AWARDS

WEALTH FROM WASTE

VISION
To provide most cost-effective and efficient solid waste collection and disposal service while providing maximum practical protection to environment for a zero-waste city.

SUSTAINABLE WASTE MANAGEMENT INITIATIVES
Of the many duties a municipal corporation is expected to perform, solid waste management is by far one of the most important services. Pune city has taken a multi-dimensional approach to overcome the challenges of urbanisation. The solution lies in using different technologies tailor made to solve the specific needs at the local level.

To keep up with the increasing pressure on its infrastructure and the ever-increasing demand for such services from the citizens the municipal bodies have to plan for the future. PMC is leading the way in preparing a detailed vision plan 2025 for managing its solid waste.

In order to develop a comprehensive vision plan, PMC is evaluating its compliance with the existing rules, taking stock of the current infrastructure, identifying the gaps in the existing system, and planning for the future course of action by developing components involving IEC, enhancing collection and transport systems, policy and process modifications, infrastructure needs, and developing a detailed financial plan.

The vision plan involves the use of various technologies and integration of the informal sectors combined with using sensor bins, movable cameras, GPS tracking of collection vehicles, PET bottle crushing machines, generation of bio-CNG to run city transport vehicles and generation of power to light the streets.

Elected Representatives, Citizens, Corporates, NGOs and the Administration have come together and mutually agreed to execute solutions to make Pune an "Eco-friendly Smart City".

**OVERVIEW OF WASTE MANAGEMENT**

- Pune generates 1600-1700 tons of solid waste per day.
- 160 trucks collect waste door-to-door, collecting an average of 198 tons per day.
- 563 containers and 116 compactor buckets dispersed around Pune.
- Ward wise average - 350 to 750 gms per capita per day.
- Construction and demolition waste generation - 150-180 TPD
- Garden waste generation - 50-60 TPD
- Biomedical waste – 5-6 TPD

**CURRENT PROCESSING OF WASTE**

**ORGANIC WASTE**

Centralised as well as decentralised processing facilities have been set up by PMC since 2009 resulting in a reduction of GHG by 5.8 times as surveyed by TERI in 2012.

Mandatory on site waste disposal facility at residential and commercial properties constructed after 2000. A 5% tax rebate is provided on rateable value to encourage citizens to maintain this facility at society and individual levels

- **Noble Exchange Pvt Ltd.**: 300 TPD; Bio CNG at Baner and Talegaon
- **Ajinkya Biofert & Disha Waste Management**: 300 TPD; Vermi compost and compost at Hadapsar Ramp & Ram Tekdi Industrial Estate
- **Mechanical compost, Thermal compost & Microorganism** 50-100 TPD; Vermi compost and compost at 13 decentralized plants
- **Biomethanation**: 120 TPD; Electricity and Compost at 25 Decentralized Plants
- **Rochem Separation Systems**: 300-350 TPD; RDF at Ram Tekdi Hadapsar
PLASTIC WASTE

Plastic products have become an integral part of our daily life encouraging its production. 70% of this production is converted to waste. To address this problem and make Pune a plastic waste free city or zero plastic to land fill, PMC has

- 200 material recovery centres, to Reduce, Reuse, Recycle and Recover 170 to 180 MT of plastic waste it generates per day
- PET bottle crushing machines at 20 locations with high pedestrian footfalls
- Toll free number 1800233 3232 where citizens can call and inform regarding the recyclable waste

CONSTRUCTION AND DEMOLITION WASTE

PMC generates approximately 250 MT per day of C&D waste from various sources. To address the C&D waste, PMC has

- PMC has prepared a DPR to understand quantity, quality and sources of C&D waste
- Consultation with various stakeholders and understanding their concerns
- Developed and floated separate tenders for collection and transportation as also for processing and disposal of C&D waste
- District administration has already allocated 2 acres of land at Wagholi

E-WASTE COLLECTION

Defined as the waste generated from used electronic and electrical appliances which are not fit for their intended use, E waste is classified as a hazardous waste because it contains many toxic ingredients including halogenated compounds PCBs and heavy metals. Presently collected by bhangarwallas and scrap shops around the city it makes its way to scrap markets. Collection, segregation, dismantling reuse, recycle refurbishment, export, open burning and land fill, presently e waste processing in India and Pune is managed by very well networked informal sector.

Pune region, which includes Pune city, PimpriChinchwad, the cantonment areas around Pune and the IT belt in Hinjewadi, generates around 10,000 MT per annum.

