



Solid Waste Management Practices of Ahmedabad Municipal Corporation (October, 2013)



**Solid Waste Management Department,
Ahmedabad Municipal Corporation,
Ahmedabad**

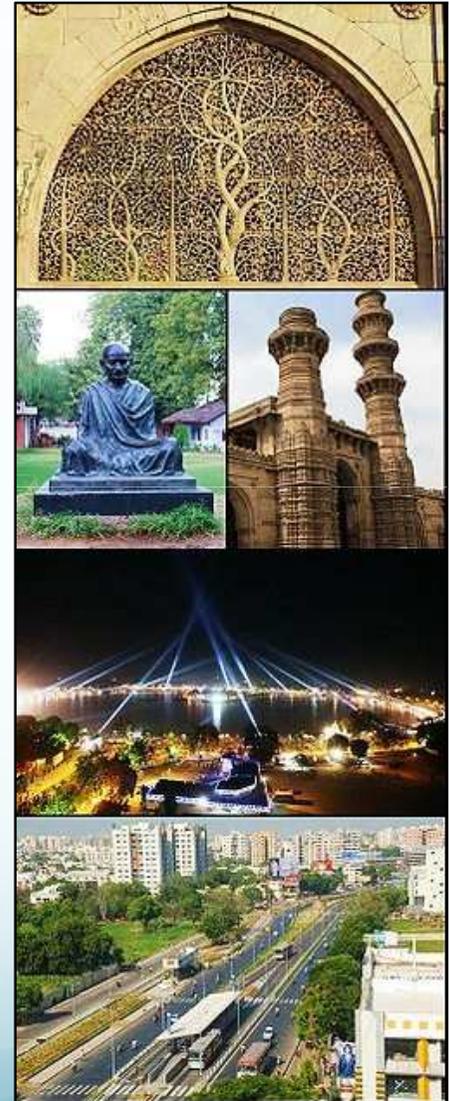
Ahmedabad City



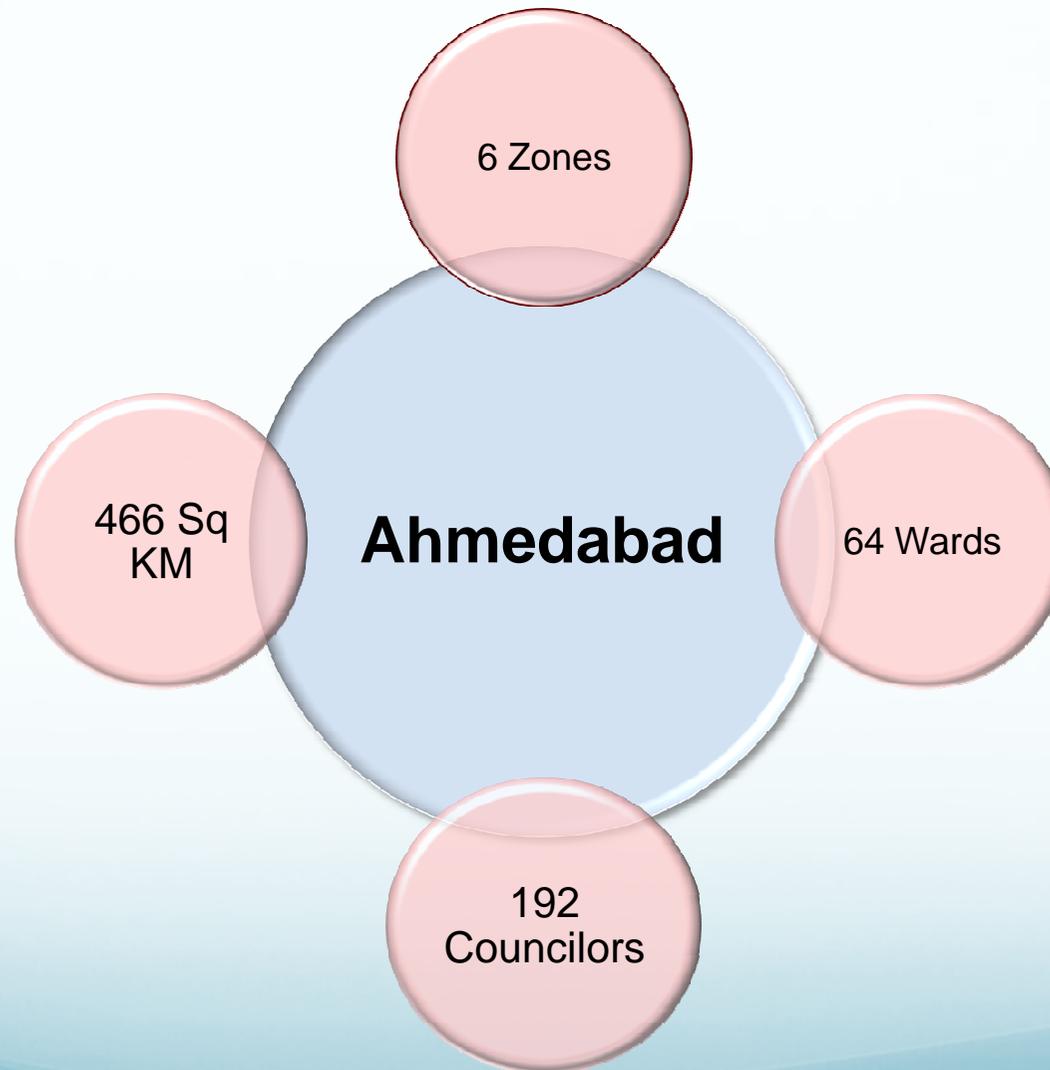
- 7th largest city of India and the largest city in Gujarat, with over 6 million population and 26.61% decadal growth rate.
- Total area increased from 192 Sq.Km.(2001) to 466 Sq.Km.(2006)
- Density : 11,948 /sq. km.
- Literacy Rate : 89.60 %
- Ahmedabad GDP pegged at 64 billion USD in 2012.
- Major base of trade, commerce and industry.



- Engine of industrial and financial growth of the state.
- **3rd fastest growing city** as per the Forbes magazine 2010.
- Ahmedabad plays a strong and significant role in providing commercial resources and market access for the economies of neighboring cities.
- Ahmedabad enjoys a thriving cultural tradition, being the centre of Gujarati cultural activities and diverse traditions of different ethnic and religious communities.



