



Enhancing Community Motivation and Participation in Solid Waste Management

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Abstract

The collection of waste generated by the rapidly expanding cities in developing countries is increasingly beyond the capacity and financial means of the municipal administrations. A promising approach to improve collection coverage is the introduction of community-based management schemes involving the local communities in proper waste storage, collection, sorting, and recycling activities. Research has shown how such schemes can be implemented under different conditions (Pfammatter & Schertenleib, 1996). SANDEC initiated a pilot project study in an urban slum in Karachi, Pakistan, in collaboration with a local NGO, Association for Protection of Environment (APE). Its objective is to field test a community information and education approach to enhance motivation and participation in the establishment of a primary collection scheme. The project activities included development of alternative information and awareness material disseminated by informal methods, including community meetings with target groups of different genders and ethnic backgrounds. The project greatly contributed to enhancing motivation and participation among the various target groups of the community. The community members were involved in all stages of the project, as well as in the assessment of the existing situation, planning, design, implementation and even evaluation of an alternative collection scheme. Enhancing awareness and genuine participation in the planning, design, implementation, and evaluation phases are important prerequisites for establishing successful primary refuse collection schemes.

Research Objectives

Self-help and use of community participation may, in many cases, be the only solution for solving the waste collection problems in low-income areas. In the course of SANDEC's solid waste research, a pilot project was initiated on alternative waste collection in a typically low-income urban area in the city of Karachi, Pakistan. This pilot project, which was conducted by a local NGO "Association for Protection of the Environment (APE)", focused on the following social issues:

- Acquire experience in people's concern in general and in their attitude towards waste collection in particular.
- Field testing an approach to enhance community awareness and initiate genuine involvement of the community in all stages of the waste collection project.

A further objective of the pilot project was to find a suitable technical, institutional and financial framework for an alternative waste collection scheme and to implement it.

The Shah Rasool Colony was selected for the pilot project on the basis of meetings with key officials responsible for slum upgrading as well as with community representatives, and of preliminary information collected from various areas, including the required characteristics listed in Table 1.

Table 1: Criteria of site selection

| Selection Criteria for the pilot project | Objective |
|---|---|
| Low-income urban housing area | Research focus on low-income urban areas |
| Population of less than 10,000 inhabitants | Manageable population size |
| Well-defined boundary | Clearly defined operating area |
| Within the municipal boundary | Clearly defined institutional authority |
| Available basic infrastructure | Main community priorities, e.g. water supply and sanitation, partly fulfilled |
| Area where lease titles are being granted | Area regarded as "legal" by the public authorities |
| Area with an inadequate solid waste collection system | Area with potential for improvement of the collection system |
| Willingness of community representatives and opinion leaders to cooperate | Available link to community members |
| Inexistent NGO or community-based organisation (CBO) working in waste collection in the same area | No overlapping efforts |

Shah Rasool Colony

The Shah Rasool Colony (SRC) covers an area of 3.7 ha (9.2 acres) with a population of approx. 3000 inhabitants or about 400 households. The area is inhabited by the following ethnic groups: the majority are Pathans from the North-West Frontier Province (NWFP) and Punjabis. Local people, Christians and Hindus form a minority.

Since background data on the Shah Rasool Colony was scarce, APE conducted various surveys on physical reconnaissance, available infrastructure, socio-economic condition and on the communities' attitude towards solid waste and waste handling habits. The socio-economic and attitude survey was conducted in 10 % of the households.

This survey revealed that 85 % of the households use some sort of waste container. For reasons of limited container capacity and average of six persons per household, the household waste container is emptied on a daily basis. The main responsibility for cleanliness of the households lies with the women. Most household waste is disposed of by women or children in informal heaps in the neighborhood. These are, however, subsequently scattered due to scavenging. Private sweepers are hired only in a few cases to dispose of the household waste. They are paid about US \$ 0.5-1 per month for this service.



Figure 1: Overloaded municipal bins and informal recycling activities

Two municipal bins are available in the area, but their capacity is insufficient and the municipal collection service is very unreliable or inexistent (Fig. 1). Only 12 % of the respondents use these municipal bins. APE also defined waste quantity and quality at household level. The data revealed a generated average waste

quantity of 0.4 kg/cap/day with an average bulk density of 130 kg/m³.

