



Community-based solid waste management

COMPOST BINS AS AN ALTERNATIVE SOLUTION FOR THE HOUSEHOLD SOLID WASTE PROBLEM IN URBAN AREAS

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1 INTRODUCTION

Dehiwala - Mt.Lavinia Municipal Council (DMMC) is the second largest municipal council and is located adjacent to the Colombo Municipality in Sri Lanka. The total population in the DMMC area was approximately 217,000 in 1999. The total land area of DMMC is 21 sq. kilometres, of which 40% is covered with the low-lying wetlands and the beaches. Major industries of Colombo Metropolitan Area are located within DMMC borders. Like many other cities in the developing countries, the DMMC urban area has been experiencing the challenges of managing its solid waste.

The DMMC area generates about 150 metric tons of solid waste per day. The municipality collects 110 to 120 metric tons out of the total waste production in municipal area. With the rapid urbanisation and the limited land available for public purposes, municipalities have been using environmentally sensitive land for waste disposal. A wetland known as Attidiya-Bellanwila is now facing severe environmental problems due to haphazard dumping of mixed waste by the municipality. This area is one of the largest wetlands in Sri Lanka and is rich in bio-diversity. The Bellanwila Natural Bird Sanctuary, which is part of the same eco-system, is located in the DMMC area.

This paper presents a project being implemented by an urban-based Non Governmental Organisation (NGO) called SEVANATHA. The project is building partnership between the municipality, community-based organisations (CBOs) and the donor community, with the aim of reducing the amount of waste that is being added into the municipal waste stream..

2 PROJECT INITIATION

SEVANATHA is working as a local partner organisation within a project called 'Sustainable Colombo Core Area Project (SCCP)' funded by UNDP and Implemented by UNCHS since 1998. This project is designed for the promotion of community-based approaches for reducing the problems of water supply and sanitation in three contiguous municipalities in Colombo. DMMC is one of the municipalities covered by this project. It had already been proven that the compost bin developed by SEVANATHA is one mechanism for attacking these problems as well as a tool for households to manage their degradable waste within their premises. It helps to reduce the amount of garbage coming to municipal waste stream.

SEVANATHA had been requested by the SCCP to introduce the compost bin method to the DMMC area on a pilot basis. Funding support for the pilot project was arranged with NORAD.

3 WHAT IS A COMPOSTING BIN?

The compost bin is simple item of equipment which is made from a used 200-litre galvanised drum or barrel. The main features of the bin are:

- The bottom face of the bin is removed and ventilation holes are provided on the top half of the bin.
- One half of the top face of the bin is removed to provide a wide opening into which garbage can easily be put.
- Both the interior and exterior of the bin are painted with a green finish for visual beauty and protection from the weather.
- A cement-sand ring has been introduced to support the bin, so that bin does not come into contact with the ground.
- A galvanised steel plate lid is provided to cover the top of the bin to protect it from rainwater and to prevent animals and birds entering into the bin.

The cost of each barrel with the fabrication work is around Rs. 800 (US\$ 10). It was agreed that the 20% (US\$ 3) of the cost of the bin should be paid by the community and the balance from the project. Families were motivated to separate their waste into biodegradable and non-biodegradable components at source and dispose of their biodegradable waste (specially the kitchen waste) into the bin. Waste decomposes aerobically into compost over a period of three months. Generally, in middle and low-income settlements, most of the waste (85%) is biodegradable. The community was asked to hand over the rest of other non-biodegradable waste to municipal waste collectors who visit the area in once a week.

4 PROJECT PLANNING

DMMC has formed a Task Force on solid waste management under the SCCP project to prepare a Strategic Action Plan for the solid waste problem. During the first two months in 1999, a number of brainstorming sessions were organised for city's stakeholders including the electoral ward members in the DMMC.

After that, a city-wide planning session was organised, inviting all city stakeholders, to find ways and means of developing sustainable solutions for the city's garbage problem. This workshop was useful for all stakeholders to understand the social, technical and management problems in solid waste management in the DMMC area. Secondly, it helped the participants to realise the importance of introducing community-based, participatory waste disposal practices on a pilot scale. The compost bin was one of the mechanisms that this group discussed as a solution for the municipal waste problem.

The following key points were highlighted at the workshop for promoting the compost bin project

- The need for alternatives to the conventional municipality solid waste management practices.

- The communities – in fact every household - which generate garbage must bear part of the responsibility for proper disposal of their own waste.
- The need for changes in the attitudes of households and communities, to encourage them to rely on their own capacities and resources to contribute to solving the city's solid waste management problem.
- The communities can positively contribute towards reducing the volume of waste released to the city's waste stream.
- The people's organisations, NGOs, local authorities as well as the government should jointly work towards addressing the urban solid waste problem.
- The concept of reducing waste, and reuse and recycling of waste, can effectively be introduced at the community level first and then it can be scaled up.
- It was suggested that the compost bin should be promoted as an experiment for getting greater community participation.

5 PILOT PROJECT BENEFICIARIES

The project selected two communities of different income groups (middle and lower income) for the pilot project according to their interest in participating in the project.

