	1			1				
Total	155	20	25	20	15	31	14	25

TABLE 2.4: WHY DID YOU MOVE TO THIS SLUM?

Reason for Moving	Total (H/holds)	M	BM	T	RR	BD	S	KB
Those Moving Within Dhaka :								
Removed by landlord	61	15	1	10	5	22	3	5
Less rent	12			2	3	7		
To get more facilities	22		5	5			2	10
Higher land	20		4	5	6			5
Those Moving to Dhaka :								
For employ-ment	21	2	8	2		1	5	3
River erosion	17	3	5	1	1		5	2
second marriage	2		2					
TOTAL Household Surveyed	155	15	25	25	15	30	15	25

Appendix 2
Organisation of the UNICEF-funded Slum Improvement Project

APPENDIX 2

ORGANISATION OF THE UNICEF-FUNDED SLUM IMPROVEMENT PROJECT

Background:

The slum improvement project was implemented by the Local Government Engineering Department, in co-operation with municipalities (or 'Pourashavas') and city corporations, with funding from UNICEF. The project started in 1985, and was completed in 1995. It will be replaced by another UNICEF-funded programme, the 'Urban Basic Service Delivery Project'.

Initially, the slum improvement project did not begin in Dhaka, but in 5 smaller district towns.[1] It was very slow in getting started, and the initial targets were not met. For example, out of half a million dollars committed to the first phase (1985-88), only 36% was utilised. Out of 710 tubewells planned, only 142 were installed, and out of 7100 latrines, only 198 (3%) were installed.[2]

Some of the reasons for the slow start included the time taken to prepare and approve project proformas, the time required to get local bodies interested and understanding the project, and the time taken to recruit staff.

In the SIP's second phase, 4 more towns were included (Rangpur, Jessore, Khulna, and Chittagong). Dhaka was not included until the third phase (1991-93), and then the bulk of the work did not begin here until 1993, (although Dhaka was originally to have been included in the first five years of the project - i.e. by 1990).

By 1994, the SIP had covered 25 towns and cities, including all the main cities of Bangladesh, and the project (and LGED) had gained a good reputation.

Organisation of the SIP

The UNICEF-funded slum improvement project was very well designed. The reference manual written for the project in 1988 gives a good description of how it was to be organised. The main components were:

- community organisation and participation (including literacy and leadership training for women members)
- primary health care (with some female slum dwellers trained as community health workers)
- physical infrastructure (tubewells, latrines, drains, footpaths, streetlights, dustbins)
- savings and credit for income generation functional literacy training (especially for group leaders and community health workers)

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1 Dinajpur, Kustia, Mymensingh, Noakhali, Sylhet

2 'Assessment of the Slum Improvement Project, July 1985 - June 1988', dated June 1988 (see document in the UNICEF library, Dhaka)

- a block grant to be spent according to the community's priorities, on schemes which benefit the whole community - e.g. schools, community centres

The project was to be steered by a central co-ordination committee headed by the Joint Secretary, Local Government Division. The main implementing agency was a project implementation office established within the Local Government Engineering Department in Dhaka. This project office was to give support to the local governments (corporations in the four main cities, and pourashavas in the smaller towns).

In each urban area there was to be a project implementation committee. According to the manual, these were chaired by the Chairmen of the Municipalities, with a senior municipal officer as secretary. In Dhaka, the PIC's composition in practice was as follows:

Chairman:	Chief Executive Officer (the post was delegated to him by the Mayor)
Secretary:	Project Manager (i.e. Chief Slum Development Officer)
Members:	Representatives of the concerned Ministries (e.g. a rep. from WASA, Health, Social Services, PDB, and so on).
	Chairmen/women of the Sub-Project Implementation Committees (see below)

Below the PICs, a sub-project implementation committee was to be set up for each slum, to manage the project at the community level. The chairman/woman of the SPIC was to be from the bustee and elected by the beneficiaries, with a vice-chairman of the opposite sex. The secretary was to be a staff member of the municipality, usually the community organiser.

The focus of the project was on **women** - all of the community health workers were to be women, all of the training was to be given to women, two-thirds of the members of the SPICs were to be women, and all the income-generation loans were to be given to women only.

Site Selection:

The municipality was to prepare a list of all bustees in the municipal area which met a set of criteria,[3] and rank them according to need. Before any work began, agreements were to be signed with the land owners (whether government or private) not to raise taxes or rents within the next 5 years, nor to evict the tenants within the next 10 years.

Community organisers (educated to SSC level) were to be recruited for the project (1 per 300 families), and they were to continue as municipal employees **after** the completion of the project. The community organisers were the main people for selecting the project beneficiaries, following a baseline survey.

[3] High density, congested, kutcha housing, unsanitary conditions, low incomes, unskilled labour and a contiguous unit

Community Contribution and Involvement:

The first step in organising the community was to carry out a baseline survey, and then hold informal meetings. Female groups were encouraged to form, whereas male groups were not specifically encouraged (but not discouraged either). The group was asked to identify its needs (e.g. water, income generation, etc.), and begin saving. Group leaders were elected, given training (along with the community health workers), and became members of the SPICs.

The SPIC was responsible for developing an overall plan for the physical development of the bustee, and selecting the mistris (skilled labour) who would construct the facilities. The bustee dwellers were to contribute their labour for the earthwork for footpaths and drains, and also be responsible for maintenance.

