



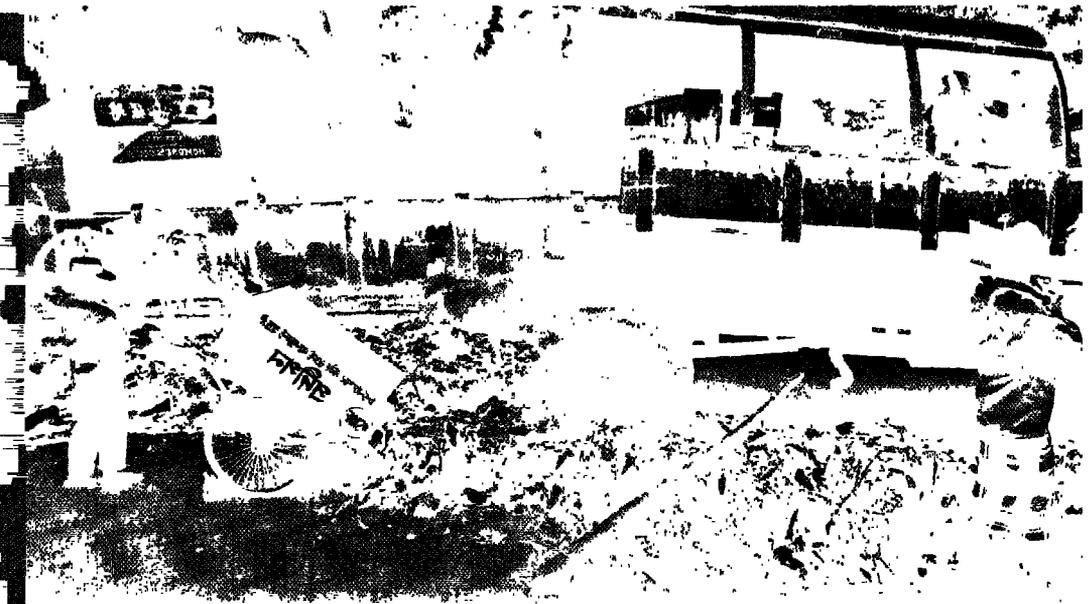
Water and Sanitation Program

An international partnership to help the poor gain sustained access to improved water supply and sanitation services

Community Based Pilot Project on Solid Waste Management in Khulna City: General Project Description

South Asia Region

Khulna is a typical city in Bangladesh faced with growing urban environmental problems. This fact sheet discusses common problems in solid waste management and gives a general description of a community based pilot project that attempts to test and establish a partnership approach between communities and the Khulna City Corporation.



Khulna City Corporation (KCC)



Swiss Agency for Development and Co-operation (SDC)

THE CITY SITUATION

Khulna is the third largest city in Bangladesh. Situated in flat terrain with industrial activity in and around the city, it acts as a gateway to the nearby sea port of Mongla. The city core, which is about one-quarter of the total city area, is densely populated with mostly multi-storied residential and commercial buildings. The rest of the city is a mixture of urban and peri-urban areas. There are several low-income housing areas and slums located throughout the city.

Khulna City Corporation (KCC) is responsible for the operation and maintenance of municipal services, including solid waste management. The City Corporation is headed by an elected Mayor and operates through 41 elected Ward Commissioners one for each of the 31 Wards with an additional 10 women Ward Commissioners. It is made up of eight functional departments and the conservancy department is responsible for solid waste management, street sweeping, public latrines and urinals, cleaning of drains, etc. The solid waste management service organizes waste collection from approximately 1,200 City Corporation masonry bins, located on roadsides throughout the city. Households are expected to dispose

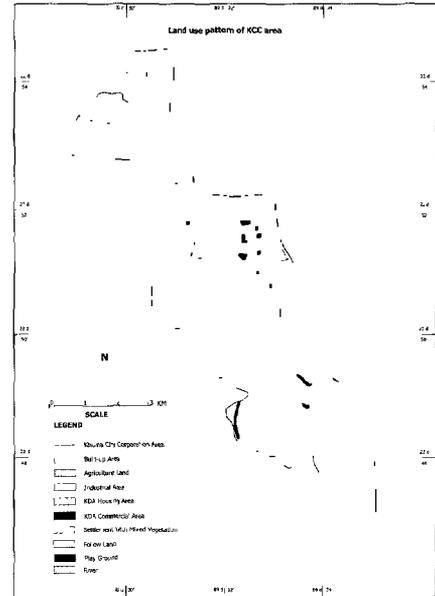
of their waste in the masonry bins. The waste is then transported to its final disposal site (approximately 8 km from the city) by City Corporation trucks.