PMC has undertaken the following activities to tackle the situation:

- Formation of core committee
- Review of activities according to work packages
- Conducted a study through their field staff to understand how scrap shops in the informal economy deal with E waste
- Designed printed and distributed IEC material

- Various workshops organised for awareness of citizens, students and waste generators
- Tie up with formal recyclers
- E-waste collection drives, ‘V collect’, are organised by PMC
- An authorised E-waste collection centre at Kothrud is functional.

BIOMEDICAL WASTE

- PMC has outsourced collection, transportation and disposal of biomedical waste from various health care establishments
- 5 ton capacity being augmented upto 10 tonnes
- The biomedical waste is collected through 7 vehicles with GPS tracking systems from 400 collection points across the city
- The waste is collected in 3 colour coded bags - yellow (for incineration), red (shredding or recycling or landfill) and white (sharp and glass material that is chemically treated and sent to hazardous treatment plant located at Ranjangaon)
- PMC proposes an on call service by two wheelers from small clinics, and hospitals with less than 10 beds and OPDs

SANITARY NAPKIN DISPOSER

With growing awareness regarding hygiene and the availability of sanitary napkins and diapers, their use has increased and so has the problem of their scientific disposal. PMC contacted the producers of these goods and requested them to provide for separate easily identifiable bags to discard the used pieces. Having got a negative response from them PMC encouraged SWaCH to make paper bags for the said purpose and promoted their usage. Also, a system for scientific disposal of the same was put in place.

- 3 locations across the city
- 600 to 900 pieces of sanitary napkins per day are scientifically disposed at each location
- A system for collection, transportation and disposal is especially developed for the same and areas of focus are working women’s hostel, red light areas, and girls’ hostels and big residential societies
- Proposed extension of these services to 15 more locations across the city

GARDEN WASTE

Pune city has a 28 percent green cover. Therefore, the city generates 60 to 70 MT of garden waste daily. A separate collection system is in place for collecting the waste, shredding it and transporting it to a centralised processing system.

WASTE GENERATION & PROCESSING DETAILS

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Waste generation in TPD</th>
<th>Processing in January 2015 in TPD</th>
<th>15th Oct 2015 processing status in TPDs</th>
<th>by Dec 2016 in TPD</th>
<th>By June 2017 in TPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet waste</td>
<td>660</td>
<td>265</td>
<td>660 (Biogas 100+composting 210+secrty 50 +farmer 300)</td>
<td>850 (Noble 300 +mobile OWC 50 composting)</td>
<td></td>
</tr>
<tr>
<td>Dry waste</td>
<td>450</td>
<td>300</td>
<td>400 (Rochem 200+recycle 150+mechnical converyor 50)</td>
<td>670 (Rochem 350+recycle 170+150 converyor belt)</td>
<td></td>
</tr>
<tr>
<td>Non recyclable</td>
<td>550</td>
<td>0</td>
<td>0</td>
<td>380 (scientific landfilling)</td>
<td>500 (waste to energy-mixed waste)</td>
</tr>
<tr>
<td>Total</td>
<td>1660</td>
<td>565</td>
<td>1660</td>
<td>1600</td>
<td>2000</td>
</tr>
</tbody>
</table>
CITIZEN PARTICIPATION

The citizens of Pune always actively and wholeheartedly come ahead to work for a better, cleaner and greener Pune. They engage constructively with the PMC during Moholla Committee meetings at Ward levels and meetings held at the city level with the National Society for Clean Cities NSCC, the umbrella body of all Moholla Committees. Regular meetings are held on first Saturday of every month to decide on policy matters and monitor implementation of the same.

PMC endeavours to motivate and influence all Puneekars to involve themselves to practice the zero garbage mission undertaken by PMC by providing clear, lucid and functional/common sensical/dosable information under the various IBC initiatives undertaken from time to time.

SWACHH AWARDS

To felicitate citizens and institutions following good practices in managing their waste and to encourage others to do so, PMC launched the Swachh Awards on 01st May 2016. The awards will be given on the basis of nomination/self-nomination received (through a competition mode) under various categories which will be further evaluated by a team of jury consisting of experts in the sanitation sector, Academicians, NGO representatives, etc. The awards will be unveiled on the 147th birth anniversary of Mahatma Gandhi i.e., 2nd Oct 2016 and will be supported by various other stalwarts of the industry and sector.

The awards will be given in six categories namely households, schools/colleges, housing societies, private sector entities, NGO, public sector entities.