For each tubewell, the beneficiaries were to contribute Tk. 500, and a similar amount for each double-pit latrine. The beneficiaries were again responsible for maintenance.

For dustbins, each benefiting household was to make a token contribution of Tk. 2, and for street lights a token Tk. 1 (with one streetlight per 70 households).

The money collected from the beneficiaries was deposited in a welfare fund, together with an 8% service charge on any loans issued to group members. This fund catered for personal emergencies, and also emergency maintenance (e.g. broken-down tubewells).

Notes on DCC SIP Project Sites

Sites:

1. Johuri Moholla, Mohammedpur
2. Bauniabad (Block C and Block A), Mirpur
3. Tittipara Bustee (Kamlapur), also known as City Polli
4. Wari 1 and 2 Sweeper Colony

Johuri Moholla, Mohammedpur

DCC installed facilities at this slum in mid '95, after a serious fire which swept the bustee on 17/5/95, killing several people. It was a rehabilitation measure by the City Corporation. Slum dwellers were allowed to rebuild houses (about 40 or so units, in several kutcha blocks) on government land adjacent to staff quarters.

The facilities installed by DCC include 4 toilets (with pucca superstructures) which drain to the nearest ditch, two bathing cubicles, and a reservoir which is connected to the WASA supply. Residents also get water from another connection to a WASA line; this is simply a length of plastic pipe with a piece of wood which serves as a tap, and a constant flow of water. It is effectively a standpipe at the roadside. Women and children wash their clothes and utensils in very dirty surroundings (an open garbage tip close by, and lots of mud).

The DCC assistant engineer told the researchers that it was fairly easy to obtain WASA's permission for a connection, and depended on how eagerly the matter was pursued with WASA. In this case it took 35-40 days to arrange it. Someone quoted a cost of Tk.50,000, but this seems high.

At the time the research team visited one site there was no water meter. Residents said that they did not pay anything for their water. However, in other parts of the same bustee households are paying around Tk. 100 per month each for sharing a WASA connection, so the team doubted whether these particular slum dwellers were getting their water free.

Residents had electric connections, with lightbulbs and one or two appliances (e.g. fans), and said they were paying their electricity bills.

Main conclusions:

- SIP facilities were given primarily as relief
- unsanitary waste disposal from latrines
- unhygienic (and illegal?) water point
- none of the residents have documents to show that they are officially allowed to stay there
- no evidence of community organisers at this slum

Bauniabad (Mirpur), Blocks C and E:
(A Government Low-Income Shelter Project)

This site does not really deserve to be called a 'slum'. It is a well laid out area of low-income housing (laid out in a grid pattern). It was designed as a low-income shelter project by the Housing and Settlement Directorate, with funding from UNDP/UNCHS and assistance from Concern, the Irish NGO (Concern helped to construct the housing shells - concrete pillars and tin roofs - and twin pit latrines). The project was implemented around 1988/89.

The residents are buying the plots (0.75 katha). The cost is Tk. 7,500 over 10 years, repaid in monthly instalments. Initially the monthly repayment was Tk. 26.50. Subsequently, the repayment has increased each year by about Tk. 7 per month. At present, the residents pay about Tk. 62 per month, or Tk. 750 per year. Given the cost of land in Mirpur, and high rents in the private sector, (not less than Tk. 200 per month for the least accommodation), these plots are therefore highly subsidised.

Each house has its own twin-pit latrine. In practice, though, the households are only using one of the pits, and the other is buried underground and not used. Many round latrine slabs from the second pit were used as 'bridges' over the small drains. Residents said that they normally emptied the pits at the start of the rainy season. Some paid a sweeper to come and do it (the emptying charge ranged from Tk. 150-300), but more than half the households emptied it themselves, straight into the nearest drain, which the rain then washed down to the nearby pond/lake where people washed and bathed.

Many of the latrine pits had filled up with ground water during the rainy season, and were unusable.

Apart from this, the housing area was generally very pleasant, and well maintained. There were good brick footpaths, and the pucca drains were all kept clean and free of rubbish. (The researchers were told that they were cleaned by DCC sweepers). There were also concrete dustbins provided in many places for garbage, but in practice **none** of these were being used for this purpose: instead, they were used for keeping family possessions, and were all extremely clean!

Water supply was provided by tubewells. Originally Tara I's were installed, but most of these were no longer working properly, and DCC had replaced most of them with Tara II's. At one place, the

researchers were told that the tubewell had cost Tk. 7,000 to install, sunk to a depth of 140 feet. It was being used by 12 families, but they said they did not have to pay for it (i.e. no cost recovery). The tubewells gave an adequate supply of water, but residents said there were sometimes problems in the dry season (Jan-Mar), when the water from the tubewell was very silty.

The washing platforms were quite large (9'x 9') and well designed, with good drainage.

- *Small Bore Sewage System at Bauniabad, Block A*

One interesting alternative to pit latrines, which had recently (March '95) been installed at Block C was a small bore sewage system. The one visited had 24 house connections along a line of 75mm diameter pipe, and two lines connected to a septic tank. It cost Tk. 96,000 (i.e. Tk. 4,000 per connection), and unlike the pit latrines, all of the latrines were 'clean' (i.e. they were dry, not flooded with ground water, and therefore useable).

The septic tank was located under the wide brick-paved footpath. However, the overflow from the septic tank went straight into the nearest roadside drain, and from there into the same pond/lake as above.