Heaps of waste remain uncollected in many parts of the city; KCC trucks only pick up waste from the roadside bins while waste is frequently disposed in open drains, free land and around the waste bin sites. It is estimated that of the 200 tons of waste generated daily, between a third and a half remains uncollected. Uncollected waste blocks drains, causes water logging and spills over on to roads, often resulting in increased traffic congestion. These problems are acute during the rainy season especially in poor neighborhoods which are frequently located in relatively low lying areas and have narrow alleys through which municipal trucks cannot pass.

The problem of solid waste management is too extensive for the City Corporation to manage and they are heavily dependant on grants from the central government. The conservancy tax (4% of holding tax) is insufficient to fund the current level of service. In 1998 income from the tax was only Taka 2.7 million (1 US\$ = Taka 50) while expenditure by the conservancy department was Taka 17.8 million.

Khulna City Profile Box 1

Estimated population (2000)	1.2 million
Population growth rate	5 % per year
Area	70 sq. km.
Number of households (1991)	138,000
Number of city wards	31
Low-income households	approx. 30%



Map of Khulna City

GENESIS OF THE PROJECT

In 1986 Khurram Mahboob launched a community based initiative to deal with similar solid waste problems in his neighbourhood of Kalagaban in Dhaka city. He motivated local households to pay for a door-to-door waste collection service which resulted in a significantly cleaner neighbourhood where drains were no longer blocked with waste and the problems of water logging and mosquitoes were reduced. The initiative is still working and has been replicated by several NGOs in Dhaka city.

The important lessons learned from this initiative were:

- ⌘ Community participation is indispensable to the success of



A busy road in Khulna City

solid waste management at the local level.

- ⌘ Urban communities, especially those who rent their properties, are more "reactive" than "proactive". The demand for improved solid waste management needs to be facilitated by individuals or groups.
- ⌘ Where a reliable service can be guaranteed the community are willing to pay for it.
- ⌘ Municipal waste collection services are more effective when they work in partnership with community led primary collection from households.

The success of the door-to-door waste collection initiated by Khurram Mahboob encouraged the Water and Sanitation Program (WSP) to test its replication in other urban areas. They discussed the concept for a pilot project and selected Khulna to test the scheme because a) the City Corporation seemed most receptive to innovative ideas; b) a motivated NGO (Prodipan), who could lead the project activities, was based in the area; c) the problems and complexities of waste management in Khulna are representative of those faced by towns and cities throughout Bangladesh. The Swiss Agency for Development and Co-operation (SDC) agreed to support and fund the pilot project on the basis of a proposal submitted by Prodipan.

THE PILOT PROJECT

The pilot project for community based solid waste management in Khulna city was launched in March 1997 with a scheduled completion date of December 2000. The estimated cost is Taka 13.6 million (US\$ 315,500). The project operates in 6 of the 31 city wards; these were chosen to represent a cross-section of the city areas (built up, peri-urban, slums, etc.). Prodipan, a local NGO, was selected to lead the project activities. Throughout the project Prodipan has worked closely with communities and the City Corporation and has been supported by WSP and SDC. Roles of the different project partners are shown in box 2.

THE PROJECT PARTNERS

Box 2

Communities (in the project areas)	Management of the Primary collection system and contribution towards its' cost.
Khulna City Corporation (KCC)	Collaboration, institutional support and onward links to municipal systems.
Prodipan (NGO)	Lead agency to implement the project activities.
Swiss Agency for Development and Cooperation (SDC)	Management and project funding.
Water and Sanitation Program (WSP)	Strategic supervision and technical support.