Methods of Enhancing Community Awareness

As aforementioned, one of the main objectives of the project was to field test an approach on providing information to the population on environmental issues. Motivation was then expected to follow automatically. The planned information and education activities included mass media training, group campaigns, video forums, pamphlets, and home visits. While preparing the material, focus was placed on the following points:

- Conveying short and clear messages.
- Highlighting personal responsibilities and obligations of the individuals in maintaining clean and healthy conditions.
- Defining the role of the municipality as regards its potentials and limitations.
- Informing on the duties and responsibilities of the individuals and community in cooperating with the municipality.
- Informing on the advantages of cleanliness in the promotion of health.

The roles played by the different key community members were first identified before involving all community members.

In the Shah Rasool Colony, informal community leaders were identified as influential people on the basis of their personal or religious status. All are men who have proved instrumental in community development activities, and who maintain contacts with the government departments and municipality. Depending on their ethnic background, their meeting place was either the mosque (Pathans) or their homes (Punjabis). They were found to be very active and cooperative with the APE staff.

With regard to SWM projects, women are key community members as they are responsible for maintaining a healthy and clean household and are directly affected by inadequate waste management at the household and community level. Informal meetings with women revealed that they showed a keen interest in improving their sanitary condition. However, the different ethnic backgrounds must also be taken into consideration. Pathan women are generally restricted to their homes

and prefer to communicate at home, while Punjabi women are more liberal, and also attend informal meetings more frequently. The best time to contact the women was found to be from 2-4 p.m. when lunch is over, the young children asleep and men at work, thus, giving enough time for women to discuss general and individual problems.

Two women shopkeepers in the area proved to be important key members, as they enjoy a good reputation, have good contacts with the community and are enthusiastic supporters of the project. Key people are also religious leaders at the mosques. As supporters of the project, they can influence and motivate the followers through their activities.

The Karachi Metropolitan Corporation (KMC) is responsible for SWM at municipal level, whereas the Sindh Katchi Abadi Authority (SKAA) is in charge of management and development of the "katchis abadis", the squatter settlements. The Karachi Water and Sewerage Board (KWSB) and the Karachi Electric Supply Corporation (KESC) are two other institutions responsible for providing water supply, sewerage and electricity.

Informal meetings conducted separately for different ethnic and gender target groups were generally held throughout the community involvement project. These meetings discussed general matters pertaining to community welfare and area cleaning, as well as the most appropriate communication methods to enhance awareness in solid waste management among the community. Community members stressed the need for training of volunteers by APE on health aspects of inappropriate solid waste handling and potential improvements of the existing system. Its objective was to reach a wide dissemination of the knowledge acquired by visiting each house so as to inform and educate also those people who do not attend the community meetings. APE therefore trained "female" volunteers on issues associated with health, hygiene, waste management, and cleanliness.

Other methods of dissemination used in the information and education campaigns included targeting religious schools; i.e., the "maktab", and the mosque in general. Christians were additionally contacted through the churches. To reach the children of the community, APE initiated an essay competition with prizes in pri-

mary and secondary schools entitled "How can I keep my area clean". Published articles in local newspapers and handbills were also used as further educational measures.

Other Activities

The community often does not accord high priority to solid waste. To gain the confidence of the community members, it is essential to also address community-sensitive issues of welfare and health not directly related with solid waste management. APE supported different activities, such as the "Celebration of the Cleanliness Week" and a vaccination campaign against the spread of Hepatitis B. During the rainy season, the community was assisted in flood control by contacting different authorities, such as the sewerage authority and the Karachi Electric Supply Corporation. In addition, the community was also motivated and supported in its effort to obtain lease titles.

Primary Waste Collection Scheme

Technical design and organisational structure of a waste collection system were discussed and finalised in informal meetings.

Use of garbage containers was promoted among the residents who were urged to use any type of waste container with a lid at first, but to refrain from using plastic bags. Sweepers, known to the area and equipped with wheelbarrows and thick brooms for street sweeping (Fig. 2), were hired to collect the waste from the households on a daily basis.



