

STATUS REPORT
ON
MUNICIPAL SOLID WASTE MANAGEMENT



CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment & Forests)

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Delhi – 110 032

**REPORT OF CENTRAL POLLUTION CONTROL BOARD ON
“STATUS OF COMPLIANCE BY CPCB WITH MUNICIPAL SOLID WASTES (MANAGEMENT AND
HANDLING) RULES, 2000”**

1.0 Introduction:

One of the major problems being faced by cities and towns relate to management of municipal solid waste (MSW). Waste quantities are increasing and municipal authorities are not able to upgrade or scale up the facilities required for proper management of such wastes. In many cities and towns, garbage is littered on roads and foot-paths. Citizens are also not accustomed to use the available storage facilities (dust bins) set up by the authorities. At large, lack of organized system of house-to-house collection of waste has created the littering habits. By and large, hardly we can see any city/town complying with the Municipal Solid Wastes (Management and Handling) Rules, 2000 in ‘totality’.

2.0 Issues relating to Management of MSW

The key issues relating to management of MSW in the country relates to;

- (i) There is no comprehensive short and long term plan with municipal authorities to handle MSW in accordance with the MSW Rules, 2000.
- (ii) Majority of the municipal authorities do not have preparedness to set up waste processing and disposal facilities.
- (iii) Waste management is being looked either for making wealth or generate revenue; or otherwise is allowed to putrify in cities/towns.
- (iv) Cities and towns, in future, will not get wastelands for further dumping of wastes. In fact, there will be a need to go for ‘total’ recycling and re-use of waste and aim for negligible or ‘Zero Waste’ for landfilling.

3.0 Status of Management of MSW

3.1 Quantities of MSW generation and collection

- i) As per report (May 2000) of Ministry of Urban Development (MoUD), Government of India that 1,00,000 MT of Municipal Solid Waste was generated daily in the country.
- ii) During the year 2004-05, Central Pollution Control Board (CPCB) through National Environmental Engineering Research Institute (NEERI), Nagpur conducted survey in 59 cities (35 Metro cities and 24 State Capitals) and estimated 39,031 Tons per day MSW generation in these 59 cities/towns.
- iii) The survey conducted by the central institute of Plastics Engineering and technology (CIPET) at the instance of CPCB has reported generation of 50,592 tonnes of MSW per day in the year 2010-11 in same 59 cities.
- iv) As per information received from State Pollution Control Boards/ Pollution Control Committees (in between the year 2009-12), 1,27,486 TPD (Tons per

day) municipal solid waste is generated in the Country during 2011-12. Out of which, 89,334 TPD (70%) of MSW is collected and 15,881 TPD (12.45%) is processed or treated.

Municipal Solid Waste generation in 59 cities during 1999-2000, 2004-05 and 2010-11 and State Wise generation of MSW and its treatment is given in **Annexure A, B and C** respectively.

3.2 Annual Report Status:

Out of 34 SPCBs/PCCs, CPCB received Annual Reports: for the year 2010-11 from 22 SPCBs/PCCs till (September, 2012) for submission of the Consolidated Annual Review Report to MoEF. Annual Reports from SPCBs/PCCs are not being received regularly and status of receipt is indicated at **Annexure – D**. The receipt of Reports from SPCBs is linked with the response given by the Municipal Authorities to SPCBs / PCCs.

3.3 Authorizations issued to Municipalities:

There are 34 SPCBs/PCCs in the country responsible for issuing authorizations to municipalities /urban local bodies (ULBs). During the year 2010-11, 2806 Local Bodies have reported to SPCBs/PCCs and total 1174 applications were received from ULBs and authorization granted to 317 ULBs. Except, SPCBs of Andhra Pradesh, Goa, Gujarat, Maharashtra, Meghalaya, Nagaland, Orissa, Punjab, Tamil Nadu, Tripura and West Bengal, other states have not reported status of authorization granted to municipalities.