Objectives

The objectives of the pilot project were:

- ⌘ To gain a strategic understanding of the urban waste and sanitation situation and to identify a range of appropriate options suitable for communities who are willing to share costs and participate in the management process;
- ⌘ To make an assessment of social and economic prerequisites and institutional changes needed to incorporate the partnership approach in municipal service delivery;
- ⌘ To identify ways in which municipal authorities can link up with community management of solid waste; and
- ⌘ To identify the potential to scale up from the pilot project to a larger investment in urban waste management.

PROJECT STRATEGIES

Box 3

Based on previous experience in Bangladesh and comparable developing countries Project strategies were to be:

- ⌘ *responsive*: balancing local needs with wider institutional, technical and environmental constraints;
- ⌘ *equitable*: addressing the needs of all sectors of the community;
- ⌘ *empowering*: motivating and organizing local people to help them to find solutions to problems at the local level;
- ⌘ *decentralised*: into small managerial units or blocks over the whole city;
- ⌘ *diverse*: experimenting with a range of technologies or processes rather than attempting to find one single solution applicable to all situations; and
- ⌘ *flexible*: to allow for developments and modifications in approaches and activities.

PROJECT ACTIVITIES

The main project activity was to establish a community based approach to solid waste management in which responsibilities are shared between households and the

city authorities. The Project strategies are shown in Box 3. Box 4 outlines the problems associated with the conventional system and explains the workings of the community based approach. This project was divided into three phases:

- ⌘ Project Initiation
- ⌘ Community Organisation
- ⌘ Operation of Primary Collection System

Phase I: Project Initiation

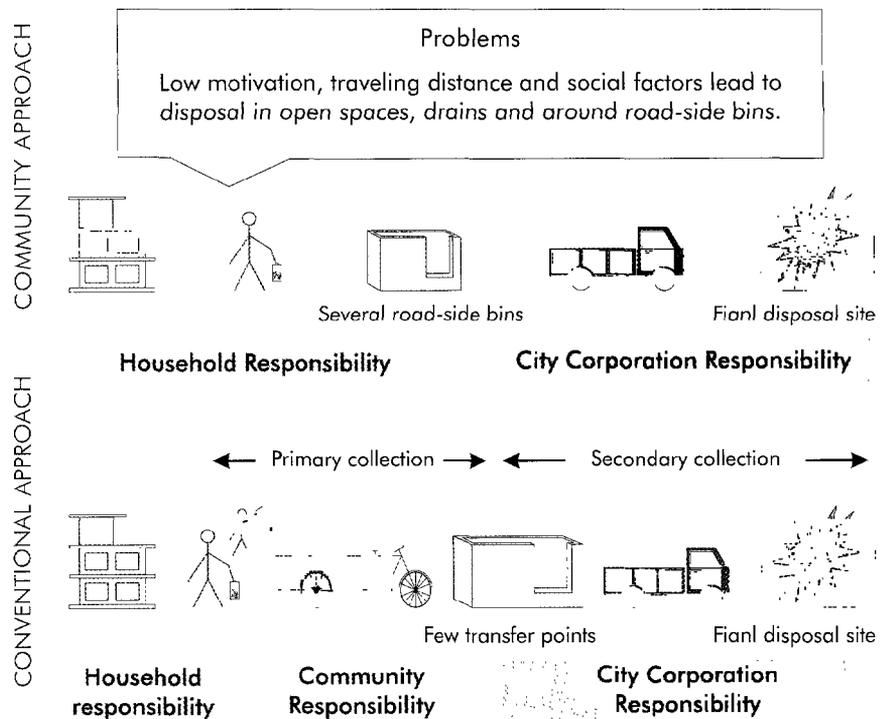
Institutional arrangements agreed with Khulna City Corporation at the beginning of the project allowed Prodipan to carry out primary waste collection and to receive payment for these services. There was active collaboration at the city level where the Mayor's support was required and with Ward Commissioners at the local ward level. Functional departments of the City Corporation (conservancy, engineering, etc.) provided technical and logistical support. In June 1998 these arrangements between the KCC and Prodipan were formalized by the signing of a Memorandum of Understanding. An orientation workshop for City Corporation staff familiarized them with project



People often dump garbage on vacant land

Schematic diagram showing the conventional and community based approach to solid waste management

Box 4



The conventional approach to solid waste management

Waste is generated in the home and usually stored until a small amount has been accumulated. It is the responsibility of the generating household to transport the waste to the nearest road side bin which is provided by the city corporation. The city corporation is responsible for the transfer of this waste from the roadside bins to the final disposal site.