Figure 2: Door-to-door collection with wheelbarrows

The sweepers wear visible overalls and protective gloves, and are supplied with a soap and disinfecting agent for cleaning the wheelbarrows. The waste is transferred to the municipal bins or to specially desig-

nated dump sites until more municipal bins are available. APE assisted the community in their request for two additional communal bins, and contacts were also made with the municipal corporation to ensure waste collection from the communal bins. Alternatively, a private contractor was commissioned to collect the waste in case the area is not serviced by the municipality.

Volunteers from the community formed a financial and institutional committee to monitor and supervise waste collection. These volunteers are mostly women, especially unmarried women, who can devote more time to such voluntary activities and who reside in the lanes/streets they supervise. Two volunteers in each lane/street supervise the sweepers, ensure that the waste is collected regularly and appropriately, and levy the user fees. These women have formed a CBO. This CBO is entrusted with the task of collecting the funds and paying the sweepers. Weekly and monthly meetings should ensure appropriate planning and evaluation of the system. The monthly waste collection charges were established by the committee at US \$ 0.4-0.6 per household, however, widows without an income are exempted from these charges.

Table 2: Key Factors of the primary waste collection scheme

| | | |
|-------------------|---|---|
| Area | 3.7 ha | |
| Households | 400 hh | |
| Inhabitants | 3000' inh | |
| Average income | 80 US\$ / month | |
| Roads | secondary, mostly unpaved | |
| Equipment | 3 wheelbarrows, 5 brooms, waistcoats, gloves, disinfectant soap and agent | |
| Personnel | 1 full-time and 2 part-time (more when sweeping is required) | |
| Type of Service | door-to-door | |
| Frequency | daily | |
| Coverage | 65 % | |
| Working hours | 3 – 5 hours daily | |
| Investment costs | approx. 150 US\$ for equipment | |
| Operational costs | Personnel | full-time collector 32 US\$/month total personnel costs 60-70 US\$/month |
| Fee collection | by frequency amount | lane volunteers (total of 16) monthly 0.4 – 0.6 US\$ |
| Managed by | CBO | |

Problems, Limitations and Constraints

Community-based collection schemes often collapse when a motivated member of the management, or a few competent individuals working on a voluntary basis withdraw from the scheme (Pfammatter & Schertenleib, 1996). The current waste collection scheme in the Shah Rasool Colony is also susceptible to such a breakdown as the current volunteers who manage the scheme are mostly young and unmarried women. Therefore, it is essential for them to pass on their knowledge and skills to their successors before withdrawing from the scheme.

Similar to all the other schemes, this primary collection scheme is also heavily dependent on the provision of a regular municipal collection service. The current situation is far from ideal as additional communal bins are necessary and a private contractor had to be commissioned due to the unreliability of the municipal collection service.

Political affiliations also restricted the project development as the majority of the residents joined the opposition party, thereby creating resentment by the ruling class towards any area upgrading effort.

A population control campaign, which was negatively received by the community members, also interfered with the solid waste project as some community members incorrectly assumed that the solid waste project staff was backing the campaign.

Conclusions

Self-help and use of community participation may, in many cases, be the only way of solving the waste collection problems in low-income areas. However, community awareness and willingness to participate are key aspects in any planning and implementation project on alternative waste collection systems. In many community participation projects, the donors or the municipal and/or government agencies try to motivate the communities and beneficiaries, however, they neglect to gain their confidence first. The Inform-Educate-Motivate strategy [2] developed by the professionals of APE was successfully applied and implemented in a pilot project. The “informing” strategy familiarised the community with the pollution hazards and the resulting public health and environmental impacts. During the “educating” phase, the different segments of the com-

munity were targeted with specific material on SWM (video, handbills, etc.). Motivation followed automatically and the community was supported in its improvement effort. The main communication methods comprised informal meetings with community members of different gender and ethnic/religious backgrounds, house visits and information campaigns at schools, mosques and churches. The community was also involved in the assessment of its prevailing condition and in the design and implementation of an alternative waste collection scheme. A local CBO was activated to collect user fees from the households, as well as to organise and supervise sweepers during their waste collection activities. A survey conducted after implementation of the scheme yielded significant improvements in solid waste handling. It also revealed a positive attitude towards other communal and participatory activities and provided additional knowledge on health, cleanliness, sanitation, and SWM issues.

References

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