



ENVIS CENTRE, CHANDIGARH

Newsletter

P a r y a v a r a n - P a t r a

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Chandigarh State of Environment



Municipal Solid Waste, Plastic Waste & Hazardous Waste : Generation and Management Techniques

Introduction

India faces major environmental challenges associated with waste generation, segregation techniques, inadequate waste collection, transport, treatment and disposal methods. With the ever increasing population growth and the current technological advancements, India is still in transition to cope up with the current challenges and barriers of waste management.

However, challenges open new paths to opportunities. As Chandigarh has a well defined area with clearly marked boundaries, it is at advantage in terms of waste collection, segregation, processing and management.

At present, Chandigarh has a 100% collection efficiency for Municipal Solid Waste which constitutes the maximum percentage of waste generated in the city. Moreover, holistic amendments were made to the notification w.r.t 'Ban of Single Use Plastic/ Plastic Carry Bags and Thermocol items'. In terms of Hazardous waste, very less quantity of waste is generated in Chandigarh and is effectively dealt with to reduce harmful effects on humans and environment. With rising awareness on an individual level, every citizen of Chandigarh is striving to justify the tag line 'The City Beautiful'.



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ENVIS CENTRE
Deptt. of Environment
Chandigarh

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E-mail : ch@envis.nic.in
Web : www.chandigarhenvis.gov.in

Municipal Solid Waste

Municipal Solid Waste (MSW), more commonly known as trash or garbage, consists of everyday items we use and then throw away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint etc. Chandigarh Administration promotes practices that reduce the amount of waste needing to be disposed of, such as waste prevention, recycling, and composting.

- ♦ Source Reduction/Waste Prevention is the process of developing products that decrease the amount of waste that must be discarded later on while also making the waste less toxic.
- ♦ Recycling is the recovery of useful materials, such as paper, glass, plastic, and metals, from the trash to use to make new products, reducing the amount of virgin raw materials needed.
- ♦ Composting involves collecting organic waste, such as food scraps and yard trimmings, and storing it under conditions designed to help it break down naturally. This resulting compost can then be used as a natural fertilizer.

Year	Municipal Solid Waste Generation Metric Tonnes Per Day (MTPD)	Municipal Solid Waste Collected (MTPD)	Pressure on Landfill Tons/Annum	No of Landfill Area	Collection Efficiency %	No of Sehaj Safai Kendras
2017	451 MTPD	451.5 MTPD	-	1 (45 Acre)	100%	36
2018	421 MTPD	421 MTPD	-	1 (45 Acre)	100%	39
2019*	324 MTPD	324.4 MTPD	84927.064	1 (45 Acre)	100%	35

Source: CPCC, Chandigarh

The MSW processing plant was set up by M/s Jai Prakash Associates at Dadu Majra which is now being handled and operated by MC, Chandigarh. The plant bears a capacity 500 MT/ day (RDF) and 300 MT/ day (compost). Total solid waste generated in Chandigarh for the year 2019 is 324MTPD.

*(The weight of MSW in Dumping Ground weigh bridge could not be measured for the period Sep.2019 to Nov. 2019, due to Technical Problem.).

Despite it all, the collection efficiency for MSW is 100% in Chandigarh and now the focus has been shifted to efficient segregation practices

Engaging Awareness Activities

Resident Welfare Association's/Market welfare Association's (RWA's/MWA's) are being sensitized about waste management. Various activities are conducted along with NGO's such as Swachhta Fair, Nukkar Natak, Cleanliness drives, Sanitation Hackathan and awards. Regularly competitions regarding cleanliness are being conducted among RWAs/MWAs, Schools, Hotels, Hospitals etc.



Cleanliness Drive



Initiatives taken for Segregation and Storage of Solid

Chandigarh Administration vide notification no. FII(9)-2018/22335 dated 07.12.2018 has notified the 'Solid Waste Management Bye Laws 2018'.