3.4 Waste Collection

Efforts are being made by many local bodies for creating mass awareness among the citizens for ensuring proper management of MSW including collection, segregation, storage and transportation. However, such efforts are confined to a few wards/ localities within the city or town. Some good initiatives were reported in West Bengal (17 ULBs), Punjab (8 ULBs) and Tripura (5 ULBs). Also, improvement in waste collection, segregation, storage and transportation were reported in the state of Andhra Pradesh, Chandigarh, Delhi, Goa, Gujarat, Himachal Pradesh, Karnataka, Meghalaya, Madhya Pradesh, Maharashtra, Orissa and West Bengal. It has been observed that house-to-house collection is most critical issue in the entire management of MSW.

3.5 Waste Segregation

Source segregation of waste can be insisted and pressurised with residents where there is house-to-house collection system is introduced. Also, it may be achieved by placing separate bins for each category of wastes. However, the objective of segregation could be achieved when facilities are provided for treatment/ processing of the segregated wastes. In many cases, the segregated wastes are mixed up again at the time of transportation and disposal.

3.6 Waste Transportation

Municipalities are well equipped with waste transporting vehicles, but many of them are not following the waste transportation norms like –transporting waste under covered conditions so that littering does not occur on the way and it should not be exposed to the public, arrange alternative vehicle while breakdown on the way, etc.

3.7 Waste processing

The waste processing technologies reported in the country are; composting, vermin-composting, biogas plant, RDF –palletisation and others. Some of these pelletization plants are associated with power plants for generation of electricity. However, mechanical composting and vermin-composting are more popular in the country. As per the Annual Report, 2010-11, Such waste processing plants (compost/vermi-compost) have been set up in Andhra Pradesh (32 Nos.), Chhattishgarh (15), Delhi (3), Goa (5), Haryana (2), Gujarat (86), Himachal Pradesh (13), Karnataka (5), Kerala (29), Madhya Pradesh (4), Maharashtra (125), Meghalaya (2), Orissa (3), Punjab (2), Rajasthan (2), Tamil Nadu (3), Tripura (13), Uttarakhand (3) and West Bengal (9). In addition, waste-to-energy plants have been set in Andhra Pradesh (3-RDF plant & 4 power plants), Chandigarh (1 RDF), Chhattishgarh (1 RDF), Delhi (1 RDF plant + PP), Gujarat (2 RDF), Kerala (2 Biogas) and Maharashtra (19 Biogas). Some more waste-to-energy plants are coming up in the above states.

3.8 Waste Disposal

Implementation of waste disposal facilities in the country is found to be far from satisfaction. Most of cities/towns are facing problem in identification of landfill sites for construction of sanitary landfills. This is due to public resistance, rapid growth of urban areas, escalating land prices and not having proper master plan. However, the state of Gujarat, Maharashtra, Karnataka and Andhra Pradesh have taken initiatives to identify regional or common landfills for disposal of municipal solid wastes. Till the submission of Annual Report for 2010-11, there was record of 59 landfills constructed in the country, 376 landfills under planned and 1305 landfill sites were identified for future use. The construction of sanitary landfills were reported in the state of Andhra Pradesh (Vizianagaram), Delhi (Bhalswa, Okhla & Ghazipur), Goa (1 No.), Gujarat (8 No.), Haryana (Sirsa & Ambala), Karnataka (12 Nos.), Madhya Pradesh (Gwalior & Indore), Maharashtra (Nashik, Sonpeth, Ambad, Pune, Navapur & N. Mumbai), Punjab (Adampur), Rajasthan (Jodhpur), West Bengal (17 Nos.). Some of these landfills have either been exhausted or yet to be made operational.

4.0 Studies of CPCB in Municipal Solid Wastes management

Central Pollution Control Board from time to time has carried out studies through Institutions/organizations in Municipal solid waste management and documented for use of stakeholders engaged in MSW management. The list of publications is given in **Annexure- E**. The studies carried out by CPCB relate to; quantification of wastes, characterization of compost, emissions of methane from landfills, Groundwater quality around landfills, health assessment of conservancy staffs and rag-pickers and others.