Problems with the conventional approach

In many cases the city corporation fails to provide a sufficient number of roadside bins or does not position them in convenient locations or fails to ensure that they are of an appropriate design. As a result householders may dump the waste in open spaces, drains or simply around roadside bins. Poor motivation for proper waste disposal can be due to low awareness of the hazards of irresponsible solid waste management or social factors that make it unacceptable for certain members of the household to take waste to the roadside bins. Delays in waste collection and transportation to the final disposal site by the city corporation also occur due to institutional or financial problems.

The community based approach

In Khulna the city wards are divided into small areas called primary collection blocks. These consist of approximately 500 households which are all served by one rickshaw van. Waste generated in the home is stored and collected everyday by a primary collector who transports the waste to nearby transfer points, normally in a rickshaw van. This is primary collection and is the responsibility of the community. Transfer points are places where waste is unloaded from primary collection vehicles to be taken away by secondary transport. Several primary collection blocks are served by a transfer point. The waste is then collected from the transfer points and taken to the final disposal point by a large truck. This is secondary collection and is the responsibility of the city corporation.

objectives and helped to secure their support for project activities. The project was formally inaugurated by the City Mayor.

A Project Advisory Committee, chaired by the CEO of the City Corporation, was established in June 1997. It includes representatives from government departments, Prodiplan and other NGOs, Khulna University, Bangladesh Institute of Technology at Khulna, WSP and SDC. The Committee meets quarterly to monitor and review the project.

Capacity building measures to increase Prodiplan's effectiveness included; staff visits to observe similar collection processes in Kalabagan and other areas in Dhaka; training in Participatory Urban Appraisal (PUA), community motivation, strategy formulation and preparation of local work plans by DASCOH, an international NGO; and a five day staff development and management training program for project staff. Two local partner NGOs, Nabarun Shanga and Rastik, were selected and trained by Prodiplan and WSP provided assistance in preparing an operational framework to implement the project activities

Phase II: Community Organisation

Over the first few months communities in the project areas were organized to take over the operation and maintenance of the primary collection systems. This required behavioral changes among local people. Project activities included Participatory Urban Appraisal sessions to determine householders' perceptions of solid waste problems in their neighbourhoods, possible solutions and their willingness to share costs. Participatory awareness and motivational workshops were organized by Prodiplan and Waste Management Committees were formed and trained to manage the collection operation for each primary collection block.

The investment cost for the operation of a primary collection system for one

Investment cost for primary collection system for one collection block

Items	Cost
Rickshaw van	10,500
Tools	800
Protective clothing	500
Total Cost	Taka 11,800

* At present rate 1 US\$ = Taka 50

collection block (a rickshaw van and accessories) is Taka 11,800 (Box 5). WSP provided guidance on the design of the collection system and procurement of equipment. Rickshaw vans were manufactured in a local workshop. Prodiplan recruited a driver and assistant for each rickshaw van and trained them in collection methods, hygiene, routing of vans, interaction with households and routine maintenance of equipment.

Phase III: Operation of Primary Collection System

Waste collection in the 6 project wards was divided into 26 primary waste collection blocks. These blocks consist of an average of 500 households and can be served by one waste collection van. The blocks are bounded by roads or other obvious physical limits. The primary waste collection system consists of daily house to house collection by rickshaw vans. Households gather their day's waste

in plastic bags or containers, hand them over to the van driver who takes the waste to a local transfer point. These transfer points are situated at roadside locations agreed with the KCC. The City Corporation trucks then transport waste to the final disposal site. The project strategy is to extend the collection services to all categories of households – rich, middle income and poor.

In addition to door to door collection the project provided, on a trial basis, plastic bins in the compound of some multi-storied apartment buildings (one bin for each building). The residents put waste in the bins for collection by the van drivers. The placement of these bins has increased the operating efficiency of the primary collection system. Similar bins are also provided in a few slums where several households share a bin.

