

CHAPTER 10

PRIMARY COLLECTION OF WASTE

10.1. INTRODUCTION

Primary collection of waste is the second essential step of Solid Waste Management activity. Primary collection system is necessary to ensure that waste stored at source is collected regularly and it is not disposed of on the streets, drains, water bodies, etc. However, step has to synchronize well with the first step i.e. Storage of Waste at source.

10.2. PRESENT SCENARIO

In India, the system of primary collection of waste is practically non-existent, as the system of storage of waste at source is yet to be developed.

Doorstep collection of waste from households, shops and establishments is insignificant and wherever it is introduced through private sweepers or departmentally, the system does not synchronize further with the facility of Waste Storage Depots and Transportation of Waste. The waste so stored is deposited on the streets or on the ground outside the dustbin. Thus streets are generally treated as receptacles of waste and the primary collection of waste is done, by and large, through street sweeping.

An appropriate system of primary collection of waste is to be so designed by the urban local bodies that it synchronizes with storage of waste at source as well as waste storage depots facility ensuring that the waste once collected reaches the processing or disposal site through a containerized system.

10.3. MEASURES NECESSARY TO IMPROVE THE SERVICE

Local bodies should provide daily waste collection service to all households, shops and establishments for the collection of putrescible organic waste from the doorstep because of the hot climatic conditions in the country. This service must be regular and reliable. Recyclable material can be collected at longer regular intervals as may be convenient to the waste producer and the waste collector, as this waste does not normally decay and need not be collected daily. Domestic hazardous waste is produced occasionally. Such waste need not be

collected from the doorstep. People could be advised or directed to deposit such waste in special bins kept in the city for disposal.

10.4. STEPS TO BE TAKEN

- Urban local bodies may arrange for the collection of domestic, trade and institutional food/ biodegradable waste from the doorstep or from the community bin on a daily basis.
- Local bodies may also arrange through NGOs collection of recyclable waste material/non bio-degradable waste other than toxic and hazardous waste from the source of waste generation at the frequency and in the manner, notified by local bodies from time to time in consultation with the NGOs/Resident Associations, etc.
- Domestic hazardous/ toxic waste material deposited by the waste producers in special bins (provided by the local body at various places in the city) may be collected at regular intervals after ascertaining the quantities of such waste deposited in special bins.

10.5. ARRANGEMENTS TO BE MADE FOR PRIMARY COLLECTION

Local bodies should arrange for the primary collection of waste stored at various sources of waste generation by any of the following methods or combination of more than one method:

- Doorstep collection of waste through containerized handcarts/tricycles or other similar means with active community participation as shown in the photograph in Fig. 10.1:
- Doorstep collection of waste through motorised vehicles having non-conventional/sounding horns deployed for doorstep waste collection with active community participation.
- Collection through community bins from private societies multi-storied buildings, commercial complexes,
- Doorstep or lane-wise collection of waste from authorised/unauthorised slums or collection from the community bins to be provided in the slums by local bodies [as illustrated in Figure 10.2(A)].

**FIG. 10.1 DOORSTEP COLLECTION OF WASTE THROUGH CONTAINERIZED
HANDCART WITH PUBLIC PARTICIPATION**

FIG.10.2(A) PRIMARY COLLECTION THROUGH COMMUNITY BIN IN SLUMS

- House-to-house collection of waste from posh residential areas on full-cost-recovery basis where community participation is not to be done through NGO's efforts (as illustrated in Fig. 10.2 (B):

FIG. 10.2(B) HOUSE TO HOUSE COLLECTION OF FOOD/BIODEGRADABLE WASTE IN PRIVATE SOCIETY ON MONTHLY PAYMENT BASIS THROUGH PRIVATE SECTOR/NGO

10.6 TOOLS & EQUIPMENT

10.6.1 Hand Carts

The use of traditional hand carts should be discontinued and instead, hand carts having 4 to 6 detachable containers of capacity ranging from 30-40 litres i.e. 0.03 to 0.04 cu.m each should be used as shown in Fig.10.3. The containers should be of sturdy material preferably strong polyethylene/plastic with a handle on the top and rim at the bottom for easy handling of the container. The handcarts should have preferably three wheels and sealed ball bearing. There should be locking arrangement with a chain and a lock. The design and specifications of the handcart and the containers could be as shown in the Annexure 10.1.

FIG. 10.3 CONTAINERIZED HANDCART WITH 6 DETACHABLE CONTAINERS

10.6.2 Tricycles

Local bodies can use tri-cycles instead of handcarts in the areas which are spread out, and distances are long. The tricycles could have eight containers of 0.04 cu.m. (40 litres) capacity each as shown in Fig. 10.4 These containers should also be detachable from the tricycle and should have a locking arrangement.

FIG. 10.4 TRICYCLES HAVING 8 CONTAINERS FOR PRIMARY COLLECTION

10.6.3 Community Bin Carrier

A community bin carrier having a capacity to carry 40 containers (bins) in a two tier arrangement may be used to pick up community bins from residential areas and slums in the cities and towns where direct transfer of waste into the hand carts or tricycles is not found suitable. These vehicles with two member crew should pick up filled community bins and replace empty ones and take the vehicle, when 40 filled containers are picked up, to the nearest temporary waste storage depot (large container for transfer of waste) as illustrated in Fig. 10.5

FIG.10.5 USE OF COMMUNITY BIN CARRIER

10.7. METHODS OF PRIMARY COLLECTION OF WASTE

10.7.1 Door Step Collection through Containerized Handcarts

A bell may be affixed to the handcart given to the sweeper or a whistle may be provided to the sweeper in lieu of a bell. Each sweeper may be given a fixed area or beat for sweeping plus a fixed number or stretch of houses for collection of waste. The local bodies may, based on local conditions, fix the work norms as they deem appropriate. It is suggested that in congested or thickly populated areas, 250 to 350 running metres (RMT) of road length and the adjoining houses may be given to each sweeper, whereas in less congested areas 400 to 600 running metres of the road length with adjoining houses may be allotted to a sweeper depending upon the density of population in the given area and local conditions. In low-

density areas even 650 to 750 running metres of road length and houses can be given. Normally 150 to 250 houses coupled with the above road length may be taken as a yardstick for allotment of work to an individual sweeper.

10.7.2 Role of Sweeper

The sweeper should ring the bell or blow the whistle indicating his arrival at the place of his work and start sweeping the street. The people may be directed through adequate publicity campaign that on hearing the bell or whistle they should deposit their domestic biodegradable waste into the handcart of the sweeper or hand over the waste to him/her.

At places where it is not convenient for the householder to deposit the waste in the handcart/tricycle, on account of their non-availability at home when sweeper arrives in their areas, they may leave the domestic waste in domestic bins or bags just outside their houses on the street in the morning so as to enable the sweepers to pick up the waste and put it into the handcart.

No sweeper may be expected or directed to do house-to-house collection by asking for waste at the doorsteps, as this will affect his energy and productivity.

10.7.3 Collection through Motorised Vehicles

Local bodies as an alternative to doorstep collection through containerised handcarts may deploy motorised vehicles having unconventional/sounding horn for doorstep collection of waste. Driver of the vehicle should intermittently blow the horn announcing his arrival in different residential localities and on hearing this, the householders should deposit their domestic waste directly into such vehicle without loss of time.

10.7.4 Primary Collection of Waste from Societies/Complexes

In private societies, complexes and multi storied buildings, normally no sweepers are provided by local bodies, hence private sweepers are generally engaged. It may therefore be made compulsory for the management of the societies, complexes and multi-storeyed builders, to keep community bins or containers in which dry and wet waste may be separately stored by there residents. Such bins may be placed at easily approachable locations to facilitate convenient collection by the municipal staff or the contractors engaged by the local body. The local body should arrange to collect waste from these community bins/containers through handcarts, tricycles, pick-up vans, or other waste collection vehicles as may be convenient, on a daily basis.

To facilitate collection of waste from societies or commercial complexes, the local bodies should by a rule, make it obligatory for them to identify an

appropriate site within their premises for keeping such bin/container for the storage of waste.

10.7.5 Collection of Waste from Slums

Local bodies should collect waste from slums by bell ringing/whistle system along their main access-lanes. Residents should bring their wastes from their houses to hand carts. Where slum residents prefer community bins, they should bring their biodegradable waste to these bins only an hour or two before the time of clearance. The local body may, if so desired, engage a private contractor for collection of such waste. Performance certification by a “Mohalla (local level) Committee” may be insisted upon in such cases.

10.7.6 Collection-at-the Doorstep in Posh Residential Areas

In posh residential areas where the residents as a whole might not be willing to bring their waste to the municipal handcart/ tricycle, system of collection from the-door step on full cost recovery basis may be introduced. This service can be contracted out by the local body or NGOs or contractors registered with the local body may be encouraged to provide such service in the areas where it is found economically viable to introduce door to door waste collection service. This service may not be provided to isolated houses, shops and establishments. Penal provisions may be introduced for failure of service where contracts are proposed to be awarded.

10.7.7 Collection of Duly Segregated Recyclable/Non-biodegradable Waste from Households

Recyclable waste has a value. Several rag pickers in the urban areas, therefore, move from street to street, bin to bin and go to the dump yard to pick up recyclable waste. These rag pickers are exposed to health risks as they put their bare hands in contaminated waste. They sell contaminated waste to the waste purchasers stored in slums creating unhygienic conditions. Quite often they spread the waste at the dust bin site to pick up recyclable. This system can be improved by introducing a system of collecting recyclable waste from the doorsteps changing the roll of rag pickers to that of waste collectors. This informal sector could thus be organised through NGOs, upgraded and given an opportunity to earn their living through doorstep collection of unsoiled recyclable waste.

NGOs may be activated to organise the rag pickers and convert them into door-step waste-collectors to improve their quality of life and to reduce their health risk. This will also increase their income levels. NGOs may allot to such waste collectors specified lanes and by-lanes comprising of 150 to 250 houses and

some shops for doorstep collection of recyclable. They may also be given identity cards by the NGOs for increasing their acceptability in society. NGOs and/or the corporation may support such waste collectors by giving them bags and tools required for collection of recyclable waste from the doorsteps. The local body may also inform the community of the arrangements made by the NGO and advise them to avail of the services as illustrated in the Fig. 10.6.

FIG. 10.6 HOUSE TO HOUSE COLLECTION OF RECYCLABLE WASTE THROUGH A WASTE COLLECTOR (UPGRADED RAGPICKER) – AN NGO EFFORT.

10.8 ENCOURAGEMENT TO NGO'S / PRIVATE SECTOR

Local bodies may also encourage NGO/private sector to collect both food/biodegradable waste as well as recyclable waste from the door steps on their own by making direct contractual arrangement with the residents' associations/commercial complexes to reduce their financial burden.

10.9 COLLECTION OF WASTE FROM SHOPS AND ESTABLISHMENTS

Shops and establishments normally open after 9 am. These timings do not synchronize with the usual work schedule of sweepers. Under such a situation one of the following alternatives may be adopted.

- Sweepers may first carry out the work of street sweeping in the morning hours as usual and soon thereafter take up the work of door-step collection of waste, after most of the shops have opened.
- Waste collectors (rag pickers) may be organised to collect the recyclable waste from shops and establishments as soon as they open, as most of such waste is recyclable. Working arrangements may be made with the shops and establishments accordingly. The shops & establishments may be asked to store waste in two bins if they produce waste other than recyclable waste also. This arrangement may be made on 'No payment' basis on either side.
- The recyclable material received by the waste collectors directly from shops and establishments would give them a better return. The waste would be dry and not soiled and would fetch a good price in the market. This will work as an incentive for them to continue door to door collection.

The associations of markets, shops and establishments may be persuaded to organise this service with the help of NGOs and waste collectors in their market.

Note of caution:

Rag picking is an informal income-generating activity undertaken by a poor strata of society. The suggestion to improve their lot by upgrading them to the level of doorstep waste-collector is only with a view to improve the quality of life of the rag-pickers, relieve them from the dirty work of picking up soiled and contaminated waste to earn their living, integrate them in the mainstream of society by giving them access to the houses, shops and establishments to collect recyclable waste from the door step in the same informal manner. The rag-pickers should not, therefore, be given any formal employment on a daily or monthly wage by local bodies or even by NGOs as it may attract the provisions of labour laws. The NGOs should only help in improving their lot by organising them and need not play a role of their employers for the primary collection of recyclable waste from the doorstep. At the same time they should not be prevented by law from engaging in this occupation.

- Doorstep collection service from shops and establishment may be provided or may be contracted out on 'full cost-recovery' basis.
- Large commercial complexes could use 3.0 cu.m to 7.0 cu.m containers, which are commonly used by the local bodies for community storage of waste so that its transportation could be synchronized by local bodies along with other containers, kept in the city.

