

## Waste Generation and Composition

- Total quantity of waste generated in the country (based on weighment exercise by local bodies) is not reported. However, Ministry of Urban Development in its manual on solid waste management (year 2000) has estimated waste generation of 100,000 MT.
- CPCB with the assistance of NEERI has conducted survey of solid waste management in 59 cities (35 metro cities and 24 state Capitals: 2004-05)
- Quantities and waste generation rate in 59 cities is as under.

S. No	Name of City	Population (As per 2001 census)	Area (Sq. Km)	Waste Quantity (TPD)	Waste Generation Rate (kg/c/day)
1	Kavaratti	10,119	4	3	0.30
2	Gangtok	29,354	15	13	0.44
3	Itanagar	35,022	22	12	0.34
4	Daman	35,770	7	15	0.42
5	Silvassa	50,463	17	16	0.32
6	Panjim	59,066	69	32	0.54
7	Kohima	77,030	30	13	0.17
8	Port Blair	99,984	18	76	0.76
9	Shillong	1,32,867	10	45	0.34
10	Simla	1,42,555	20	39	0.27
11	Agartala	1,89,998	63	77	0.40
12	Gandhinagar	1,95,985	57	44	0.22
13	Dhanbad	1,99,258	24	77	0.39
14	Pondicherry	2,20,865	19	130	0.59
15	Imphal	2,21,492	34	43	0.19
16	Aizwal	2,28,280	117	57	0.25
17	Jammu	3,69,959	102	215	0.58
18	Dehradun	4,26,674	67	131	0.31
19	Asansol	4,75,439	127	207	0.44
20	Kochi	5,95,575	98	400	0.67
21	Raipur	6,05,747	56	184	0.30
22	Bhubaneswar	6,48,032	135	234	0.36
23	Tiruvanantapuram	7,44,983	142	171	0.23
24	Chandigarh	8,08,515	114	326	0.40
25	Guwahati	8,09,895	218	166	0.20
26	Ranchi	8,47,093	224	208	0.25
27	Vijaywada	8,51,282	58	374	0.44
28	Srinagar	8,98,440	341	428	0.48
29	Madurai	9,28,868	52	275	0.30
30	Coimbatore	9,30,882	107	530	0.57
31	Jabalpur	9,32,484	134	216	0.23

32	Amritsar	9,66,862	77	438	0.45
33	Rajkot	9,67,476	105	207	0.21
34	Allahabad	9,75,393	71	509	0.52
35	Vishakhapatnam	9,82,904	110	584	0.59
36	Faridabad	10,55,938	216	448	0.42
37	Meerut	10,68,772	142	490	0.46
38	Nashik	10,77,236	269	200	0.19
39	Varanasi	10,91,918	80	425	0.39
40	Jamshedpur	11,04,713	64	338	0.31
41	Agra	12,75,135	140	654	0.51
42	Vadodara	13,06,227	240	357	0.27
43	Patna	13,66,444	107	511	0.37
44	Ludhiana	13,98,467	159	735	0.53
45	Bhopal	14,37,354	286	574	0.40
46	Indore	14,74,968	130	557	0.38
47	Nagpur	20,52,066	218	504	0.25
48	Lucknow	21,85,927	310	475	0.22
49	Jaipur	23,22,575	518	904	0.39
50	Surat	24,33,835	112	1000	0.41
51	Pune	25,38,473	244	1175	0.46
52	Kanpur	25,51,337	267	1100	0.43
53	Ahmedabad	35,20,085	191	1302	0.37
54	Hyderabad	38,43,585	169	2187	0.57
55	Banglore	43,01,326	226	1669	0.39
56	Chennai	43,43,645	174	3036	0.62
57	Kolkata	45,72,876	187	2653	0.58
58	Delhi	1,03,06,452	1483	5922	0.57
59	Greater Mumbai	1,19,78,450	437	5320	0.45

- Characterisation of waste is necessary to know changing trends in composition of waste. Based on composition/ characterization of waste, appropriate selection of waste processing technologies could be selected.
- Waste characterisation in 59 cities is indicated below:

S. No	Name of City	Compostables (%)	Recyclables (%)	C/N Ratio	HCV* (Kcal/Kg)	Moisture (%)
1	Kavarati	46.01	27.20	18.04	2242	25
2	Gangtok	46.52	16.48	25.61	1234	44
3	Itanagar	52.02	20.57	17.68	3414	50
4	Daman	29.60	22.02	22.34	2588	53
5	Silvassa	71.67	13.97	35.24	1281	42
6	Panjim	61.75	17.44	23.77	2211	47
7	Kohima	57.48	22.67	30.87	2844	65
8	Port Blair	48.25	27.66	35.88	1474	63
9	Shillong	62.54	17.27	28.86	2736	63
10	Simla	43.02	36.64	23.76	2572	60