The researchers were told that a similar small bore system had been installed by SIP at Gonoktuli Sweeper Colony, at Hazeribagh.

- *Biogas Plant at Bauniabad, Block A*

The research team also visited a biogas plant which had been recently installed, in May/June '95 There was a commemorative plaque alongside, to mark its opening.

The plant consisted of a large underground chamber, with a smaller access chamber alongside, and a concrete dustbin into which solid wastes could be tipped, to run down a chute to the main chamber. The biogas plant was connected to a single gas burner in a single household. However, the house occupants said that it had produced gas for only the first 2 days after installation, and then stopped (3 months ago).

It wasn't clear why the biogas plant wasn't working. The site was visited with Vance Painter, and he thought that the most likely reason for failure was the solid waste having too high a water content, due to ground water and possibly rainwater getting into the chamber.

Whatever the reason, the biogas plant wasn't working, and another one that the researchers visited at City Polli One wasn't working either (the reason given was that it wasn't yet finished). It appears that biogas plants installed in the rural areas not working either, and have not worked from the very beginning. Hence there is a big question mark over the efficacy of installing biogas plants, especially in Dhaka slums.

[See also Vance Painter's comments on Bauniabad in his M.Sc. thesis, Southampton University, Sept. 1995].

Tittipara Bustee, Kamlapur (also called 'City Polli' by the residents

This is one of the worst slums in Dhaka. Situated on an ex-DCC rubbish dump, and opposite a current dump, there is a continual smell of refuse in the air, and refuse all around.

The slum was first settled about 5-6 years ago, when the residents were cleared by the government from other land around Kamalapur. Although the site is called 'city polli' (or village - rather a misnomer!), none of the residents had documents to prove their right to occupy the land. At the same time, they did not pay rent for living there either. The researchers were told that there was a small amount of sub-renting, but not much.

Local people said the population was 600 households, but this researcher's estimate is a lot less - not more than 200. Interestingly, a DCC workplan for ADB-funded slum improvement work starting October 1995 mentions 650 at this slum, but this is probably a big over-estimate.

This site was the first place that DSK proposed for a project to be funded by WaterAid. However, when the research team learnt in October '95 that DCC were going to work in this slum, it was clear that it would not be suitable for DSK to try to work here as well, and they chose another location.

Interestingly, DSK's proposal for the slum, including health and community development work, cost a total of Tk. 0.6 million, whereas DCC's work is budgeted at over Tk. 2.3 million - i.e. four times as much, and without any health or community development components. Moreover, DSK was proposing full cost recovery, while the DCC programme involves zero cost recovery.

DCC started digging drains here in late October. It was very disappointing to see the local residents simply watching as contractors did the work - there was no community participation at all, not even a baseline survey.

Physically, the worst problem in the slum is probably the lack of drainage and footpaths. The water and sanitation conditions were also extremely bad. The research team were told that there were 10 tubewells in the slum, of which only 3 were working, and 12 latrines, of which 6 were in use. Local people said that World Vision had worked here in the past, though not now. It may be that they installed some of the tubewells and latrines.

There were some electric lights for the footpaths, but no electric connections in individual households. The people looked very poor indeed. However, there was also active local politics going on, and the researchers met the representatives of some local committee.

Main conclusions:

- Lack of documents to show that residents had a right to be there.
- Shortcomings of DCC's approach to slum improvement:
- overestimate (?) of local population
- lack of community participation in ADB programme
- very high cost of improvement work compared with DSK's proposal

Wari Sweeper Colony

For the purposes of the SIP, Wari Sweeper Colony has been divided into Wari 1 and Wari 2, because it contains more than 300 households. There are 200 families in Wari 1, and 180 in Wari 2.