SWACHH SARVEKSHAN

In order to promote cleanliness in their respective areas, PMC encourages healthy competition among various prabhags and has initiated city wide prabhag [electoral ward] level survey on various parameters to measure the cleanliness at the prabhag level. The Swachh Sarvekshan is based on nine indicators pertaining to solid waste management and sanitation to measure the cleanliness levels in each prabhag. The aim is to improve segregation at source, establish a door to door collection system, and promote user fee based service and to provide access to sanitation for all.

To authenticate the collected information a Third Party Audit Committee has been established. Based on the Audit report any discrepancies are resolved through discussions with the Prabhag level teams. The data thus verified is used for preparing the score cards for each individual Prabhag. The scores are on a range of 1 to 5, one being the least, representing the danger zone indicated in red and 5 being the best, indicated in dark green colour. Based on the prabhag scores, ward level and city level score cards are also generated.

PMC’s CSR VISION

To furnish civic, social and environmental responsibility by Municipal Corporation and Corporates in Pune to work collaboratively in a manner that enriches people’s lives through inclusive and sustainable development.

CUMMINS INDIA have a long standing partnership with PMC for zero garbage ward model and offered a solution for eco friendly Ganesh immersion.

ADAR POONAWALLA CLEAN CITY MOVEMENT On 7th January 2016 pledged 100 crores under CSR in the presence of Hon Chief Minister, Maharashtra. In the initial phase the group envisages to take up following activities under this Movement

• 3 Mechanical Road Sweepers
• 50 Machines to pick up street waste
• Small vehicles to clear waste deposited in bins placed at public places and Main Roads by them

Currently 200 employees have been deployed for these activities for a period of five years.

YARDI SOFTWARE INDIA PVT. LTD. is engaged in holistic development of urban poor communities in Pune city in core areas of sanitation and solid waste management. Commendable work in inculcating a feeling of ownership in the community for keeping CTBs safe, clean and functional.

PERSISTENT, a leading software company has built toilets in 100 schools across Pune.

CREDAI METRO, an association of builders and promoters, has accepted as a challenge and an opportunity with a social responsibility in mind to construct 16000 individual toilets under the Swachh Bharat Mission on a no profit no less basis.

SANJEEVANI DEVELOPERS have taken up the maintenance of 3 public toilets on busy roads in the city. They are running the facility efficiently for the last two years.
In 2005 a pilot program implemented by KagaKach Patra Kashkubari Panchayat in collaboration with the Department of Adult Education, SNDT Women’s University enabled 1500 waste pickers to become service providers for the door to door collection of waste from households in Pune city. This considerably improved their conditions of work and upgraded their livelihoods effectively bridging the gap between households and the municipal waste collection service. The pilot was operational since 2006 and SWaCH was formed in 2007.

In 2008 the PMC signed a five-year Agreement with SWaCH and renewed it in 2016 to decentralize door-to-door collection services for households, shops, offices and small commercial establishments. The members of the cooperative work in pairs and are in charge of door-to-door waste collection for 200-250 households. Waste pickers receive segregated waste (separated wet or organic waste and dry waste such as plastics, glass, paper, etc.) from house-holds/commercial establishments. They further segregate the recyclables to be sold in the re-cycling market; non-recyclable waste is dropped off at feeder points.

Currently, 2600 Waste pickers save PMC Rs. 15 crores per annum in waste handling costs alone. The model is energy efficient and environmentally beneficial, as SWaCH waste pickers re-cycle waste and reduce the quantity of waste sent to landfills. This reduces carbon and other green house gas emissions, responsible for global warming. SWaCH collects more than 600 tonnes of MSW per day, about 130 tonnes are sent for composting and 150 tonnes are recycled.

In 2006, Maharatta Chamber of Commerce Industry and Agriculture (MCCIA) formed Janwani, meaning the voice of people. To tackle the growing problems associated with MSWM, Janwani, a non-profit organization, in partnership with the Pune Municipal Corporation (PMC), SWaCH Cooperative (waste-picker organization) and Cummins India Ltd created a model for the city’s future: a zero garbage ward model, located in the southern part of Pune at Katraj. Besides being the largest, the ward also represents the different socio-economic classes in the city.

The ‘Zero Garbage Ward’ model helps decentralize solid waste management and incorporate the waste collectors into the formal system of waste management. The model addresses the two key challenges faced by every city in India that is collection and segregation of waste, and supports to treat wet waste closer to its generation. By achieving optimum segregation of waste and selling the dry waste to scrap dealers through waste collectors, the model eliminates/minimizes the need of Land Filling. The model also supports the decision of the Central Government of not sending the city’s waste to the dumping grounds but processing it within the ward.