With reference to the above law, some of the major highlights are mentioned below-

Segregation and Primary Storage of Solid Waste

It shall be necessary for all waste generators to separate and store the solid waste produced at their level to categorize into three streams, namely-

- A) Non-biodegradable or dry waste
- B) Biodegradable or wet waste
- C) Domestic hazardous waste to be deposited in covered bins

- ✍ The color of bins for storage of segregated waste shall be " Green for biodegradable waste, Blue for non-biodegradable or dry waste and black for domestic hazardous waste.
- ✍ All gated communities and institutions with the more than 5000 sqm area shall in partnership with MSS will ensure segregation of waste at source by the generators, facilitate collection of segregated waste in separate streams, handover recyclable material to either the authorized waste pickers or the authorised recyclers.
- ✍ No untreated bio-medical waste, e-waste, hazardous chemicals and industrial waste shall be mixed with solid waste. Such waste shall be disposed off in accordance with the respective rules under EPA, 1986.
- ✍ Automatic voice recorded device, bell or horn having sound not more than the permissible noise level shall be installed on every garbage collection vehicle used by waste collectors.
- ✍ Route plans for each primary collection and transportation vehicle shall be provided by MCC or by the authorised waste collector. This plan will be mentioned in a tabular form as well as GIS map form, duly approved by MCC mentioning starting point, start point, waiting point, waiting time on route, end point and end time of the specified route





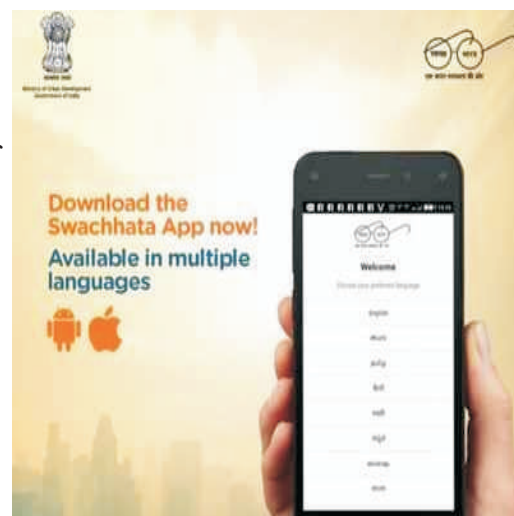
Proactive Measures

Some of the initiatives taken by the Municipal Corporation, Chandigarh includes-

- ✍ 100 % Door-to-Door collection
- ✍ Making effort for 100% Segregated Waste Transport
- ✍ 35% Mechanical Road Sweeping
- ✍ 65% Manual Sweeping
- ✍ Mechanized collection and transportation with ICT monitoring
- ✍ Inter-Ward Source Segregation Competitions
- ✍ Regular effective maintenance of Bio-methanation Plant
- ✍ In order to deal with the foul smell around the dumping ground at Dadumajra, the MCC has initiated the installation of aerators around the target area.

Effective Infrastructure

- ✍ Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.
- ✍ In order to ensure separate storage, collection and transportation of construction and demolition wastes, the Construction and Demolition waste processing facility of 160 MT/ day capacity is now operational at Phase-1, Chandigarh. A facility for lifting of C&D waste by charging Rs.1000/- per truck per trip has also been initiated.
- ✍ In order to enforce waste generators to practice segregation of bio-degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid waste at source, a total of 26 bulk generators are engaged in handling wet waste on site.
- ✍ Ensured door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.
- ✍ Two Road Sweeping Machines were flagged off by Sh. Manoj Parida, IAS, Adviser to the administrator at Sector 17 Chandigarh in the year 2020.
- ✍ The Swachhata-MoHUA is the official app of Ministry of Housing and Urban Affairs(MoHUA), GOI. The app enables a citizen to post a civic-related issue (eg; a garbage dump) which is then forwarded to the city corporation concerned and thereafter assigned to the sanitary inspector of the particular ward.



CONSTRUCTION & DEMOLITION WASTE

Street sweeping debris commonly includes litter, dirt, grass, leaves, and other vegetative matter. The sweeping waste may contain pollutants including oil and grease, metals, sediment, paint, solvents and automobile fluids, as well as phosphorus and nitrogen from vegetation, lawn fertilizer, and animal waste. Quantity of street sweep waste in Chandigarh is 70 MTPD. In addition the quantity of C&D waste amounts to 45.76 MTPD.

In view of the above generation, Municipal Corporation Chandigarh has started C&D Waste Processing Facility in Industrial Area, Chandigarh. The plant also manufactures road material i.e., PCC kerbs, PCC Channel , PCC Tiles , Paver Block etc. The plant reduces the in house cost of construction by approximately up to 10% and has the tipping charges and processing cost at relatively lower costs than other cities in India .Till 15th May 2019, 5000 MT C&D waste has been processed into recycled products. This helps to reduce the carbon footprint by producing recycled sand and aggregated within the city. This also maximize the production of high quality, highly value recycled sand and aggregated which can be used as a replacement for natural materials in a range of construction applications including concrete and asphalt production

A total of approximately 45.76 MT/day of C&D waste is generated in Chandigarh on an average daily these days. Municipal Corporation Chandigarh has started C&D Waste Processing Facility in Industrial Area, Chandigarh of capacity 160 MT/ day.