5.0 Mandated Role of CPCB in accordance with Municipal Solid Wastes (Management & Handling) Rules, 2000

The mandates of CPCB under the MSW Rules, 2000 are as under;

Provisions of Rules under MSW Rules, 2000	Mandates of CPCB
Rule 6(5) [Responsibility of Central Pollution Control Board]	The Central Pollution Control Board shall co-ordinate with the State Boards and the Committees with particular reference to implementation and review of standards and guidelines and compilation of monitoring data.
Rule 8(2) Annual Report	The Central Pollution Control Board shall prepare the consolidated annual review report on management of municipal solid wastes and forward it to the Central Government along with its recommendations before 15 th of December every year.
Schedule II (5)(ii) [Management of Municipal Solid Wastes]	Mixed waste containing recoverable resources shall follow the route of recycling. Incineration with or without energy recovery including pelletisation can also be used for processing wastes in specific cases. Municipality or the operator of a facility wishing to use other state-of-the –art technologies shall approach the Central Pollution Control Board to get the standards laid down before applying for grant of authorization.
Schedule IV (1) [Standards for Composting, Treated Leachate and Incineration]	The waste processing or disposal facilities shall include composting, incineration, palletisation, energy recovery or any other facility based on state-of-the art technology duly approved by the Central Pollution Control Board.

6.0 How CPCB has complied/complying with the MSW Rules

6.1 Coordination with SPCBs/PCCs:

CPCB has been coordinating with SPCBs/PCCs for implementation of the municipal solid wastes (Management and Handling) Rules, 2000 in their respective states/UTs. CPCB with SPCBs jointly had organized workshops, seminar, training and mass awareness programmes for effective implementation of the MSW Rules. SPCBs/PCCs were followed up for submitting the Annual Report on implementation of the MSW Rules in the states. CPCB coordinated with SPCBs/PCCs for monitoring compliances of the rules including monitoring of ambient air quality, groundwater quality and compost quality. Also, CPCB took initiatives for "Identification of Common/Regional landfill sites" through SPCBs in the state of Karnataka and Andhra Pradesh.

6.2 Annual Report:

Every year, CPCB has been following up with SPCB/PCCs for submitting the Annual Report in time on implementation of the MSW Rules and forwards the 'Consolidated Annual Review Report' to the Central Government i.e. Ministry of Environment and Forests, Govt. of India. So far, eleven reports starting from 2000-01 to 2010-11 have been filed.

6.3 Laying down Standards for State-of-the art Technologies

Central Pollution Control Board through SPCBs / PCCs has been received a few proposals of municipalities or operators of the facilities on setting up of waste processing plants. The proposals are examined by CPCB through a 'Technology Appraisal Committee' and views were forwarded to the concerned State Pollution Control Boards for further action. Till now, no new state-of-the art technology was identified for laying down new standards with respect to new technology or granting technology approval.

7.0 Status of compliance with MSW Rules (as reported by SPCBs/PCCs)

The overall status of compliance with Municipal Solid Wastes Rules, 2000 is given in the Consolidated Annual Review Report' 2010-11. Municipalities as well as State authorities are not forwarding Annual Reports within the specified time. Out of 34 SPCBs/PCCs, only 22 SPCBs/PCCs have forwarded Annual Report during the year 2010-11.

Most of the towns/ cities are not having proper action plan for implementation of the MSW Rules. Waste collection is observed only 70% of total waste generation and the remaining 30% lost in the urban environment. House-to-house collection and segregation not fully covered in any city. There is a large gap in between Waste collection and processing. Most of the municipalities have no sanitary landfill facility and follow dumping for disposal of MSW.