The important indicators of Zero Garbage Ward Model are

- 100% door step collection
- 100% segregation of garbage
- Processing of wet waste locally

PMC’s approach while execution of the project was collaborative, research oriented, ensuring inputs and engagement of local representative so as to ensure sustainability in the long run. The role of Janwani as a facilitator was to create awareness about segregation and increase collection of garbage. Various programs helped convey the message effectively to various strata of society. The programs include rallies, puppet shows, street plays, cleanliness drives, film show, and poster exhibition etc.

**VEHICLE TRACKING SYSTEM**

In order to collect and transport 1600 MT of garbage per day a huge fleet becomes a prerequisite and the monitoring of it becomes imperative. Pune Municipal Corporation has in place a complete end-to-end automation and monitoring of waste collection and management. Using cutting edge technologies like GPS, GSM, RFID, M2M, IOT Sensors along with innovative Mobile and web application improves and smoothen’s ground-level mechanisms for waste collection and efficient processing and re-cycling of waste.

A pan city initiative for bin and fleet management is undertaken wherein 396 vehicles and 7325 garbage collection points have been geo-tagged and monitored by a Central Command Centre. This ensures

- Monitoring of the vehicles in real time to improve per vehicle productivity & reduce non-compliance
- Usage and route planning optimization of garbage trucks
- Rapid management of vehicle breakdown and maintenance.
- Efficient monitoring and management of waste bins
- Verification of collection service
- Availability of MIS for effective planning of resources, schedule & unforeseen events
- Greater transparency in the civic administration
INITIATIVES IN SANITATION

Providing sanitation facilities to citizens is one of the basic functions of the municipal body. The cleanliness of the city depends on the provision of sanitation for all. With the aim to make Pune a ‘Swachh city and Swasth city’ PMC has taken a stock of the existing public and community toilets. The survey reveals that there is a gap in infrastructure and services provided and the demand for the same. The condition of existing public and community toilets have been identified and detailed analysis are carried out.

PMC is one of the first cities in the country to develop a Public Toilet Policy document that outlines the working model for maintaining public toilets under PPP model or under CSR funding. As an addendum to this document, the Public Toilets Gap Analysis report lists out the geo tagged locations of all the public toilets and urinals. It also provides photographs showing the condition of toilets and urinals. The gap analysis along with the policy document becomes a ready reference for the corporate houses or any other private players to make decisions in adopting the public toilets.

SHWAAS (2013-18)

With a view to increase access and functionality of community toilets in the slums of the city, Slum Sanitation Health Welfare Advanced Approach System, SHWAAS, an initiative under the European Union has granted 9.75 lakhs Euros for sustainable solid waste management and sanitation initiatives in 90 slums across Pune.

SAMAGRA

Samagra, a NGO working for the self-sustained community toilets, has designed a unique self-sustainable model for the day to day cleanliness of community toilets at 12 locations under Warje Karvenagar Ward Offices. With 92% customer satisfaction and 600% increase in people’s willingness to pay for using the toilets this model is sought to be replicated in other parts of the city as well.

IHHL UNDER SWACHH BHARAT MISSION

Government of India has announced the Swachh Bharat Abhiyan on 2 Oct 2014 and on similar lines Government of Maharashtra announced Swachh Maharashtra Abhiyan. Under the IHHL component of the Mission, PMC received funds from the Centre and the State and put in its own contribution of rupees 4000, 8000 and 6000 respectively.

A GIS based microleveling exercise was initiated for mapping of IHHLs even before the announcement of the mission. The process of securing community engagement through NGOs initiated a dedicated multi stake holder task force for monitoring the progress and locally suitable options suggested by community coupled with local support and involvement of representatives made for sound basis for implementing the IHHL component under the Swachh Bharat Mission. NGOs like Shelter Associates played a pivotal role in the success of the model adopted by PMC.

As per 2001 census, PMC had a target of our target of 16117 IHHLs but after a survey conducted last year the expected number of individual house hold toilets went upto 19845 of which more than 6000 IHHLs have already been constructed to date.

PMC aims to be an Open Defecation Free City by 2017 and is working real hard to achieve the said target. With the help and staunch support from the elected representatives and committed organisations like CREDAI Metro, dedicated NGOs like Shelter and all others who have joined hands this target seems achievable now as a true tribute to the Father of the Nation on his 150th birth anniversary.

Publications also available on www.punecorporation.org

- Pune Public Toilet Policy: Standard Framework for public Toilets
- Gap Analysis
- SwachhSurvekshan
- Bye Laws
- SamruddhiKadunSampannatekade...
- C&D Waste Bye Laws