



28th WEDC Conference

Kolkata (Calcutta), India, 2002

SUSTAINABLE ENVIRONMENTAL SANITATION AND WATER SERVICES

A participatory approach to hospital waste management

Monir Alam Chowdhury, Bangladesh

IN THE WHOLE world there is a trends of rapid urbanization and it should be addressed accordingly. So local government in the cities are facing the challenges to provide the basic services to the city dwellers. Among the services one of the major components is solid waste management and hospital waste is the most risky among the urban waste. A portion of HW might be so hazardous, which causes a health risk for the urban dwellers. It is one of the important factors, which effects the urban environment. So if we talk about solid waste management, clinical/hospital waste management should get the highest priority. Keeping pace with this urbanization, the numbers of hospital, clinics and pathologies have also been increased. These organizations are producing a huge amount of hazardous waste.

Background

In Bangladesh the authorities responsible to manage this hazardous waste cannot perform their job efficiently for lot of limitations. Generally the hospital wastes are being managed with the domestic waste. It is disposed in the open community bin along with the normal waste. It is commonly scavenged by the boys/girls without any precaution, which might cause health hazard and infectious disease for the poor. Doctors, nurses and cleaners in the health institutions can also be affected from hazardous waste. ProdiPan an NGO took a noble initiative to start a clinical waste management service in Khulna city, situated in the southern part of Bangladesh. ProdiPan felt it when it was developing a community based solid waste management in the city.

Approach

Initial approaching to initiate a clinical waste management service was not an easy task. The clinic and pathology owners used to dispose of their waste in the community bin, which was very easy for them. So once we approached it to them, they were very reluctant towards the service, because this would require additional care, workers and money. We conducted detailed survey to assess the whole situation of hospital waste management. Then the dialogue was initiated with different stakeholders related with the service, Khulna City Corporation, Bangladesh Medical Association, Clinic/Pathology Owners Association and all the owners of clinic and pathologies. With the participatory appraisal, project organized a number of meetings, round table discussion and workshops to motivate the authority to bring them under CWMS. At one stage the owners were convinced and put the recommendations to initiate the

service. But again when question came of financial contribution, the majority owners of clinic and pathologies said no to the service. Various initiatives took place to convince them. Finally City Mayor took the initiative to call every body in a meeting and urged them to participate in the service for the betterment of the city dwellers.

Service

Finally in a very participatory way ProdiPan started the service with 20 clinics and pathologies out of 80 private clinic and pathologies in the city. The president and secretary of the clinical owners association settled amount of service charge from the clinic and pathologies. The beneficiaries had to involve extra labor, manpower and management to participate in the service. A colorful inauguration was made on 13th May 2000 at 1500 hrs in a local hotel. Khulna. City Mayor was the chief guest of the program. In three stages the service was implemented:

- Separation at source
- Collection and transportation
- Systematic treatment and disposal

Separation at sources

To ensure a sound hospital waste management, separation at source is a prime condition. So project tried to train the concerned staffs of Clinic/pathologies to do it properly. They do it in four ways:

- **Needle and sharps:** A plastic bottle is supplied to dispose this waste along with a bottle stand. After fill it up, the service staff collect it.
- **Syringe, saline bag and other plastic:** These are being kept in the covered plastic bin and cleared by the staff later.
- **Gangue, Bandage, Human organ, paper materials and others:** This also kept in the covered plastic bin and cleared later.
- **Kitchen waste:** It is kept outside within a plastic covered bin. In case of big clinics, it is cleared by the community service with the other domestic waste. Small quantity is cleared by the CWM service.

Collection and Transportation

Once the waste is kept properly, it is very important to collect and transport it systematically. One collector along with a van driver performs this job. One supervisor looks

after the overall service. The collectors are equipped with mask, hand gloves and long boots. Normally the staff start their collection in the morning at 0800 hrs every day from same clinic and same time. Collectors carry two buckets to take the waste from the clinic/pathologies.

Project has procured a specially designed auto van to transport the waste up to disposal site. One driver and collector are engaged with the van. It has been developed with four blocks. After collecting the waste it is transported to the disposal site, which is eight km distance from the city.

A systematic treatment and disposal

After collecting the clinical waste properly, sanitary disposal is very important. To have land, project approached to KCC to allocate a piece of land in their final disposal point. Khulna City Corporation has allocated a piece of land in their disposal site. It is about 8 kilometers south of the city. Project has fenced the disposal ground. There is a concrete blocked box to dispose the needle, syringe, sharp, glass type waste and other plastics. It has been made to protect the illegal reuse. There is another box to dispose the waste other than plastics.