Other Initiatives taken by the administration to tackle C&D waste of Chandigarh-

- ✍ The C& D waste processing facility installed by Municipal Corporation, Chandigarh is of capacity 160 MT/ day, which is being operated in two shifts, of 80 MT/day as a single shift.
- ✍ Special drives are being organized by MCC to aware general public regarding proper disposal of C&D waste and proper dust mitigation measures to be taken during construction.
- ✍ Chandigarh Pollution Control Committee & Municipal Corporation, Chandigarh are the concerned departments that are responsible to take stringent action against Violators for improper disposal of C&D waste.



Picture Credit: The Tribune

HAZARDOUS WASTE

As very less amount of hazardous waste is generated in Chandigarh, therefore whole of the waste is collected and transported through authorized TSDF, incinerator and recyclers to their facilities located in Punjab, Haryana and Uttar Pradesh. Total Quantity of HW generated as per Annual Return within the State/UT (Metric Tonne) is 2124.624, with the following breakdown-

Year	Hazardous Waste	Generation (MT)
2019-20	Used Oil	209.132
	Acid Residue/Spent Acid	1659
	Hazardous Waste Incinerable	48.462
	Landfillable	208.03
	Zinc Waste (Recyclable)	602.433
	Total	2727.057

Source: CPCC, Chandigarh

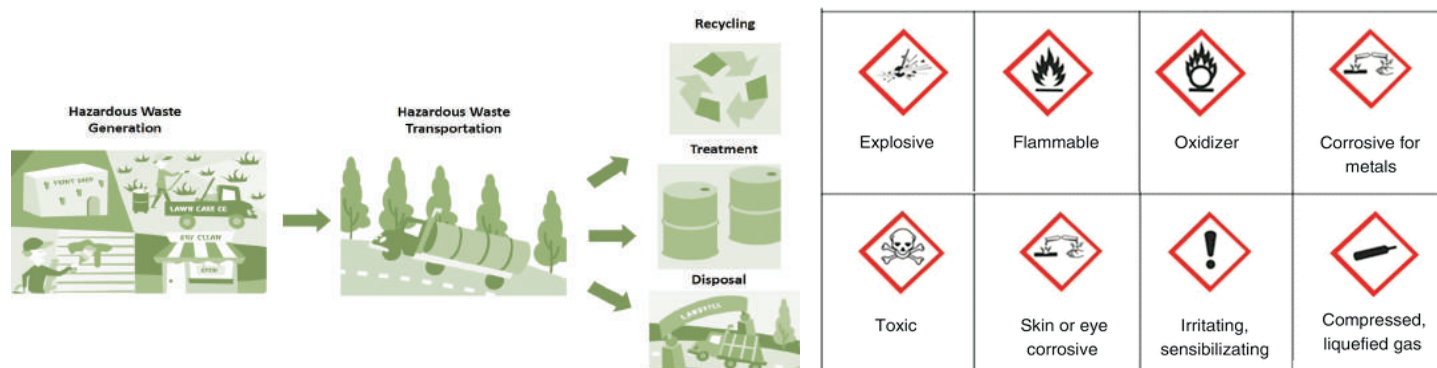
Initiatives Taken by Chandigarh Administration-

In terms of Inventorization of Hazardous Waste in U.T. Chandigarh the numbers of units possessing authorization are 643.

For disposal of landfillable waste, Chandigarh Pollution Control Committee has made agreement with Punjab Pollution Control Board for utilizing their TSDF facility namely M/s Ramky Enviro Engineers Ltd. (Unit: Punjab Waste Management Project). CPCC has authorized M/s Ramky Enviro Engineer Ltd. for collection and transportation of landfillable hazardous waste from various units located in Chandigarh to their TSDF located at Village Nimbua, Derabassi, Punjab.

For disposal of recyclable waste i.e. used oil, spent acid, acid residue, CPCC has authorized units located in Punjab, Haryana and U.P. for collection and transportation of recyclable waste from various units located in Chandigarh to their facilities.

For disposal of incinerable waste, CPCC has authorized M/s Bharat Oil and Waste Management ltd. for collection and transportation of incinerable hazardous waste from various units located in Chandigarh to their facility at Sahibabad, Industrial Area, Ghaziabad, U.P.



