

## **Smart waste collection system**

### **Name of project:**

Smart waste collection system

### **Background:**

Surat city generates approximately 2000 TPD of waste. Most of the waste is collected through Door to Door garbage collection system. For the waste generated through sweeping, night brushing activities and some commercial areas there are about 1100 containers throughout the city. Everyday filled containers are replaced by empty containers. To improve and make this container system more efficient pilot of underground waste bin is proposed under Smart city mission in Area Based Development (ABD) projects

### **Vision:**

Under smart city project Health Department, Surat Municipal Corporation has identified 75 container spots which will be upgraded with smart underground dustbins as a pilot project. It includes automatic emptying of underground dustbins and their cleaning.

Under this project underground fabrication along with dustbins will be constructed and then ownership will be transferred to SMC. Bin lifting and maintenance along with software will be done on O & M basis.

Feasibility study is done and DPR is prepared by TCE. Tender was floated on 03-03-2017. After successful tendering the project has been awarded to Jigar transport company. Estimated cost of the project is 13.31 cores. This include installation and 5 years of O & M. The size of the underground dustbin is 3 Cubic meters.

SMC is trying to reduce human efforts from waste collection system. SMC is exploring smart bin option for waste collection system to have following benefits.

- Better environment; No bad odor from smelly dirty bins
- Secured collection; no overflowing bins or stray animals feeding on waste
- Better outlook; no filthy corners, waste eyesore no more
- Citizen friendly waste disposal; increase awareness among citizen
- Cost saving; no broken/stolen and dirty garbage bins
- Easy to install, collect and dispose garbage hence, an effective alternative to present situation

**Sector:**

Public Health

**Cost and financing:**

- SCP Cost – Rs. 5.00 Cr
- DPR Cost – Rs. 13.31 Cr
- Tender Estimated Cost - Rs. 13.31 Cr
- Tender Sanctioned Cost - Rs. 13.85 Cr
- Convergence Scheme/PPP/SMC – Rs. 4.56 Cr (Swachh Bharat Mission)
- Convergence/PPP/SMC Costing- Rs. 9.29 Cr

**Brief Description (Technical Details):-**

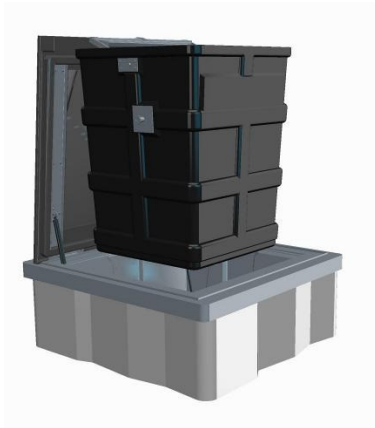
- One external casing designed to provide exterior finishing to concrete bunker. The colored stickers are provided on the bins marking mixed municipal waste including pictograms writings to help people clearly identify the bins for the use of depositing general waste in the bins.
- One polyethylene concrete bunker cover/lid not designed with the trap door to deposit waste. The lockable lid is fitted with 2 industrial Gas cylinders to open and close the cover.
- One 3 m<sup>3</sup> with MDPE close bottom container of 1350 x 1300 x 1700 mm size, thickness of 7 mm on flat side and 10mm on reinforced side having empty weight not exceeding 150 kg with 2 mm galvanized metallic interior to prevent fire and 1-hook lifting system assembled on the outside part of the container. The thickness of MDPE container must be of 7 mm and 10mm on flat and reinforced side respectively
- The entire system is in accordance to the standard EN13071-1 EN 13071-2 and the test reports and results by an accredited domestic or foreign laboratory shall be provided.

**Dimension**

- Opening 1.35 x 1.30 m
- Height of 3 m<sup>3</sup> container 1.7 m

**Weight**

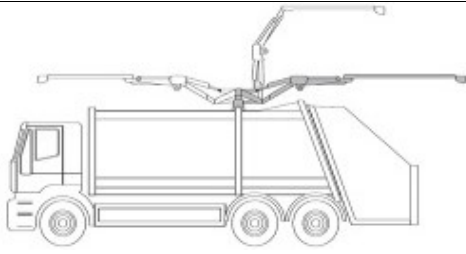
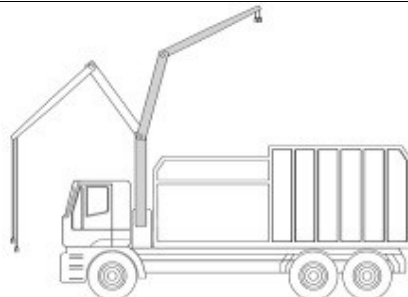
- 3 m<sup>3</sup> closed bottom container: 100 Kg



**Semi-underground with closed bottom container**

***Waste Collection Vehicles and its Attachments***

The waste collection vehicles are the truck with capability to install PTO gear box on chassis for installation of fully automated crane and mobile compactor Unit. There are two types of waste collection vehicles Rear-loading vehicles and Top-loading vehicles are used for waste collection purpose.

	
<p>Rear-loading vehicles with Mobile compactor</p>	<p>Top-loading vehicles with Mobile compactor</p>

**Figure- 3-3 Waste Collection vehicles**

Its Special purpose Vehicle Mounted Refuse Compactor Machine, Mounted on 16 Ton to 25 Ton GVW Chassis with PTO and Hydraulic Assembly. It also includes 20 ton/meter crane which can be mounted on truck which can be operated directly from driver cabin. A **Crane** with Lifting Hook, Radio Remote Control, Overload Protection, 3-Section Hydraulic Boom, Telescopic Outriggers medium as per the attached Technical Specifications.

**Speciality/ Benefits:**

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**Implementation plan:**

**Current status of the project**

- Work in progress. Project implementation will start after monsoon.

**Likely completion date of project:**

- February-2018

**Site Plan (Google Map)**

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**Site Photographs (High Resolution Image, before & after implementation)**

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