Municipal Solid Waste Generation in Metro Cities / State Capitals

S. No.	Name of City	* Municipal Solid Waste (Tonnes per day)		
		1999-2000(a)	2004-2005 (b)	2010-11 (c)
1.	Agartala	-	77	102
2.	Agra	-	654	520
3.	Ahmedabad	1683	1302	2300
4.	Aizwal	-	57	107
5.	Allahabad	-	509	350
6.	Amritsar	-	438	550
7.	Asansol	-	207	210
8.	Bangalore	2000	1669	3700
9.	Bhopal	546	574	350
10.	Bhubaneswar	-	234	400
11.	Chandigar	-	326	264
12.	Cheennai	3124	3036	4500
13.	Coimbatore	350	530	700
14.	Daman	-	15	25
15.	Dehradun	-	131	220
16.	Delhi	4000	5922	6800
17.	Dhanbad	-	77	150
18.	Faridabad	-	448	700
19.	Gandhinagar	-	44	97
20.	Gangtok	-	13	26
21.	Guwahati	-	166	204
22.	Hyderabad	1566	2187	4200
23.	Imphal	-	43	120
24.	Indore	350	557	720
25.	Itanagar	-	12	102
26.	Jabalpur	-	216	400
27.	Jaipur	580	904	310
28.	Jammu	-	215	300
29.	Jamshedpur	-	338	28
30.	Kanpur	1200	1100	1600
31.	Kavaratti	-	3	2
32.	Kochi	347	400	150
33.	Kohima	-	13	45
34.	Kolkata	3692	2653	3670
35.	Lucknow	1010	475	1200
36.	Ludhiana	400	735	850
37.	Madurai	370	275	450
38.	Meerut	-	490	52
39.	Mumbai	5355	5320	6500
40.	Nagpur	443	504	650

S. No.	Name of City	* Municipal Solid Waste (Tonnes per day)		
		1999-2000(a)	2004-2005 (b)	2010-11 (c)
41.	Nashik	-	200	350
42.	Panjim	-	32	25
43.	Patna	330	511	220
44.	Pondicherry	-	130	250
45.	Port Blair	-	76	45
46.	Pune	700	1175	1300
47.	Raipur	-	184	224
48.	Rajkot	-	207	230
49.	Ranchi	-	208	140
50.	Shillong	-	45	97
51.	Shimla	-	39	50
52.	Silvassa	-	16	35
53.	Srinagar	-	428	550
54.	Surat	900	1000	1200
55.	Thiruvananthapuram	-	171	250
56.	Vadodara	400	357	600
57.	Varanasi	412	425	450
58.	Vijayawada	-	374	600
59.	Vishakhapatnam	300	584	334
	Total MSW	30058	39031	50592

* Municipal Solid Waste Study conducted by CPCB through;

- a) EPTRI (1999-2000)
- b) NEERI-Nagpur (2004-2005)
- c) CIPET during 2010-11

Municipal Solid Waste Generation in India (State-wise)

S. No	Name of the State / UT	(a) Municipal solid Waste MT/ day 1999-2000			(b) Municipal solid Waste MT/ day (2009-12)
		Class – I cities	Class – II Townes	Total	
1.	Andaman & Nicobar	-	-	-	50
2.	Andhra Pradesh	3943	433	4376	11500
3.	Arunachal Pradesh	-	-	-	93.802
4.	Assam	196	89	285	1146.28
5.	Bihar	1479	340	1819	1670
6.	Chandigarh	200	-	200	380
7.	Chhattisgarh	-	-	-	1167
8.	Daman Diu & Dadra	-	-	-	41
9.	Delhi	4000	-	4000	7384
10.	Goa	-	-	-	193
11.	Gujarat	-	-	-	7378.775
12.	Haryana	3805	427	4232	536.85
13.	Himachal Pradesh	623	102	725	304.3
14.	Jammu & Kashmir	35	-	35	1792
15.	Jharkhand	-	-	-	1710
16.	Karnataka	3118	160	3278	6500
17.	Kerala	1220	78	1298	8338
18.	Lakshadweep	-	-	-	21
19.	Maharashtra	8589	510	9099	19.204
20.	Manipur	40	-	40	112.9
21.	Meghalaya	35	-	35	284.6
22.	Mizoram	46	-	46	4742
23.	Madhya Pradesh	2286	398	2684	4500
24.	Nagaland	-	-	-	187.6
25.	Orissa	646	9	655	2239.2
26.	Puducherry	60	9	69	380
27.	Punjab	1001	265	1266	2793.5
28.	Rajasthan	1768	198	1966	5037.3
29.	Sikkim	-	-	-	40
30.	Tamil Nadu	5021	382	5403	12504
31.	Tripura	33	-	33	360
32.	Uttar Pradesh	5515	445	5960	11.585
33.	Uttaranchal	-	-	-	752
34.	West Bengal	4475	146	4621	12557
	Total	48134	3991	52125	127485.107