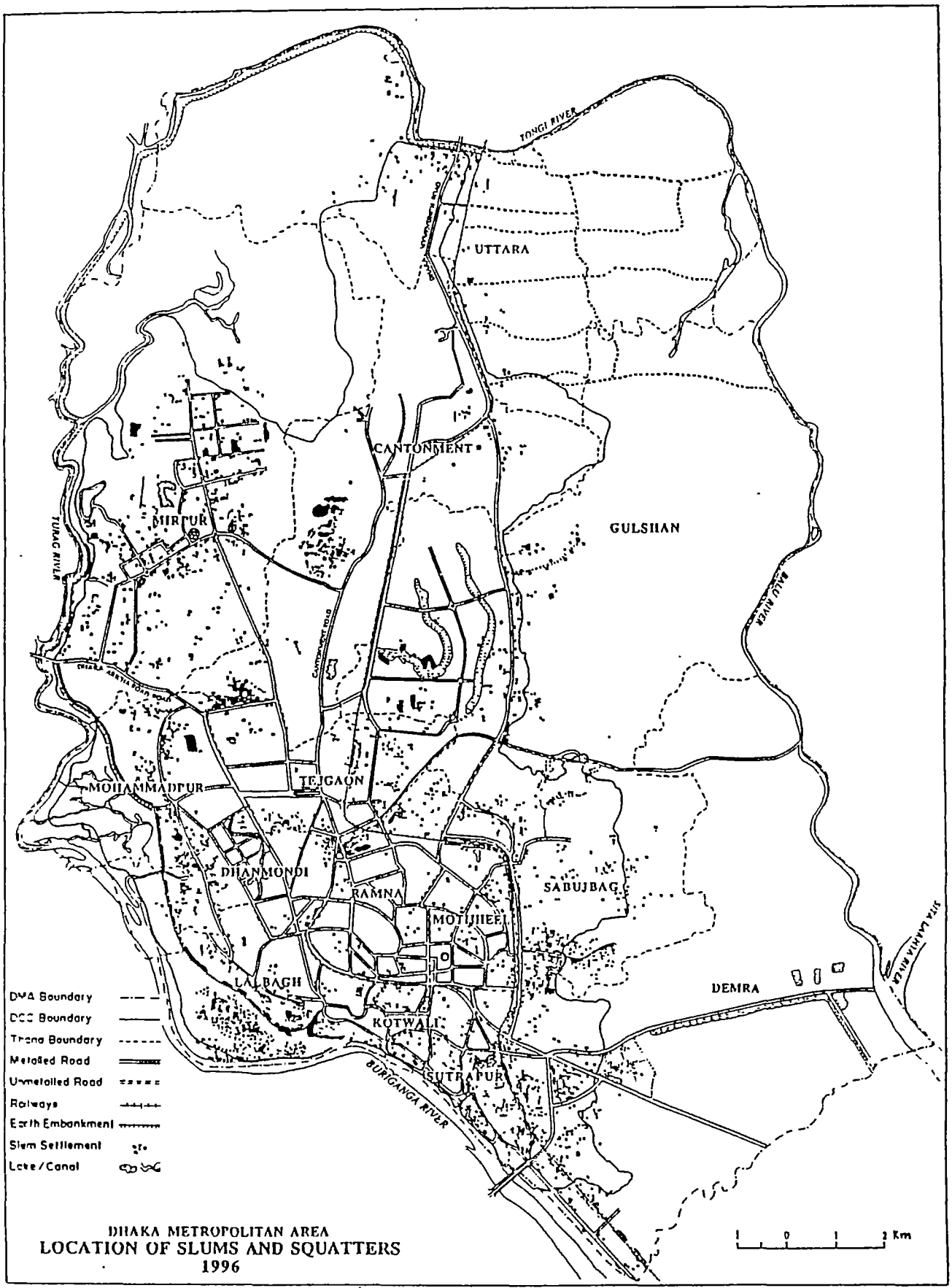
The site consists of two 5-storey buildings, with 40-50 families to a building. These were constructed in the early 1980's as accommodation for the Hindu sweepers who are employees of the City Corporation. Around these two buildings are rows of single storey rooms (including a new row under construction).

The water supply consists of 3 reservoirs (approx. 18' long x 8' wide x 7' deep) which are filled by a pipe coming from the main WASA supply line. There are no