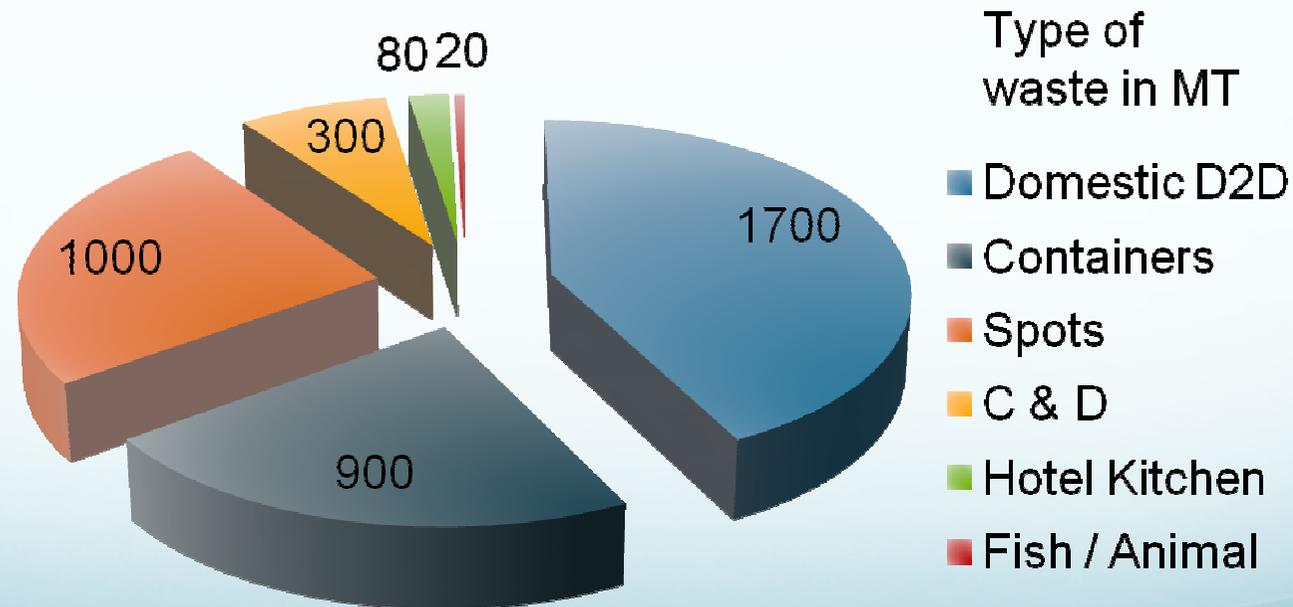
Civic Administration



Solid Waste Management, an Overview



- Ahmedabad generates almost 4000 Metric Tons of solid waste on a daily basis including 300 MT of construction and demolition debris. This waste is collected, transported, treated and disposed according to the MSW Rules. Deploys more than 12,500 employees on payroll and 2700 outsourced employee



AMC-Solid Waste Management Practices



- Daily collection of 4000 metric tones (More than 600 Grams per head per day)
- More than 12,500 Street sweepers-1484 km road area swept on a daily basis. 100% coverage in street sweeping on a daily basis
- Collection from all residential and commercial units under Door / Gate to Dump project, more than 600 vehicles are deployed and daily 1600 metric tons of waste is collected in this manner.
- Identified more than 850 locations as waste collection points where 1050 closed body 7 cubic meter M.S. Community storage bins have been provided. AMC ensures that these containers are lifted at least once in a day and daily 1100 metric tons of waste is collected in this manner.



AMC-Solid Waste Management Practices



- AMC has deployed 89 Tipper Trucks, 32 JCB Machines, 33 Bobcat type machines, 120 Hydraulic Dumper Placers, 11 Skip Lifters, 54 Compactors, 4 Dead Animal Vans, 14 Nuisance Tankers, 1 Mobile Court, 60 Tractors, 5 Bull dozers, 3 Wheel dozers, 20 Road Vacuum Sweepers, 24 mini vans and other contactors' 700 vehicles in all 6 zones on daily basis for efficient cleaning of the city.
- Tendering process is in final stage for GPS - RFID reader - RFID tags based monitoring system for more than 1000 vehicles.
- Started two Transfer Stations of about 400 MT Capacity in two zones to save on transportation cost, reduce pollution and ease traffic congestion. Four more transfer stations in other zones are under construction.



Night scrubbing through Road Sweeping Machines



Before



After



- All major public roads, BRTS roads and Model roads are covered under this system.
- 15 heavy duty truck mounted sweeping machines are used
- Working time: 10 pm to 6 am
- Each machine has a cost of Rs. 64 lakh plus
- These machines are helping AMC to keep city as a dust free city.

MSW Treatment / Processing



Name of Company	Daily Treatment	Work Given	MSW converting into	Land Given (Acres)	Agreement Period	Technology Used
1.UPL Djai Power Ltd	250 Tons	2007	Compost and RDF / Pellets & Fluff	15	25 Years	Windrow Method
2. Creative Eco-Recycle Port Pvt. Ltd.	800 Tons	2009	Compost and RDF / Pellets & Fluff	12.5	25 Years	Gasification & thermalization Spiritless
3. Hanjer Bio tech	500 Tons	2010	Compost and RDF / Pellets & Fluff	12.5	30 Years	Multi Product Integrated Technology
4. Excel Industries Ltd.	500 Tons (effectively treat daily 250 Tons)	1997	Composting	25	15 Years	Windrow Method
5. DNP Infrastructure Pvt. Ltd	300 Tons	2012	Construction & Demolition Waste into Various Products	5	30 Years	C & D recycling - neno technology

