

**Annual Report**  
**on**  
**Biomedical Waste Management**  
**as per**  
**Biomedical Waste Management Rules, 2016**  
**For the year 2017**



**Central Pollution Control Board**  
**(Ministry of Environment Forest & Climate Change)**  
**Parivesh Bhawan, East Arjun Nagar**  
**Delhi - 110032**

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## 1. Introduction:

Biomedical Waste Management Rules, 2016 (BMWM Rules, 2016) notified under Environment (Protection) Act, 1986 in March, 2016 by Ministry of Environment Forest & Climate Change (MoEF & CC) which stipulates about segregation, storage, collection, reception, handling, transport, treatment & disposal of bio-medical waste in an environmentally sound manner. Said rules were further amended in March, 2018 by MoEF & CC in which Format for submission of Annual Report by State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) is notified. Following are the new provisions amended under Biomedical Waste Management Rules, 2016, as amended:

- Duties of Occupier w.r.to: (i) the pre-treatment of laboratory waste as per the guidelines of WHO on "Safe Management of waste from Healthcare Activities & WHO Blue Book, 2014"; (ii) Phase out of plastic bags/ gloves excluding blood bags by 27.03.2019; (iii) Establishment of barcode system as per the guidelines of CPCB by 27.03.2019; (iv) development of website for biomedical waste details within two years.
- Duty of Operator of CBWTF w.r.to establishment of barcode system and GPS system in accordance with CPCB guidelines by 27.03.2019.
- Routine mask & gown are added in Yellow (g) category (discarded linen, mattresses, beddings contaminated with blood or body fluid) of biomedical waste in Schedule I of the BMWM Rules, 2016.
- Storage of segregated blue category of biomedical waste in puncture proof, leak proof boxes or containers with blue colored marking.
- Standards for liquid waste have been amended w.r.t. the applicability of the same by Healthcare Facilities by 31.12.2019 as well as w.r.to discharge of waste effluent in public sewer.
- Format for Annual Report Submission by the SPCBs/PCCs to CPCB has been prescribed under Form IV A.

## 2. Inventory on Biomedical Waste Management:

As per BMWM Rules, 2018, it is the duty of SPCBs and PCCs to prepare an inventory on biomedical waste management vis-à-vis no. of Occupiers, quantity of biomedical waste generation, its collection, treatment and disposal. Apart of this, SPCBs and PCCs as well as Director General Armed Forces Medical Services (DGAFMS) are required to submit the Annual Report Information on Bio-medical Waste Management in their respective State / Union Territory / AFHCE for the previous calendar year in a compiled form to the Central Pollution Control Board (CPCB), on or before 31<sup>st</sup> July of every year.

## 3. Bio-medical Waste Management Scenario:

The annual report information on bio-medical waste management for the year 2017 has been received from all of the SPCBs/PCCs & DGAFMS.

As per the compiled annual report information for the year 2017, there are 2, 38,259 no. of Health Care Facilities (HCFs) out of which 87,281 no. of HCFs are bedded and 1,51,302 no. of HCFs are non-bedded. The total generation of bio-medical waste is about 559 Tonnes per day. 84,805 no. of HCFs have granted authorization under the BMW Rules. There are 198 no. of CBWTFs in operation (24 under construction) and 9,841 no. of HCFs are having captive bio-

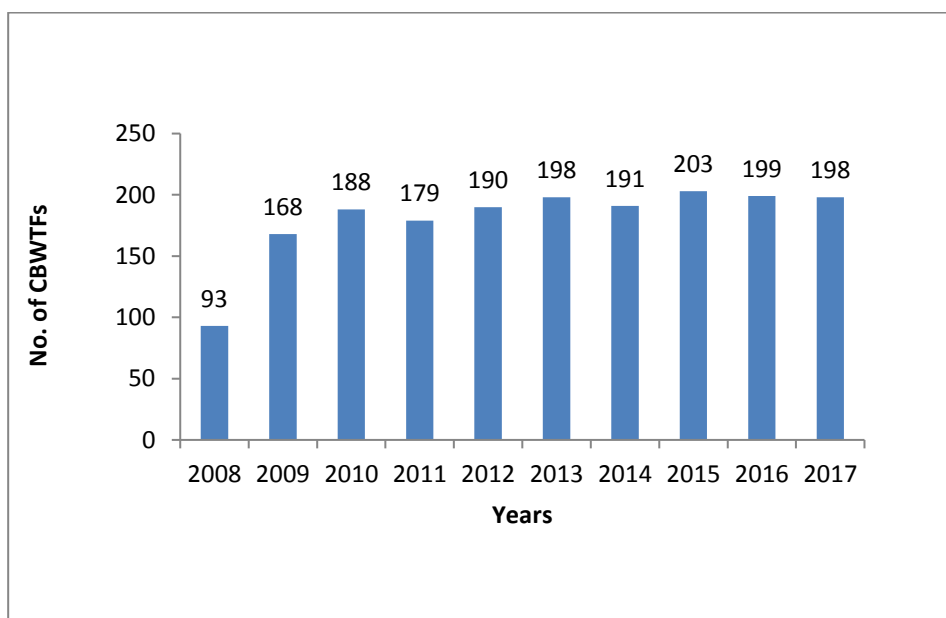
medical waste treatment and disposal facilities, which are involved in treatment and disposal of 518 tonnes out of 559 Tonnes per day bio-medical waste. As reported, 23,942 no. of HCFs/CBWTFs observed to be violating the provisions of the BMW Rules. The detailed bio-medical waste management scenario in the Country (**Annexure-I**) is given below:

➤ No. of HCFs	: 2,38,259
➤ No. of bedded HCFs	: 87,281
➤ No. of non-bedded HCFs	: 1,51,302
➤ No. of beds	: 20,94,858
➤ No. of CBWTFs	: 198* + 24**
➤ No. of HCFs granted authorization	: 84805
➤ No. of HCFs having Captive Treatment Facilities	: 9,841
➤ No. of Captive Incinerators Operated by HCFs	: 225
➤ Quantity of bio-medical waste generated in Tonnes/day	: 559
➤ Quantity of bio-medical waste treated in Tonnes/day	: 518s
➤ No. of HCFs violated BMW Rules	: 23,942
➤ No. of Show-cause notices/Directions issued to defaulter HCFs	: 18,210

**Note:** (i) \* - CBWTFs in operation (ii) \*\* - CBWTFs under installation

#### 4. Common Bio-medical Waste Treatment Facilities:

Based on the annual report information, there are 198 numbers of CBWTFs which are in operational for the treatment of biomedical waste. 07 nos. of States/UTs are not having CBWTFs for the treatment of biomedical waste and hospitals are disposing the generated biomedical waste through incinerators or deep burial and autoclaves/microwaves. Based on the annual report information, trend in development of CBWTFs is shown in **Figure 1** below:



**Figure: 1. Year-wise Status of Common Bio-medical Waste Treatment Facilities**

As per the BMWM Rules, 2016 CBWTFs are required to be complied with the standards prescribed under BMWM Rules, 2016 w.r.to two second residence time in secondary chamber of the incinerator and emission norms for PM, NOx, HCl, Dioxins & Furans and Hg.

## 5. Findings:

- i. There are 2, 38,259 no. of Healthcare Facilities out of which 87,281 no. of HCFs are bedded and 15, 1,302 no. of HCFs are non-bedded. As per BMWM Rules, 2016, Healthcare Facilities are required to obtain authorization under said Rules, irrespective of quantity of biomedical waste generation.
- ii. Out of 2, 38,259 of HCFs, 97,099 (40%) no. of HCFs have applied for authorized and 84,805 (35%) HCFs are granted authorized under BMWM Rules, 2016.
- iii. The generated 559 tons/day of biomedical waste is treated & disposed by 198 no. of CBWTFs and captive treatment facility installed by HCFs. About 78 % of biomedical waste is treated by CBWTF; rest of the waste is treated & disposed by either captive treatment facilities or being disposed off in deep burials.
- iv. There are 225 no. of captive incinerators installed by HCFs, which are required to be complied with new emission standards prescribed under BMWM Rules, 2016.
- v. States like Andaman & Nicobar, Assam, Bihar, Chhattisgarh, Goa, Himachal Pradesh, Jharkhand, Jammu & Kashmir, Karnataka, Lakshadweep, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Rajasthan, Tamil Nadu, Tripura, Uttarakhand, Uttar Pradesh & West Bengal are having deep burials for the disposal of biomedical waste.
- vi. States/UTs like Bihar (6 %), Delhi (4.4 %), Gujarat (5.21 %), Karnataka (12 %), Kerala (7.35 %), Maharashtra (11.10 %), Rajasthan (4.03 %), Tamil Nadu (8.39 %), Uttar Pradesh (7.81 %) & West Bengal (5.34 %) are the major biomedical waste generating States/UTs
- vii. States like Arunachal Pradesh, Andaman & Nicobar, Goa, Lakshadweep, Mizoram, and Nagaland & Sikkim are not having CBWTF for the treatment & disposal of biomedical waste.