taps - simply a slow constant trickle. There was only 9 inches of water in the reservoirs. The handpumps into the reservoir weren't working, and people collected water by lowering buckets to catch the water from the inlet pipes.

The arrangement was very unhygienic - one young girl was observed climbing down into the reservoir and washing there.

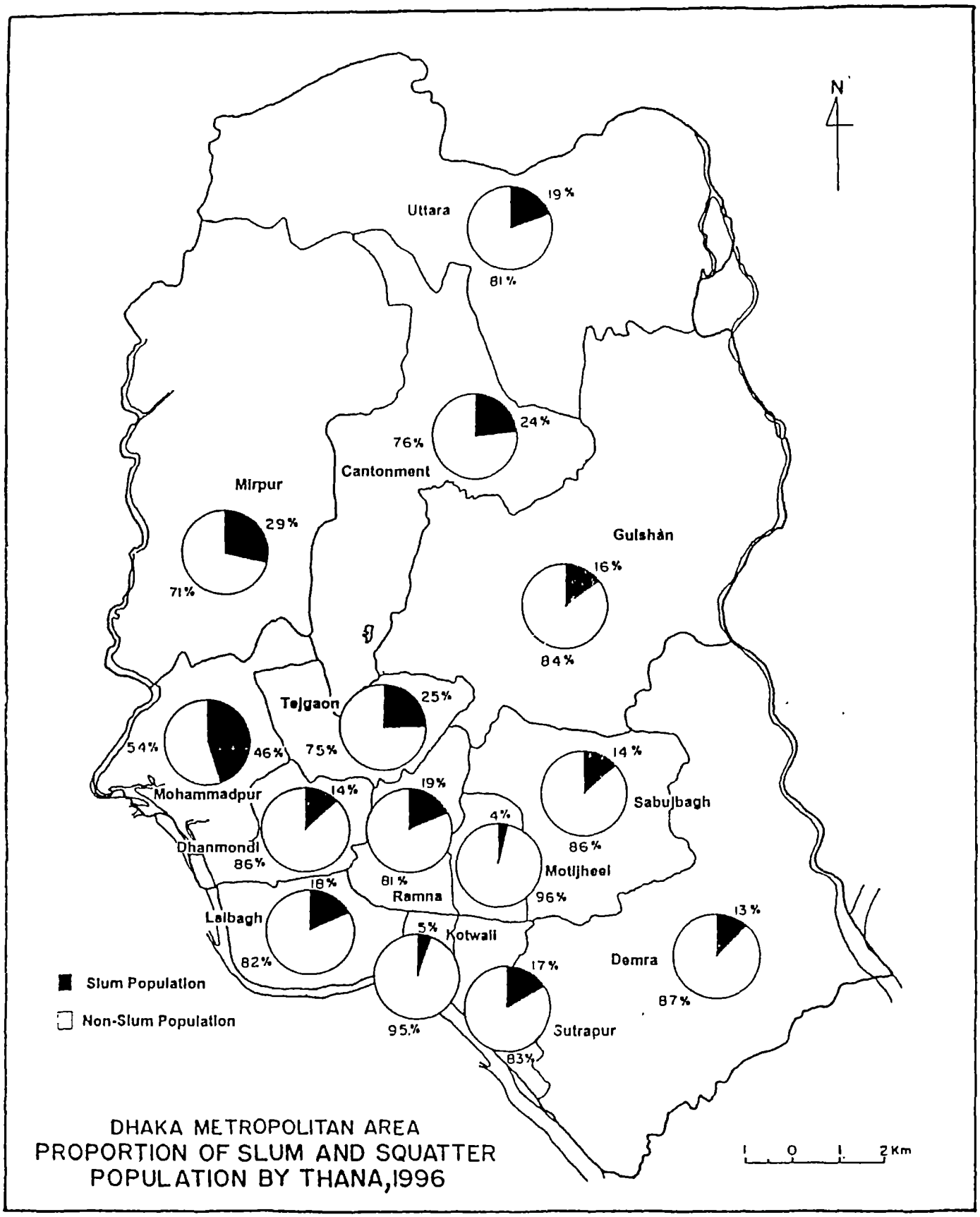
There were also several tubewells (suction pumps) which simply pumped water from a WASA line a few feet below ground.