MSW Treatment / Processing



- DNP Infrastructure Pvt. Ltd has been awarded the project for Design, Construct, Operate & Maintain a daily 300 tons processing plant for Construction & Demolition waste and collection & transportation of such waste from designated locations (24) from city area on Public Private Partnership mode for 30 years.
- AMC has allotted 5 acres land for processing plant. It will be operational in November, 2013 & going to make bricks, tiles & other materials from such waste.
- AMC will get 2.5% royalty on sale value.



Collection, Transportation & Safe disposal of Bio Medical Waste and Hotel / Kitchen Biodegradable Waste

Disposal of Municipal Bio Medical Waste

AMC has outsourced the daily collection and transportation of AMC generated bio-medical waste from municipal hospitals to the incineration plant.

Segregated collection of kitchen waste from Hotels and Restaurants

More than 1100 units are covered for daily average collection of 80 metric tons kitchen waste which is converted in to compost

Waste to Energy



For the remaining untreated waste AMC has recently assigned following companies for setting up waste to energy plants. Operations are expected to start from Dec 2014.

Name of Company	Daily Treatment	MSW converting into	Land Given (Acres)	Agreement Period	Technology Used
1. Abellon Clean Energy Ltd.	1000 Tons	Electricity	13	29 Years	Use European technology and follow European Emission Standards.
2. A2Z Infrastructure Limited	1000 Tons	Compost and RDF/ Pellets & Fluff	25	29 Years	Multi Product Integrated Technology

Secured Engineered Landfill Site



AMC has provision for six scientific landfill sights for Disposal of Inert Solid Waste
(First site Operational Since 14.10.2009)

Capacity:

11.50 Lakh Metric Tones

(i.e. 1.15 million tons)



Total construction cost of the site:

Rs. 13 Crore

(i.e. Rs.130 million)



Area: 12.88 Hectares

(32.8271 acres)



Initiatives taken for Solid Waste Management in Ahmedabad

Mobile Court Initiative for Littering & Nuisance

AMC launched country's first Sanitation Mobile Court on 4th June, 2009 dedicated to contain littering.

1,34,683 cases have been registered and Rs. 5.95 Crore penalty levied from such offenders.



Decentralized Model for Biodegradable waste:



Effective Utilization of Garden / Hotel Kitchen Waste

- AMC started a Pilot Project on September, 2011. Daily Garden, Hotel Kitchen and other Green waste is converted into Organic Manure on PPP mode. A machine with the capacity of converting 200 kg of bio-degradable waste into compost has been put on experimental basis for 60 days to observe the process and effectiveness of the machine. Such small project to convert biodegradable waste to compost is useful for residential societies, big hotels, canteens, etc.
- Recently AMC has awarded work for design, build, operate and transfer of 2 bio-degradable waste convertor machines, each has a capacity of 1 metric ton, at Zoo and at Victoria Garden which will be operational in November, 2013.
- AMC is planning to set up a bio-degradable waste convertor machine / bio gas plant at fruit / vegetable market for converting 8 to 10 metric tons on a daily basis.

Collection, Transportation & Safe disposal of e- waste & Carcass Waste



e-waste Management

For effective implementation of e-waste (Management and Handling) Rules, 2011 in Ahmedabad, AMC, in coordination with GPCB and with the help of Corporate Sector has floated tenders for establishment of collection centers for e-waste collection, safe transportation and safe storage / disposal.

Scientific and safe disposal of Carcasses of Animals & Waste from Slaughter House, Fish Market, Meat Market etc.

AMC has floated a competitive Bid for Design, Construction, Operation & Maintenance of a daily 10-15 tons processing plant on Public Private Partnership mode for 30 years.