- **Burning pit:** There is a local made single chamber burning pit. As the incinerator is too costly to procure and use as well, so to destroy the hospital waste project has installed the burning pit. It is a bit safer, as it has been installed in the disposal site. Hospital wastes other than plastic are burned here. This type of burning unit has the following main activities:
 - Removal of ashes left inside the ash chamber.
 - Manual loading of waste packages to be incinerated
 - Operate the ignition
 The brick made furnace has the following components:
 - Chimney (15 ft height)
 - Burning chamber
 - Flap lid
 - Fire bar
 - Ash chamber
 At a time it can burn 30 kgs of waste.
- **Shredder Machine:** It is important to give the priority on the treatment options, once the collection is done properly. One of the major risks is reuse the syringe and other plastics illegally. To protect that project has procured a shredder machine. This has become a technical development towards establishing a healthy hospital waste management. Before giving it for shredding the syringe are washed by the bleaching power. After cutting the syringe in pieces, there is a possibility of recycling it.

Financial matters

Service charge collection

To make the service cost effective, it is very important to look into the financial contribution from the beneficiaries. Service charge was imposed from the clinic and pathologies. In the first stage few clinics and pathologies were opposed to paying the service charge, but seeing the service very regular and quality, they paid the service charge.

The clinic and pathologies are paying service charge, as per the capacity, ranging from Tk. 150.00 to Tk.600.00 per month. So total income per month is about Tk. 6100.00

Still the service is expending about Taka 10,000 per month, but income per month is about Taka 6100 per month still there is a difference between income and expenditure of the service. The clinical waste management committee initiating dialogue with the city mayor to arrange the fuel support from KCC. If it is possible, then the service will be cost effective. Simultaneously initiatives are continuing to enroll other clinic and pathologies with the service. Also the existing service charge expected to be increased with mutual understanding.

We took certain steps to make the service effective.

- A) **Training for the clinical staffs:** We have organized a number of training for the Clinical staff like, nurses, cleaners and management staff. It was very hard to make the service effective without having skilled staff. Clinic and pathology authority also expressed their satisfaction on the training. We have already developed some papers and photograph and made transparencies for conducting training. Up to the year of 2001, we organized the training for the individual clinic and pathologies
- B) **New enrollment in the service:** In the year of 2000 we started with 20 clinics and at the end of the project now we are running with 25 clinics and pathologies. There is a demand from other clinics and pathologies but we could not take it due to the limitations in the transport.
- C) **Approach to government hospital:** As the government hospital is generating a huge quantity of waste, so we approached to them. They agreed in principle. We discussed this matter with KCC. Honorable Mayor told us to give a transport for this, but finally KCC could not give it for their limitations.

Government hospital also having lot of formalities to enroll them with the service, like permission from concerned directorate and arranging fund to contribute for the

Table 1. Service charges collected in first 18 months

1 st six months	2 nd six months	3 rd six months
Tk.30, 900.00	Tk. 29,420.00	Tk.35, 190.00

service. So they were convinced to start the service with their hospital. Even we provided training to the doctors, nurses and cleaners about how to maintain a healthy HWM. But for the unavailability of the sufficient transportation, we could not intervene the service with govt. hospital.

D) Position of KCC: It is true that Mayor took a very dynamic role to initiate the service in KCC area. But KCC could not take step to enroll the other clinic and pathologies with the service. They have also the resource limitations and lack of coordination with the other govt. body particularly the department of Environment.

Learning

- a. To make a program successful, it should be participatory
- b. There should be good coordination between city authority and the concerned stakeholders
- c. Service must be regular and qualitative to ensure the participation of the beneficiaries.

- d. They must contribute financially which will develop the ownership among them.
- e. In case of underdeveloped country, the program like hospital waste management should initiate with low technology
- f. The program should start with small area and subsequently replicate in the other area.
- g. It is very important to impose the strict law from the concerned authority to participate with the process.
- h. A massive awareness movement should continue.
- i. Different treatment options should initiate gradually.

MONIR ALAM CHOWDHURY, Project Coordinator,
Municipal Solid Waste Management Project, Prodipan,
Khulna, Bangladesh.