Appendix 3
Maps



DHAKA METROPOLITAN AREA
LOCATION OF SLUMS AND SQUATTERS
1996

Centre for Urban Studies (CUS), Dhaka for ADB/UPRP

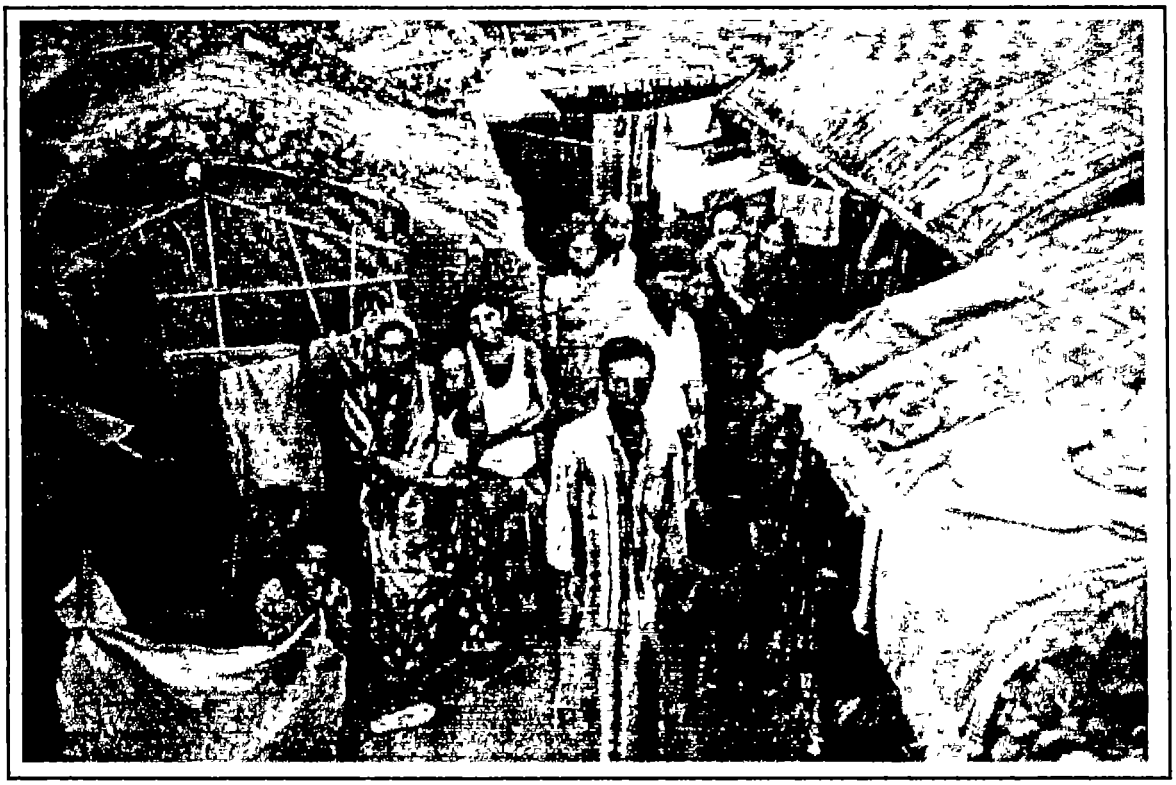


Centre for Urban Studies (CUS), Dhaka for ADB / UPRP, 1996

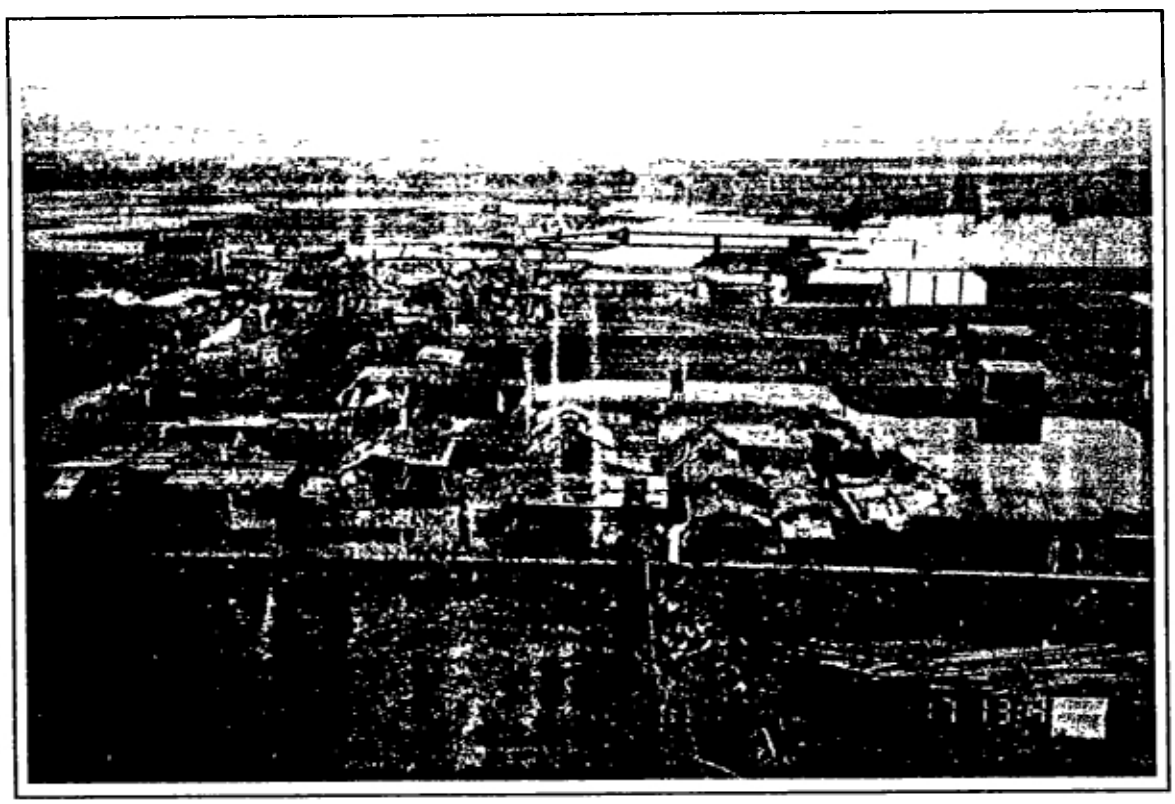
Appendix 4
Photographs

1. **Slum housing on the Mohammedpur Ring Road. Most of the residents have lived here for 3 to 5 years. Half pay rent, and the rest live in self-built dwellings. Their water source is a tap connected to a WASA water main, up to 100 m distant.**

2. **More housing on the ring road. In the background is brand-new housing on Housing Society Land. The vacant low land on the left belongs to the Government's Housing and Settlement Directorate.**