The primary collection operation is managed by the Waste Management Committees with support from Prodiplan. The intensity of this support is gradually reducing and it is anticipated that the Committees will be able to operate and maintain the system themselves when the project is completed. Monthly operating costs for a typical primary collection system in one collection block is estimated at Taka 3,000 per month (Box 6). Prodiplan receives a monthly fee from

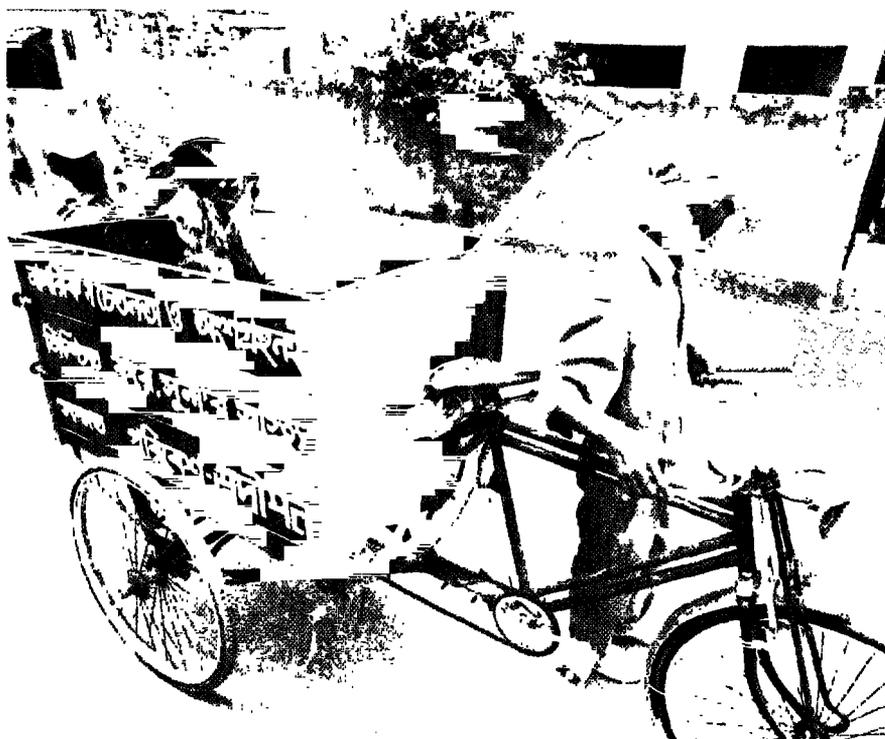


Door to door waste collection

Monthly operating cost of a primary collection system for one collection block Box 6

Items	Cost
Van driver's salary	1,600
Assistant's salary	500
Supervision costs of WMC	600
Repair and maintenance	50
Depreciation cost	250
Total Cost	Taka 3,000

each household for the waste collection service. The fee varies according to the income category of the household (rich, middle income and poor) but the level is decided by the Waste Management Committee in the respective collection blocks. The fees started at a promotional Taka 2 – 5 per month but have now risen to Taka 2 – 10 per month. At present, cost recovery is about 65% of the operating costs (including depreciation). The Waste Management Committees plan to increase the fees to Taka 2 – 20 per month by the end of the project period (December 2000). This rate is expected to cover the total operation and maintenance costs and generate a marginal profit. Primary collection would then be financially viable for operation by CBOs or micro-enterprises.



Operation of the primary collection system: A rickshaw van collecting and transporting waste

OTHER PROJECT ACTIVITIES

The pilot project was concerned mainly with the community based primary collection system in selected areas. However it became apparent that complementary initiatives to support the total solid waste management programme in Khulna would be necessary. The following additional activities are planned to begin by December 2000. They will be funded by the surplus in the project budget.

- ⌘ Appropriate transfer points and secondary transportation that integrates well with the primary collection system
- ⌘ Feasibility of waste recycling and composting initiatives
- ⌘ Links with the private sector
- ⌘ Initiation of hospital waste management.

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Other Publications in the Khulna City Series:

2. Pilot Project on Solid Waste Management in Khulna City: Community Organisation and Management
3. Pilot Project on Solid Waste Management in Khulna City: The Role of Participatory Urban Appraisal

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