Plastic Scenario in Chandigarh

Web : www.chandigarhenvi.gov.in
E-mail : ch@envi.nic.in



With a view to control plastic pollution & associated polythene carry bags, the Chandigarh Administration has already put a ban on the manufacturing, store, import, sell, transport or use polythene/ plastic carry bags vide notification no ED/2008/684 dated 30.08.2008 under Section 5 of the Environment (Protection) Act, 1986. Further, under Section 15 of the Environment (Protection) Act, 1986, whoever fails to comply with the orders issued under Section 5 of the Environment (Protection) Act, 1986, shall be punishable with imprisonment for a term which may extend to five years with fine which may extend to one lakh rupees.

All vendors are prohibited from using carry bags or containers made of recycled plastic for storing, carrying dispensing, or packaging of food stuffs. Use, manufacturing, sale etc. of polythene carry bags have been banned in U.T. Chandigarh since October, 2008.

Further, Single Use Plastic (SUP) items have been banned in Chandigarh by the Department of Environment, Chandigarh Administration vide Notification No. ED/2019/1648 dt. 27.09.2019 and amendments thereafter vide ED/2020/2818 dt. 30.01.2020 and ED/2020-247 dt. 01.07.2020.

Initiatives Taken by Chandigarh Administration-

There are a total of 1447 no. of authorized PW pickers and 39 collection centers.

Time to time, a number of challans have been publicized to deter people from using the banned plastic items and the same will be carried out in future too.

The CPCC and MCC, Chandigarh have organised several workshops in which they were informed about the single-use plastic items banned and about the items which are not banned

Awareness is carried out by CPCC and MCC to sensitize the sanitary inspectors, making them aware about which single-use plastic items that are banned.

Year	No. of Challans
2018	604
2019	2337
2020	1847

Source: CPCC, Chandigarh

Chandigarh Administration has issued a total of 5116 number of challans in context to usage of Single Use plastic items from 2015 till 2020. Out of which, 604 no. of challans were issued in 2018, 2337 number of challans in the year 2019 and 1847 challans in the year 2020.

**ENVIS CENTRE TEAM**

Sh. Debendra Dalai, IFS
(Director, Environment)

Dr. Harsish Chandra
(Project Coordinator)

Er. Mohit Badhwar
(Sr. Programme Officer)

Ms. Tanveer Kaur
(Information Officer)

Sh. Surinder Sharma
(I.T. Officer)

Solution to Segregation

With a view to ensure segregation of garbage at the house hold level, the Corporation in collaboration with Chandigarh Animal Welfare and Eco Development Society is persuading the residents of the city to adopt door to door collection and to segregate the garbage at the house hold level. The Corporation in association with CAWEDS is building Khad Banao Kenders and Sehaj Safai Kenders in various Sectors to convert the garbage into compost and vermi-compost thus ensuring recycling and reducing the garbage going to the dumping ground. There are a total of 35 Sehej Safai Kendras in Chandigarh with a total of active 3392 Sehej Safai Karamcharis.

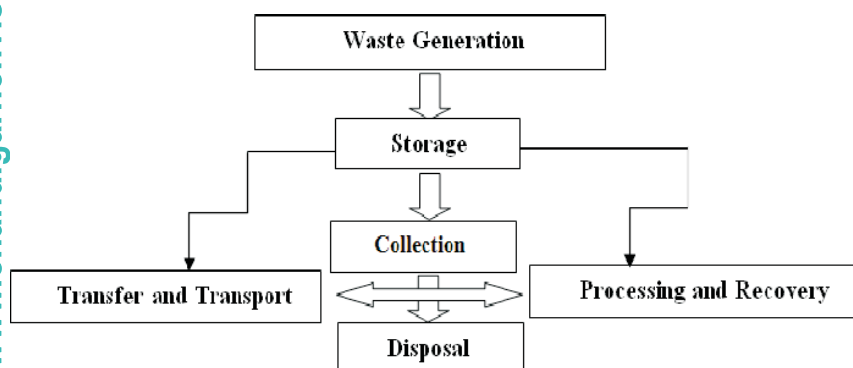


Fig- Solid Waste Managment System. Source: Rana et al., 2015

**From:**

ENVIS Centre
Department of Environment
Chandigarh Administration
3rd Floor, Paryavaran Bhawan,
Madhya Marg
Sector 19B,
Chandigarh - 160019

Ph. No: 0172-2700065, 0172-2770998
Email: ch@envis.nic.in
Website: www.chandigarhenvis.gov.in

To,

Note : While every care has been taken in compilation of the information available for this newsletter. However, readers must make thorough confirmation/enquiries at their own level before acting upon any data/information provided to the readers. Any discrepancy brought in the notice of ENVIS CENTRE, Chandigarh will be highly appreciated.