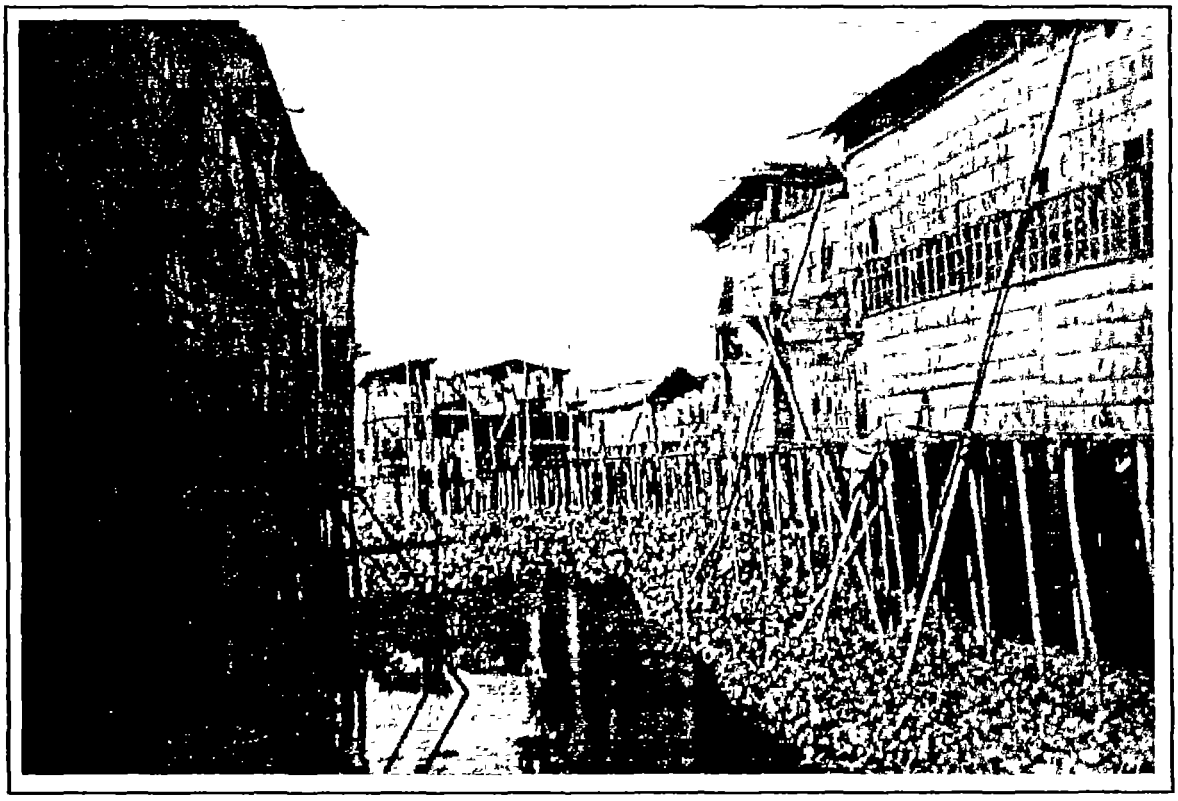


3. Some of the 14 slum dwellings from Adabor described in Section 3.1

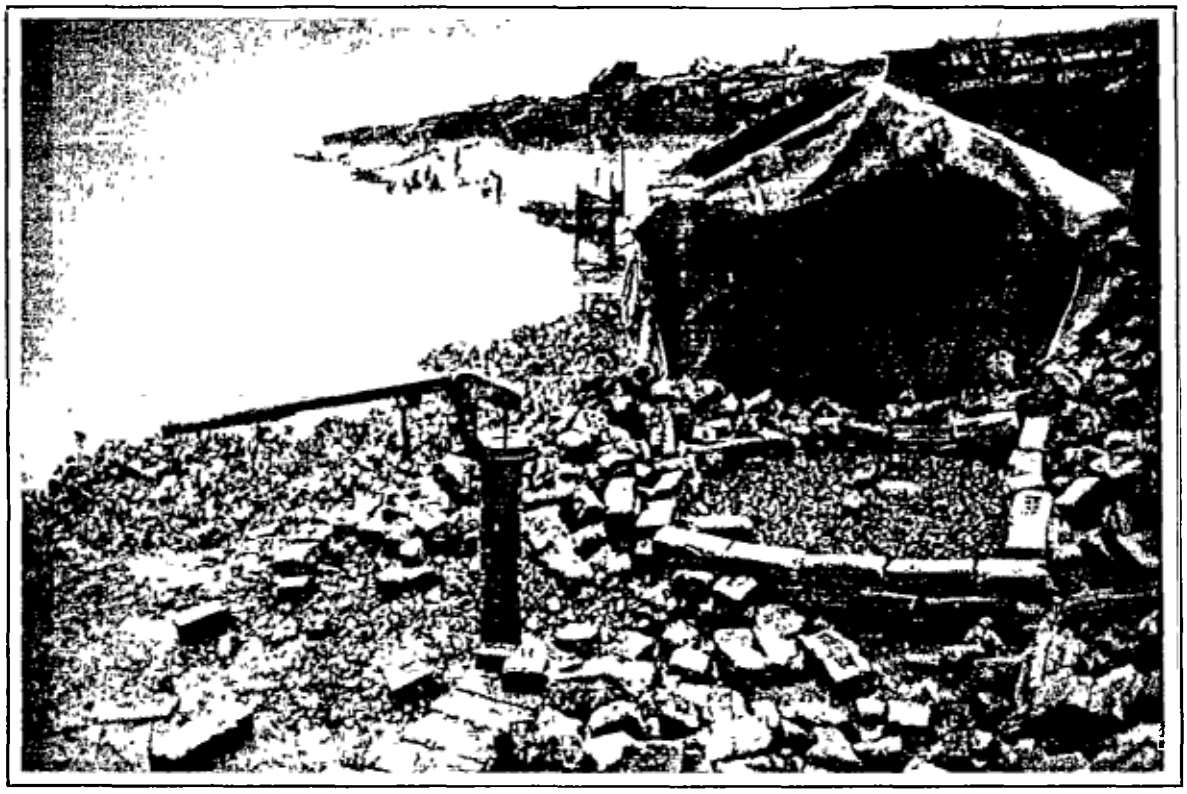


4. Dwellings on a plot at Adabor (described in Section 3.1). In the background are the low lands of Mohammedpur, and beyond these, the Beribad flood embankment.

5. Slum housing at Sherkertek, probably self-built and rent-free. When it is time to leave, the slum dwellers will dismantle these homes and transport them on a push-cart to a new location.