Transfer Station



- Planned one transfer station of about 400 MT Capacity in Each Zone. 2 operational and 3 under construction.
- This transfer Station will have 2 Stationary Compactors, 11 Large Containers (20-25 CMT Capacity which can carry 10 to 12 MT of MSW) and 9 Large Hook Loader Vehicles.
- Daily compaction & transportation of 350 metric tons.
- This transfer station helps AMC to save on transportation cost, reduce pollution and ease traffic congestion.

Transfer Station



Project for Awareness



Started a Project for IEC (Information, Education, Communication) Activities and Awareness Generation among the General Public Towards Cleanliness, Waste Treatment & Waste Disposal

ISWA has awarded third prize to AMC for best Short film giving message for public awareness

- Regular meetings of Committees in the Wards
- Publicity through Television Channels / Local Cable Network
- Advertisement in Newspapers
- Distribution of pamphlets and Banners
- Exhibition of Awareness Creation slides in Cinema Theatres
- Conducting Street plays
- Organizing of rally involving School & College students
- Awareness training to Municipal staff and Councilors
- Conducting miscellaneous events

Preparation of Public Health Byelaws



AMC initiated preparation of Public Health Bye-laws in 2012.

- Classification of waste in 25 categories
- Generators of waste based on their type, 21 categories
- Segregation of waste
- Storage of waste
- Delivery & collection of waste
- Processing & disposal of waste
- Liquid Waste Management
- Prevention of Waterborne, Vector borne and Food borne diseases
- Offences under the bye-laws
- General offenses which is applicable to all the citizens within city limit, (23 in number)
- Enforcement of the provisions
- Schedule of Fines

The byelaws are approved by the Standing Committee and the Municipal Board recently and now under the process of inviting public opinion / suggestions / objections.

SWM Master Plan upto 2031



- AMC prepared a SWM Master Plan which provides a detailed profile of Ahmedabad City, existing system in city, solid waste characteristics, current (leading) waste management practices, strategy and options for city, planning for 'Zero Waste' management system, institutional strengthening and training, capital investment plan and need for monitoring & evaluation. Same has been approved by the competent authority for implementation.
- **Process adopted**
 - Process tracking of all streams of SWM
 - Numerous stakeholder consultations
 - Strategy development towards zero waste
 - Infrastructure gap and management assessment
 - Recommendations and capital investment



Development of Roadmap for Zero Waste Ahmedabad by 2031

AMC participated at the **Special Event of ISWA World Congress 2011** and agreed on the **“Declaration for Zero Waste Ahmedabad” by 2031**. AMC has signed a Memorandum of Understanding with **UNCRD (United Nations Center for Regional Development, Japan)** which is providing technical assistance for developing a “Roadmap for Zero Waste Ahmedabad by 2031”. For this initiative, AMC had a detailed Multi-stake holders' consultation meetings with the help and support from UNCRD Japan and Zero Waste South Australia.





Development of Roadmap for Zero Waste Ahmedabad by 2031

The Zero Waste concept for Ahmedabad will serve as catalyst for policy changes at National level in realizing resource efficient and zero waste societies in India.

**Hon. Minister for
Urban Development,
Government of Gujarat**
released the roadmap on
12th Jan 2013.

Download document at:

<http://www.egovamc.com/Downloads/Downloads.aspx>.



Ahmedabad's Strength



- **Times of India survey** ranks our city as **the Best City to Live in** terms of infrastructure
- Ahmedabad will be the First Indian City to receive UNESCO's World Heritage City Status- Tentative Application accepted by UNESCO for the same
- Quality water, sanitation, and sewerage services
- High quality public transport system
- Financially well managed City Government
- Inclusive city and accommodates urban poor with sensitivity
- Ecologically friendly & Energy efficient
- Compact city with short travelling distances.
- Strong economic drivers and capitalising on them to create growth and jobs
- **Overall, the city offers a good quality of life and living standards**

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Thank You