Badowita Low Income Settlement: The Badowita Low Income Settlement is a resettlement project developed under the Greater Colombo Canal Improvement project during 1993/1994. The project area consists of five stages and has covered about 1000 families. The community has already established an active Community Development Council (CDC) within their locality for improving the environmental condition of the settlement.

Udyanaya Middle Income Area: The Udyanaya area is located within the municipal ward of Udyana along the Udyanaya road, which is quite close to the City centre. The area consists of about 200 middle-income families. They also have formed a Thrift and Credit Society within their settlement.

6 PROJECT IMPLEMENTATION STEPS

Step 1 - Community Mobilisation and Awareness Raising

SEVANATHA focused its special attention on an assessment of the needs and aspirations of the beneficiary families and on community participation in the project. With these considerations in mind, before initiating the project, a series of informal meetings, discussions and interviews were conducted with the households. In addition to informal meeting with the individual families, formal meetings with the officials of the CBOs were also held to explain the need for waste separation and benefits associated with the waste recycling and resource recovery (especially regarding composting).

The female members of the household were given training on how to segregate waste at source and compost the organic waste in the barrel.

In addition, area cleaning programmes, art and photograph exhibitions for youth, and health programmes were introduced to motivate the beneficiary families to participate in the programme. The whole process

of community mobilisation and awareness raising took almost four months, before actual implementation of the project. SEVANATHA used posters, leaflets, and video shows to build up awareness among these families.

Step 2 - Distribution of the Compost Bins

After the mobilisation process, a first group consisting of fifty members in each settlement was selected to receive the compost bins in an inaugural session. The CBOs organised a large ceremonial gathering inviting all beneficiary families, His worship the Mayor, and the officials of the municipality.

Step 3 - Installation of the Compost Bins

The locations for the installation of the compost bins were identified by each beneficiary family with the help of field staff of the SEVANATHA according to the following guidelines:

- The space needed to keep the compost bin is about 3'x 3' (0.9 m x 0.9 m) area.
- It can be kept near the kitchen or even at the front if space is available on the compound.
- It has to be kept at a place which does not become submerged by water during rainy days. A raised earth bed or at a high elevation point should be chosen to place the bin.
- Once a suitable place is selected on the plot, the cement-sand ring can be placed and the bin can be fixed onto the ring. The top of the bin should be covered with the GI lid provided with the bin.

Step 4 - Marketing of Compost

During the first year, the compost produced in the barrels was used by the beneficiary families for their own home gardening. But SEVANATHA and the CBOs are planning to establish a Waste Recycling Centre at Badowita to directly purchase compost produced by their members, to purchase non-biodegradable waste (such as paper, cardboard, bottles, plastic etc), and to manufacture compost barrels in larger numbers. The CBO is quite enthusiastic about the project as they can earn some extra money from their waste, which was previously creating a nuisance in their areas. Now the waste has been turned into a resource for them.

Progress by July 2000.

Pilot project area	Total number of housing units	Families using compost barrels
Badowita- Low Income Settlement	1000	425 (42%)
Udyana -Middle Income Settlement	200	120 (60%)

7 PROBLEMS FACED BY THE PROJECT

- Solid waste management is not a priority problem for the politicians, officials and the community in comparison with some other issues. Therefore, they have paid little attention to this problem. In order to solve this problem, SEVANATHA used a consultative, participatory process involving key stakeholders, and made efforts to integrate solid waste management with other municipal services.

- Most senior and field staff lack knowledge and experience concerning community-based, participatory approaches. Therefore, it was very difficult in the initial stages to convince them about this new method. SEVANATHA had organised field visits (locally as well as internationally) for sharing experiences of best practices to make them aware and to overcome this problem.
- During the monsoon period, water percolating into the barrels created an unpleasant smell. In order to solve this problem, the design was changed to raise the base of the barrel by introducing a cement-sand ring, so that water does not reach the contents of the composting barrel.
- During the first few months, if there was any problem related to use of the compost bins, community members always tried to contact SEVANATHA field staff for advice, because there were no experienced persons within the settlement. To meet this need for local expertise, SEVANATHA has trained a group of residents to handle emergency problems arising in the settlements.

8 LESSONS LEARNED:

- Urban solid waste management is primarily about behaviour change rather than technical and financial issues. Therefore, capacity building at every level (household, community, municipal and national) is necessary to facilitate behavioural changes of interest groups.
- Another important lesson learned is that it was not easy to promote a new solid waste management system in isolation. It is very important to integrate it with other environmental issues in the area such as drainage and sanitation.
- Active community participation is a key factor for sustainable community-based solutions.
- The project shows that the Municipality is willing to change certain regulations and attitudes when the community is organised and demands municipal services in an organised manner.
- This project has demonstrated that a collaborative partnership at local level between municipality, community and NGOs is important for sustainable solid waste management.
- Another lesson learned is that the women are key players in household garbage management, and so they can play a leading role in promoting waste separation.
- NGOs can play a critical role in facilitating a community-based process in solid waste management.

Abbreviations

DMMC Dehiwala - Mt.Lavinia Municipal Council

SCCP Sustainable Colombo Core Area Project

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