11	Agartala	58.57	13.68	30.02	2427	60
12	Gandhinagar	34.30	13.20	36.05	698	24
13	Dhanbad	46.93	16.16	18.22	591	50
14	Pondicherry	49.96	24.29	36.86	1846	54
15	Imphal	60.00	18.51	22.34	3766	40
16	Aizwal	54.24	20.97	27.45	3766	43
17	Jammu	51.51	21.08	26.79	1782	40
18	Dehradun	51.37	19.58	25.90	2445	60
19	Asansol	50.33	14.21	14.08	1156	54
20	Kochi	57.34	19.36	18.22	591	50
21	Raipur	51.40	16.31	223.50	1273	29
22	Bhubaneswar	49.81	12.69	20.57	742	59
23	Tiruvananthapuram	72.96	14.36	35.19	2378	60
24	Chandigarh	57.18	10.91	20.52	1408	64
25	Guwahati	53.69	23.28	17.71	1519	61
26	Ranchi	51.49	9.86	20.23	1060	49
27	Vijaywada	59.43	17.40	33.90	1910	46
28	Srinagar	6177	17.76	22.46	1264	61
29	Madurai	55.32	17.25	32.69	1813	46
30	Coimbatore	50.06	15.52	45.83	2381	54
31	Jabalpur	58.07	16.61	28.22	2051	35
32	Amritsar	65.02	13.94	30.69	1836	61
33	Rajkot	41.50	11.20	52.56	687	17
34	Allahabad	35.49	19.22	19.00	1180	18
35	Visakhapatnam	45.96	24.20	41.70	1602	53
36	Faridabad	42.06	23.31	18.58	1319	34
37	Meerut	54.54	10.96	19.24	1089	32
38	Nasik	39.52	25.11	37.20	2762	62
39	Varanasi	45.18	17.23	19.40	804	44
40	Jamshedpur	43.36	15.69	19.69	1009	48
41	Agra	46.38	15.79	21.56	520	28
42	Vadodara	47.43	14.50	40.34	1781	25
43	Patna	51.96	12.57	18.62	819	36
44	Ludhiana	49.80	19.32	52.17	2559	65
45	Bhopal	52.44	22.33	21.58	1421	43
46	Indore	48.97	12.57	29.30	1437	31
47	Nagpur	47.41	15.53	26.37	2632	41
48	Lucknow	47.41	15.53	21.41	1557	60
49	Jaipur	45.50	12.10	43.29	834	21
50	Surat	56.87	11.21	42.16	990	51
51	Pune	62.44	16.66	35.54	2531	63
52	Kanpur	47.52	11.93	27.64	1571	46
53	Ahemdabad	40.81	11.65	29.64	1180	32
54	Hyderabad	54.20	21.60	25.90	1969	46
55	Bangalore	51.84	22.43	35.12	2386	55

56	Chennai	41.34	16.34	29.25	2594	47
57	Kolkata	50.56	11.48	31.81	1201	46
58	Delhi	54.42	15.52	34.87	1802	49
59	Greater Mumbai	62.44	16.66	39.04	1786	54

## **STATUS OF IMPLEMENTATION OF MSW RULES**

Assessment of status of solid waste management is based on annual reports being furnished by local bodies to State Pollution Control Boards and forwarding consolidated Annual Report to CPCB.

### **ANNUAL REPORT: 2006-07**

Local bodies are required to forward Annual report for each year to SPCBs/PCCs before 30<sup>th</sup> June every year and SPCBs in turn, will send their consolidated report for the year before 15<sup>th</sup> September to CPCB. However, in terms of adhering with stipulated schedule, delay has been observed. As of 31<sup>st</sup> December, 2007, CPCB could receive Annual reports only from 17 SPCBs/PCCs. Based on information received from 18 SPCBs and the response received with reference to Lok Sabha Starred Question No.238 answered on 29.08.2007, present Annual Report of 2005-06 is prepared.

### **Authorizations**

- Details on authorization granted by SPCBs is given in *Annexure-I*.
- Except SPCBs Gujarat, Maharashtra and Karnataka, other State Boards have not issued authorizations to the majority of local bodies in their respective states.

### ***Implementation of Schedule-II***

- Efforts are being made by many local bodies for creating awareness in the citizens for ensuing proper management of waste including systematization of procedures relating to waste collection, segregation, storage and transportation. However, such efforts are either restricted to a few localities/wards within the town or a few ULBs taken up such efforts at entire town level.
- The efforts made by local bodies for bringing improvement in waste collection, segregation, storage and transportation is given in *Annexure-II*.
- Cleanliness varies from town-to-town depending on the initiatives taken by that local body. It has been observed that collection of waste from door-step is the most critical issue in the entire management of MSW.

### ***Implementation of Schedule-III (Landfilling)***

- Disposal of waste is still continued through open dumping.
- As per information of State Boards, landfills have been reported as 'constructed' at; Bangalore, Mangalore, Karwar, Puttur, Ankola, Surat, Alang, Nashik, Sonpeth, Ambad. At other places, landfills are under construction/ or planning stage.
- A status indicating information on landfill is given at *Annexure-III*

### ***Implementation of Schedule-IV (Waste Processing)***

- There has been a positive movement on setting up of waste processing facilities as compared to the efforts made in the previous years. In many States, several towns have responded that there is partial composting/vermi-composting facilities. Local bodies have not so far preferred waste-to-energy projects except in the State of Andhra Pradesh.
- Statewise information on existing/proposed waste processing plants or where some initiatives have been taken is given at *Annexure-IV*.
- It has been observed that 'composting' and 'vermi-composting' is preferred as easy technological option by local bodies and other options like thermal processing (incineration, pyrolysis etc.) are not attempted due to non-availability of operating experiences.

### **INITIATIVES AT NATIONAL LEVEL**

CPCB and MoEF and other Central Ministries such as Ministry of Urban Development (MoUD) and Ministry of Non-Conventional Energy Sources (MNES) have taken initiatives to facilitate implementation of MSW rules. Some of the initiatives taken are briefly summarized as under: