

**Standard Operating Procedure for
Setting Up & Operation of Secondary Storage & Transportation Facilities for
Municipal Solid Waste**



CENTRAL POLLUTION CONTROL BOARD
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Standard Operating Procedure (SOP) for Secondary Storage & Transportation Facilities of Municipal Solid Waste

1.0 Background

Original Application No. 92/2023, filed by Neel Mani (Applicant) versus Municipal Corporation of Delhi & Others, pertains to health and hygiene concerns due to the establishment and operation of a secondary garbage storage depot (Dhalao) located next to Plot No.74, West Friends Colony, New Delhi. The applicant raised grievances regarding the establishment and operation of the said dhalao, which has caused serious health and environmental issues. Hon'ble NGT in the aforementioned matter vide order dated 4.09.2023 & 27.11.24 (**Annexure I**) has directed CPCB to look into the aspect of issuance of appropriate Standard Operating Procedure (SOP) on the subject applicable to all States/UTs.

This document has been prepared by CPCB in compliance of the aforementioned order of Hon'ble NGT.

2.0. Legal framework for Secondary Storage & Transportation facilities under Solid Waste Management (SWM) Rules, 2016

The following are the provisions in the SWM Rules 2016 (**Annexure II**) related to secondary storage and transportation of Solid waste:

Rule 3(24) "**primary collection**" means collecting, lifting and removal of segregated solid waste from source of its generation including households, shops, offices and any other non-residential premises or from any collection points or any other location specified by the local body;

Rule 3(43) "**secondary storage**" means the temporary containment of solid waste after collection at secondary waste storage depots or MRFs or bins for onward transportation of the waste to the processing or disposal facility.

Rule 15: Stipulates the provisions related to collection, storage & transportation of Solid Waste. As per the Rules, the local authorities and Panchayats shall, -

- Setup material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorized waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities;
- Establish waste deposition centres for domestic hazardous waste and give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal.
- Collect waste from vegetable, fruit, flower, meat, poultry and fish market on day-to-day basis and promote setting up of decentralized compost plant or bio-methanation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions;
- Collect separately waste from sweeping of streets, lanes and by-lanes daily, or on alternate days or twice a week depending on the density of population, commercial activity and local situation;
- Set up covered secondary storage facility for temporary storage of street sweepings and silt removed from surface drains in cases where direct collection of such waste into transport vehicles is not convenient. Waste so

collected shall be collected and disposed of at regular intervals as decided by the local body;

- Transport segregated bio-degradable waste to the processing facilities like compost plant, bio-methanation plant or any such facility. Preference shall be given for onsite processing of such waste;
- Transport non-bio-degradable waste to the respective processing facility or material recovery facilities or secondary storage facility.

It is to be noted that SWM Rules, 2016 do not permit Secondary storage of biodegradable/ unsegregated waste. The same is permitted for sorting recyclable waste and temporary storage of street sweepings and drain silt. The term “Dhalao” has specifically not been addressed in the SWM Rules, 2016

3.0. Swachh Bharat Mission MSW Management Manual

Ministry of Housing and Urban Affairs has prepared the “Swachh Bharat Mission MSW Management Manual” Detailed aspects related to segregation, collection and transportation of solid waste have been covered in Section 2.0 of Part II of the Manual (**Annexure III**). The Manual on Municipal Solid Waste Management provides guidance to urban local bodies on the planning, design, implementation and monitoring of municipal solid waste management systems for effective implementation of SWM Rules, 2016 across the Country. The following aspects of Secondary Storage Points have been covered in the manual:

- The Secondary storage points can be cement concrete bins, masonry bins, and dhalaos which are being replaced by metal containers due to hygiene and other related issues .
- Fixed compactors transfer stations (FCTS) have been introduced as ideal replacement for the traditional dhalaos and act as mini transfer stations. Compared to transfer stations, the FCTS require much smaller area hence more number of them can be developed in a ULB.
- Wherever possible, it is advisable to synchronise primary collection and secondary collection, thereby avoiding the need for secondary storage bins or depots.
- In general, waste storage containers should be covered and designed to facilitate mechanical lifting to avoid multiple handling and environmental harm. The design of waste storage containers or depots (secondary collection points) should be synchronous with the design of vehicles deployed for both primary and secondary waste collection.
- At the secondary collection points segregated waste must be stored on site in separate covered bins or containers for further collection. Further, ULBs should ensure that at secondary storage points the waste should be attended daily or before container starts overflowing
- It is necessary to wash community bins at regular intervals to ensure a healthy and hygienic environment for users and workers. It is specifically mentioned that secondary waste storage is cleaned once in a month and should be painted once in a year. Periodic inspection of the such depots should be carried out once in three a month and repaired.
- Vehicles and equipment for Secondary Storage Collection have also been specified such as Bins for community places to be lifted by mechanised container & mobile compactors for transfer points etc..

4.0. Status of Secondary Storage & Transportation Facilities (SSTF) of Solid Waste

- Secondary storage points are required for secondary collection of waste. In most of the cities, such waste storage depots exist which are either civil structure / concrete bins or metal bins or Dhalaos (which has specifically not been addressed in the SWM Rules, 2016)
- Indiscriminate disposal of unsegregated waste, which is not permitted as per SWM Rules, is observed at such facilities leading to adverse impact on the surroundings including the following:
 - **Odor and Bad Smell:** These storage points often emit a foul, affecting the surrounding area's quality of life.
 - **Littering:** Animals and rag pickers rummage through the waste, causing litter around the depot.
 - **Leachate Contamination:** Liquid waste (leachate) from the garbage can seep into the soil, contaminating it and potentially polluting groundwater. Rain can exacerbate this by carrying waste and leachate to nearby area.
 - **Pest and Vector Breeding:** Dhalaos act as reservoirs for pests like rats and vectors like flies and mosquitoes, posing health risks.
 - **Traffic Congestion:** Occupying road space, these depots contribute to traffic issues if they lie nearby roads.
 - **Aesthetic Degradation:** Dhalaos often create an unsightly appearance, reducing the visual appeal of the area and lowering its perceived cleanliness.
 - **Unhygienic Conditions:** Poorly managed waste storage leads to unhygienic conditions, attracting stray animals and increasing the risk of disease transmission.

- **Non-compliance with Waste Segregation:** Secondary storage depots often fail to maintain proper segregation of waste as per provisions of rule 15 of SWM Rules, 2016.
- **Environmental Degradation:** Poor waste management at these sites leads to soil and water contamination and impacts real estate values due to the degraded surroundings.

5.0. SOP for Setting Up & Operation of Secondary Storage & Transportation Facilities (SSTF) of Solid Waste

5.1 Classification of SSTF

Based on the provision for Secondary Storage in SWM Rules, SBM Manual and status of existing SSFs, the following SOP is proposed for Setting Up & Operation of SSTFs. The following two categories of waste handling facilities have been covered in this SOP:

(a)Secondary Storage Facilities(SSF):

- These are facilities with designated infrastructure for waste storage and sorting facility and include Material recovery facilities. Civil structures/large size Metallic containers.
- SSFs serve as intermediate locations for temporarily holding segregated waste collected from primary collection sources before being transported to processing or disposal facilities.
- SSFs are to be used for temporary storage of non-biodegradable, recyclable materials and street sweepings & silt removed from surface drains in cases

where direct collection of such waste into transport vehicles is not possible. They are not to be permitted for biodegradable waste as SWM Rules do not permit intermediate storage of biodegradable waste

(b) Secondary transportation facilities (STF): Fixed Compact Transfer Stations and mobile equipment such as Compactor Containers, Refuse Collector without Compactor are used for secondary transportation of waste without storage. STFs can be used for both biodegradable (such as kitchen waste, food waste from restaurants etc. as well as recyclable (such as plastics, Glass, metal scrap etc.) and road sweeping & drain silt

5.2 Issues related to Secondary Storage & Transportation Facilities (SSTF)

- Secondary storage points are required for secondary collection of waste. In most of the cities, such waste storage depots exist which are either civil structure / concrete bins or metal bins or Dhalaos (which has specifically not been addressed in the SWM Rules, 2016)
- Indiscriminate disposal of unsegregated waste, which is not permitted as per SWM Rules, is observed at such facilities leading to adverse impact on the surroundings including the following:
 - **Odor and Bad Smell:** These storage points often emit a foul, affecting the surrounding area's quality of life.
 - **Littering:** Animals and rag pickers rummage through the waste, causing litter around the depot.
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- **Traffic Congestion:** Occupying road space, these depots contribute to traffic issues if lies nearby roads.
- **Aesthetic Degradation:** Dhalaos often create an unsightly appearance, reducing the visual appeal of the area and lowering its perceived cleanliness.
- **Unhygienic Conditions:** Poorly managed waste storage leads to unhygienic conditions, attracting stray animals and increasing the risk of disease transmission.
- **Non-compliance with Waste Segregation:** Secondary storage depots often fail to maintain proper segregation of waste as per provisions of rule 15 of SWM Rules, 2016.
- **Environmental Degradation:** Poor waste management at these sites leads to soil and water contamination and impacts real estate values due to the degraded surroundings.

5.3 Identification of Location Criteria for Setting up of SSF and placement of STF

Location for Setting up SSF should be identified taking into consideration the following points:

- Placement of Secondary Storage facilities to be avoided in densely populated areas. The same to be placed in isolated areas and should not be placed adjacent/near to sensitive areas such as schools and hospitals.
- SSFs should be avoided near water bodies, flood-prone zones, or ecologically sensitive areas to prevent contamination and environmental damage.

- Location at which the STF is to be placed should also be identified following the above criteria

5.4 Demarcation of land for SSF and STF

The required land for the identified SSF should be clearly demarcated as per the following criteria:

- a. **Mapping of SSF:** The catchment area of the SSF is to be clearly specified
- b. **Quantity of waste:** The quantity of waste to be handled by the SSF is to be assessed based on the waste generated in the defined catchment area of the SSF
- c. **Assessment of Land required for setting up of SSF:** The land required should have sufficient area for setting up the required plant and machinery and also have sufficient space for movement & parking of pick-up and drop vehicles
- d. The parking zone for where STF is to be placed should also be clearly demarcated following the aforementioned criteria.

5.5 Design Considerations of SSF and STF

The following criteria to be taken into consideration for both SSF and STF (as applicable)

- Provisions for Segregation of Solid Waste as per provisions of SWM Rules, 2016 at all levels, including primary collection & transportation as well as secondary collection and transportation, to be made as required for processing of Solid Waste
- Concrete structures (dhalao) for dumping of mixed solid waste not to be permitted as per SWM Rules

- The capacity of machinery should be determined based on the volume of waste generated in the catchment area to avoid overflow and ensure smooth operations. should be 200% more than the expected daily in-flow of waste
- Machinery should be compatible with the design and capacity of primary and secondary collection vehicles for efficient waste transfer and reduced handling time.
- The SSTF operations should be synchronized with movements of primary and secondary collection vehicles to optimize its usage and also avoid the need for secondary storage bins (dhalaos) or depots.
- The collection and transfer should be so planned so as to minimize the number of intermediate transfers, prior to disposal to the final processing facility
- Fencing should be provided around SSFs to prevent illegal dumping and unauthorized access to the facility

5.6 Environmental Protection Measures

The following measures should be taken to minimize adverse environmental impact of the SSF and STF

- **Covered storage:** The collection & storage equipment should be covered to avoid ingress of rain water.
- **Lining:** Lining of impervious material to be provided in case of SSF, so as to restrict percolation of waste water/leachate to prevent groundwater contamination.
- **Odour management:** Necessary measures, including properly designed equipment to avoid spillage, regular synchronized collection of waste to prevent waste decomposition, spray of disinfectants and deodorants to be taken to minimize odour due to waste handling at SSF and STF.

- **Leachate Management:** - Adequate provisions for collection, treatment and disposal of waste water generated from SSF and STF to be made as per stipulated norms
- **Rejects:** The rejects generated at SSF to be managed properly as per provisions of the relevant Solid Waste Management Rules
- **Fire management:** Appropriate fire prevention measures to be taken by Local bodies to prevent fire incidents at SSF
- **Impact on Aesthetics:** Green belt to be developed wherever possible. or barriers to be erected around the SSF to minimize depreciative impact of the SSF on the aesthetics of the surroundings. Temporary barriers to be placed during operations of STF

5.7 Operation & Maintenance of Secondary Storage & Transportation Facilities

The following O&M measures to be adopted for efficient SWM at SSTF

- Proper logbook giving details of quantity/frequency of waste transported from /to the SSF & STF to be maintained by the local bodies
- Regular cleaning of the SSF & STF to be carried out at least once in a month
- Painting of the equipment with prescribed colour as per provision of SWM Rules to be carried out at least once in a year
- Adequate facilities for repair and maintenance of the equipment to be provided by the local bodies
- Logbook giving details of cleaning and maintenance activities of SSF & STF to be maintained by the local bodies and to displayed on their website
- The staff engaged in maintenance be equipped with PPEs and training and awareness be imparted on proper upkeep of such points.

- All STFs to be provided with GPS to track their movement and their movements be monitored by the Local bodies.

5.8 Monitoring by SPCBs/PCCs

- The Local bodies to provide the details of SSFs (including their GPS locations) along with the collection and transportation plan to the concerned SPCBs/PCCs. Such details to be displayed on the SPCB/PCC websites.
- Regular inspection of SSF & STF to be carried out by the concerned SPCBs.
- Record of such inspections and action taken on violations, if observed, to be maintained and also displayed on the concerned SPCB/PCC website.

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23/12/2024

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