* Based on CPCB's study conducted through;

(a) EPTRI

(b) As reported by SPCBs / PCCs (during 2009-12).

Annexure-C

STATE-WISE MUNICIPAL SOLID WASTE GENERATION DATA

(Updated as on 31st JULY 2012)

S.No	State	Quantity Generated (TPD)	Collected (TPD)	Treated (TPD)	Reference
1	Andaman & Nicobar	50	43	Nil	Letter dt. 21.4.2011
2	Andhra Pradesh	11500	10655	3656	Letter dt. 1.10.2011
3	Arunachal Pradesh	94	NA	Nil	
4	Assam	1146	807	72.65	Letter dt. 27.12.2011
5	Bihar	1670	1670	Nil	Letter dt. 18.8.2010
6	Chandigarh	380	370	300	Letter dt. 22.12.2011
7	Chhattisgarh	1167	1069	250	Letter dt. 6.6.2012
8	Daman Diu & Dadra	28+13=41	NA	Nil	Letter dt. 18.8.2010
9	Delhi	7384	6796	1927	Letter dt. 3.2.12 & 28.2.12
10	Goa	193	NA	NA	GSPCB Report
11	Gujarat	7379	6744	873	Letter dt. 3.12.2011
12	Haryana	537	NA	Nil	Letter dt. 21.5.10 & 2.6.10
13	Himachal Pradesh	304	275	153.0	Letter dt. 23.12.2011
14	Jammu & Kashmir	1792	1322	320	Letter dt. 21.5.2012
15	Jharkhand	1710	869	50	JSPCB Report
16	Karnataka	6500	2100	2100	Letter dt. 25.6.2010
17	Kerala	8338	1739	1739	Letter dt. 17.6.2010
18	Lakshadweep	21	21	4.2	Proj. Proposal dt. 16.11.06
19	MP	4500	2700	975	Letter dt. 3.1.2012
20	Maharashtra	19,204	19,204	2080	Letter dt. 24.8.2009
21	Manipur	113	93	2.5	MPCB Report 2009
22	Meghalaya	285	238	100	MPCB Report Jan' 2012
23	Mizoram	4742	3122	Nil	Letter dt. 17.10.2011
24	Nagaland	188	140	Nil	NPCB Report 2011
25	Orissa	2239	1837	33	Letter dt. 30.5.12
26	Puducherry	380	NA	Nil	Letter dt. 27.5.2009
27	Punjab	2794	NA	Nil	Letter dt. 3.5.2010
28	Rajasthan	5037	NA	Nil	Letter dt. 29.9.2011
29	Sikkim	40 (capital)	32	32	Letter dt. 11.5.12
30	Tamil Nadu	12504	11626	603	Letter dt. 17.11.2011
31	Tripura	360	246	40	Letter dt. 18.8.2010
32	Uttar Pradesh	11,585	10563	Nil	IIT-K Report:2011& Letter dt. 23.8.2010
33	Uttrakhand	752	NA	Nil	Letter dt. 20.1.2011
34	West Bengal	12557	5054	606.5	JPU Report April 2010 & Letter dt. 17.10.2011
	34 States	1,27,486	89,334	15,881	