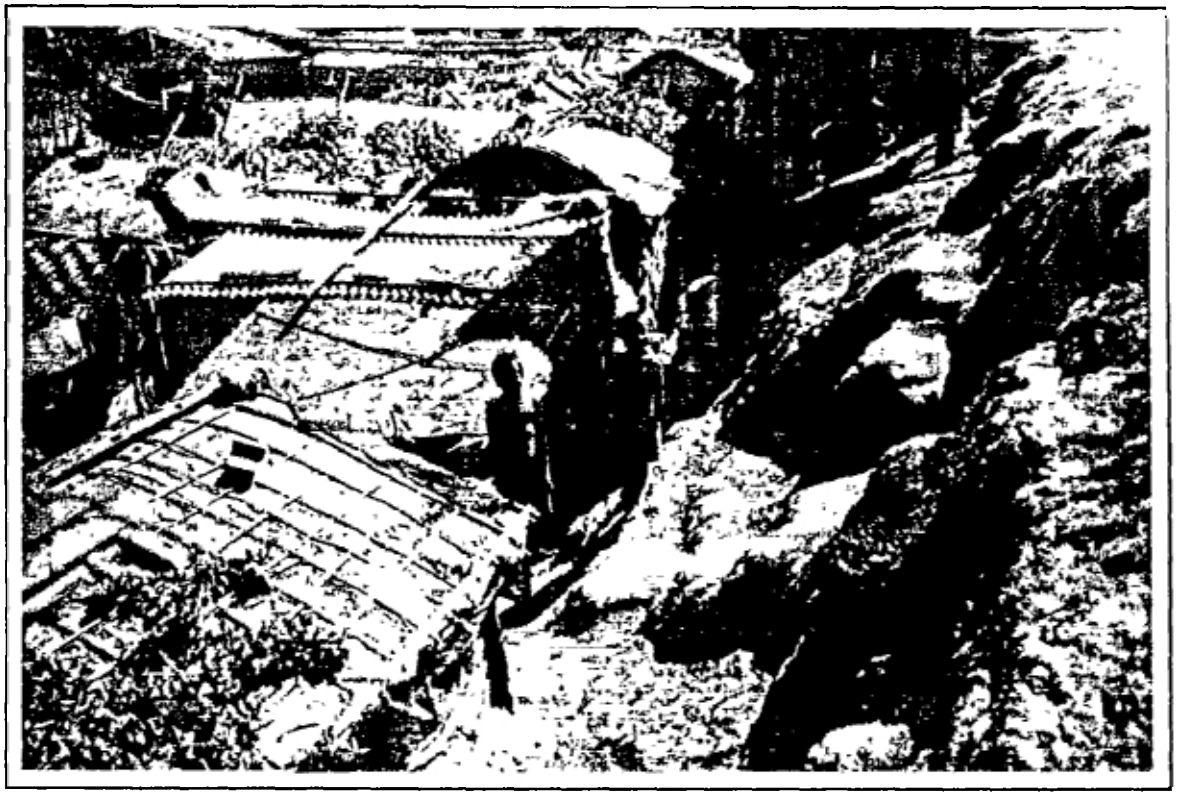


6. Two storey bamboo housing at Katashor-Boretala. At the peak of the flooding season in 1995, the polluted water rose above the floor of the first floor.



7. **A handpump on the Beribad embankment** (photo by Jim Holmes for WaterAid).

8. **A water point in Bijili Mohalla slum. Probably an illegal connection, it has no tap, washing platform or drainage** (photo for WaterAid by Jim Holmes).

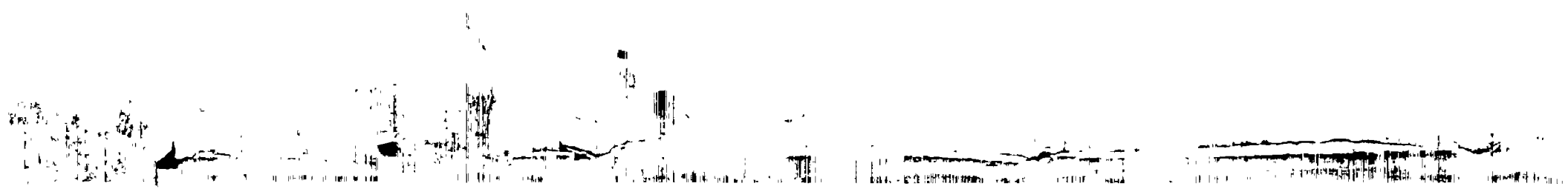


9. Beribad embankment. Cutting the embankment to make platforms for dwellings has weakened it and speeded the rate of erosion.

10. Kutcha latrines on the Beribad embankment.

11. Semi pucca housing at Shekertek, on Housing Society land. These units rent for Tk 500 to 600 per month, and are clean, sanitary and well-kept.

Unless otherwise marked, all the photographs in this section were taken by Robert Gallagher



...is report summarises the findings of a study of water and ...itation problems in the slums of Mohammedpur, Dhaka. The ...dy was carried out jointly by WaterAid, ActionAid and VERC ...ing the period August to November 1995. The aim was to gain ...etter understanding of the water and sanitation situation in ...haka's slums, and identify specific measures which could be ...en to improve the situation.

...hammedpur is one of 15 thanas in Dhaka. Located on the west ... of Dhaka, about three to five miles from the city centre, it has ...n developed fairly recently. Up till the late 1950s it was still ...cultural land. At the time of this study, its population was about ...,000, which is roughly 5% of the total city population. A survey ...ried out in January 1995 estimated that overall there were ...000 people living in slums in Mohammedpur, which was ...ughly one-third of the thana's population, or 23,000 households.

...ost of the slum dwellers live in low-quality housing built of ...mboo and thatch, corrugated iron and plastic sheeting. They ... on land which is currently not being used - usually low-lying ...nd, such as ponds and river flood-plain, and also roadsides and ...bankments.

...ater supply and sanitation service are of extremely low quality in ...ese slum areas, and are provided to slum dwellers at high cost. ...nitation usually takes the form of unsanitary latrines which discharge human waste directly into ponds and open drains. Water supply is through inadequate numbers of handpumps or ...rough shared piped connections with no taps, platforms or drainage. Many of the water connections are illegal.

This report discusses the nature of the water supply and sanitation problems in the slums of Mohammedpur, the challenges that face residents and those that wish to work with them, possible solutions, ... the work of NGOs and government to date.

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Cover photograph by Jim Holman for WaterAid