10.10. COLLECTION OF BIO-MEDICAL WASTE

Collection of bio-medical waste should be done in accordance with the rules/directions contained in the Ministry of Environment & Forests, Govt. of India Notification dated 20th July 1998 as the liability for safe disposal of bio-medical waste is on such waste producer and the local body as such is not directly responsible to provide any service. The recommendations given in the chapter on biomedical waste (Chapter 7) in the manual may be followed.

10.11. COLLECTION OF HOTEL AND RESTAURANT WASTE

Hotels and restaurants may make their own arrangements for collection of waste through their own association, or local bodies may extend help in primary collection of such waste by deploying their own manpower and machinery for door step collection of such waste on full-cost-recovery basis. The cost could be recovered on pro-rata basis. Doorstep service may be contracted out by local bodies if so desired.

Charges for the collection of hotel waste may depend upon the quantity of waste to be picked up from the hotels and restaurants and frequency of collection required.

The cost recovery may be planned according to the classification of hotels/ restaurants made on the above basis and decided in consultation with them.

Thorough survey of the waste generation by hotels/ restaurants may be made before the collection rates are introduced and notified.

10.12 VEGETABLE, FRUIT, MEAT AND FISH MARKETS WASTE

Such wastes should be removed on a daily basis either departmentally or through contractors on full or part-cost-recovery basis as may be deemed appropriate by local bodies.

Large containers kept in the fruit and vegetable markets should be removed during night time or non-peak hours and the waste from meat and fish markets

should be collected through closed pick-up vans service by engaging a contractor, or departmentally as deemed expedient by the local body.

10.13 COLLECTION OF GARDEN WASTE

The waste stored in public and private parks, gardens, lawn plots etc. should be collected on a weekly basis by arranging a rotation for collecting such waste from different areas, on different days to be notified to the people to enable them to trim the trees and lawns accordingly and keep the waste ready. This waste may be got collected through a contractor or departmentally as deemed appropriate by the urban local authorities. Cost recovery may be insisted upon, based on the volume of waste collected.

10.14 COLLECTION OF WASTE FROM MARRIAGE HALLS, KALYAN MANDAPS, COMMUNITY HALLS, ETC.

The special arrangement should be made for collection of waste from marriage halls, kalyan mandaps, community halls, etc. daily on a full-cost-recovery basis. The cost of such collection could be built into the charges for utilising such halls. This service may be provided preferably through a contractor or departmentally as the local bodies deem fit. On-site, processing of food wastes by bio-methanation and composting may be encouraged.

10.15. COLLECTION OF CONSTRUCTION AND DEMOLITION WASTE

- Local bodies should prescribe the rate per tonne for the collection, transportation and disposal of construction waste and debris and notify the same to the people.
- Every person who is likely to produce construction waste may be required to deposit with the concerned local body an approximate amount in advance at the rates as may be prescribed by the local body from time to time, for the removal and disposal of construction waste from his premises by the local body. Such amount may be deposited at the time when the building permission is being sought and in cases where such permission is not required, at any time before such waste is produced.
- The charges for removal of construction waste to be doubled for those who fail to deposit the amount in advance.
- Large local bodies may provide skips (large containers) to the waste producers on rent for the storage of construction waste so that double handling of the waste can be avoided or use front end loader & trucks to pick up such waste. In small towns this may be done manually using trucks, tractors and manpower.

- To facilitate disposal of small quantities of construction/demolition waste, large containers may be placed in various parts of the city where waste producers may deposit small quantities through private labourers, cart pullers, donkeys, etc. and such waste may be collected by ULBs from time to time before such containers start overflowing.

10.16. DAIRY AND CATTLE-SHED WASTE

The dairies and cattle breeders having sheds within the city limits should be asked to move the cattle sheds outside the city limits and until this is implemented they should be directed not to stack the cow dung, grass or other stable wastes within their premises or on the roadside. They must transfer the waste produced by them daily into the specified municipal storage containers nearby, which should be collected at regular intervals by local bodies.

10.17 COLLECTION OF DOMESTIC HAZARDOUS & TOXIC WASTE

Collection of Domestic Hazardous & Toxic Waste such as used batteries, paints, broken tube lights, expired medicines and others shown in chapter of Storage of Waste kept separately in the bins placed in various parts of the city should be collected periodically by the urban local bodies and got segregated and disposed of as per the hazardous waste management rules of the Government of India.