Annexure- D

STATUS OF ANNUAL REPORT RECEIVED FROM SPCBS/PCCS

States	2001-2	2002-3	2003-4	2004-5	2005-6	2006-7	2007-8	2008-9	2009-10	2010-11
Andaman Nicobar				Y	Y					
Andhra Pradesh		Y	Y	Y	Y	Y	Y	Y	Y	Y
Arunachal P.				Y			Y	Y	Y	Y
Assam	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Bihar			Y	Y	Y		Y	Y		Y
Chandigarh		Y	Y	Y	Y	Y	Y	Y	Y	
Chhatisgarh	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Daman Diu			Y							
Delhi			Y			Y			Y	Y
Goa						Y	Y	Y	Y	Y
Gujarat		Y	Y	Y	Y		Y	Y	Y	Y
Haryana	Y	Y	Y			Y				
Himachal Pradesh		Y	Y	Y	Y	Y		Y	Y	Y
J & K			Y							Y
Jharkhand			Y							
Karnataka	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Kerala	Y	Y	Y			Y	Y	Y		Y
Lakshadweep							Y			
Madhya Pradesh			Y	Y	Y	Y		Y	Y	Y
Maharashtra	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Manipur			Y				Y			
Meghalaya	Y	Y	Y	Y	Y			Y	Y	Y
Mizoram								Y	Y	Y
Nagaland			Y	Y	Y	Y	Y	Y	Y	Y
Orissa	Y	Y	Y	Y	Y		Y	Y	Y	Y
Puducherry	Y	Y	Y		Y		Y	Y		
Punjab	Y	Y	Y	Y	Y	Y		Y	Y	Y
Rajasthan			Y	Y		Y	Y	Y		
Sikkim			Y				Y			Y
Tamil Nadu			Y	Y		Y	Y	Y	Y	Y
Tripura		Y	Y	Y	Y	Y	Y	Y	Y	Y
Uttar Pradesh	Y			Y	Y		Y	Y		
Uttarakhand		Y	Y					Y	Y	Y
West Bengal		Y	Y	Y	Y	Y	Y	Y	Y	Y
Total	11	17	28	21	19	18	22	25	21	22

Y: Yes, submitted Annual Report

List of CPCB Publications on MSW Management

S. N.	Title	Reference
1	Development of Site Selection Methodology for Landfilling A case Study for Bangalore	HAZWAMS/22/2002-03
2	Municipal Solid Wastes Processing Technologies: Reference Manual for local Bodies	CUPS/53/2002-03
3	Guidelines for the selection of site for Landfilling	HAZWAMS/23/2002-03
4	A support Manual for Municipal Solid Wastes (Management and Handling) Rules, 2000	IMPACTS/11/2003-04
5	Characterisation of MSW Compost and its Application in Agriculture	CUPS/59/2005-06
6	Health Status of Conservancy Staff and Other Community Associated with Municipal Solid Wastes Management in Kolkata and Chennai	CUPS/62/2005-06
7	Status of Methane Emission from Municipal Solid Waste Disposal Sites	CUPS/63/2006-07
8	Assessment of Status of Municipal Solid Waste Management in Metro Cities and State Capitals	CUPS/65/2006-07
9	Guidelines and check-list for evaluation of MSW Landfills proposals with information on existing landfills	PROBES/124/2008-09
10	Assessment of Ground Water Quality Around the Municipal Solid Waste Landfill Sites	GWQS/10/2010
11	Report of the Committee to Evolve Road Map on Management of Wastes in India	HAZWAMS/35/2010-11
12	Economics of Municipal Solid Waste Management in Tamil Nadu a State level case study	CUPS/74/2010-11
13	Characterisation of VOCs at the Municipal Solid Waste Disposal Location, Dhapa, Kolkata	CUPS/73/2010-11
14	Identification of Sites for Setting up of Regional Landfill Facilities in National Capital Region (NCR)	CUPS/76/2010-11