## 6. Issues and Recommendations on Bio-medical Waste Management:

- I. **Non-submission of Annual Report Information on Biomedical waste Management within the due date (i.e., by 31<sup>st</sup> July of every year):** Delay in submission of annual reports by SPCBs/PCCs is due to non-submission of information by HCFs/CBWTFs. SPCBs/PCCs should direct all the HCFs/CBWTFs located in the respective State/UT for submission of Annual Report by 30<sup>th</sup> of July of every year in accordance with BMWM Rules.
- II. **Operation of Healthcare Facilities without Authorization under BMW Rules:** SPCBs/PCCs should direct HCFs (bedded and non-bedded) to obtain authorization under BMWM Rules, 2016 and also become member of CBWTF for ensuring treatment and disposal of biomedical waste as per BMWM Rules, 2016.

- III. **States/UTs which are yet to develop CBWTFs in the respective State/UT:** SPCBs/PCCs (Andaman Nicobar, Arunachal Pradesh, Goa , Lakshadweep, Mizoram, Nagaland, and Sikkim where CBWTF is not available, should explore options for setting up of CBWTFs. Also, SPCBs/PCCs may use the Scheme namely 'Creation of Management Structure for Hazardous Substances' of MoEF & CC for setting up of CBWTF for availing financial assistance.
- IV. **Mercury waste disposal:** The HCFs are required to phase out all mercury based medical instruments used in treatment of patients and also to ensure mercury waste management as per the CPCB guidelines i.e. "Environmentally Sound Management of Mercury Waste generated in Healthcare Facilities.
- V. **Installation of CEMS by CBWTFs operator:** SPCBs/PCCs should direct al the CBWTFs operating in their respective State/UT to install OCEMS for the parameters as prescribed by SPCBs/PCCs.
- VI. **Biomedical waste management in Veterinary Hospitals:** SPCBs/PCCs should direct all the Veterinary Hospitals as well as animal houses from where animal anatomical waste is generated to treat and dispose the biomedical waste through CBWTF as per the treatment & disposal options given under BMWM Rules, 2016.

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**Annual Report Information on Bio-medical Waste Management Scenario in the Country for the Year 2017**  
(As submitted by SPCBs/PCCs and DGAFMS) as on 02.05.2019

S.No.	Name of the State/UT and	Total no. of Bedded Health Care Facilities (HCFs)	Total no. of Non-bedded Health Care Facilities (HCFs)	Total no. Health Care Facilities (HCFs)	Total no. of Beds	Authorization Status			No. of HCFs utilization CBWTFs	Total Quantity of BMW generated (kg/day)	Total Quantity of BMW Treated and Disposed (kg/day)	Captive BMW Treatment Facilities Operated by the (HCFs)		Common Bio-medical Waste Treatment Facilities (CBWTFs)		Total BMW treated by captive treatment facilities by HCF in Kg/day	Total BMW treated by CBWTFs kg/day)	Total no. of violation by HCFs & CBWTFs	Total No. of show cause notices/Directions issued to defaulter HCFs/CBWTFs	No. of CBWTFs that have installed COEMS
						Total no. of HCFs applied for authorization	Total no. of HCFs granted authorization	Total no. of HCFs in operation without				No. of HCFs having Captive Treatment Facilities	No of Captive Incinerators Operated by HCFs	CBWTFs Operational	CBWTFs under Construction					
I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	XIV.	XV.	XVI.	XVII.	XVIII.	XIX.	XX.	XXI.
1	Andaman Nicobar (12.10.2018)	48	71	119	1269	59	6	60	Nil	187	154	6	6	Nil	Nil	154	Nil	Nil	Nil	NIL
2	Andhra Pradesh (03.01.2019)	3810	3089	6899	108246	2638	2608	2316	6026	10662.27	10662.27	Nil	Nil	11	1	Nil	10662.27	2226	2272	9
3	Arunachal Pradesh (28.08.2018)	16	56	72	1198	72	72	Nil	Nil	645.4	645.4	4	3	Nil	Nil	645.4	Nil	Nil	Nil	Nil
4	Assam (05.09.2018)	624	791	1415	26347	339	168	1076	300	8564.95	6581.27	104	15	1	Nil	2376.16	4205.9	1077	780	1
5	Bihar (20.08.2018)	4130	19554	23684	53640	367	42	21460	2599	33799.97	7439.39	3	3	3	1	575.39	6864	2040	2040	3
6	Chandigarh (03.08.2018)	49	739	788	4413	82	350	644	727	2503	2503	3	4	1	Nil	1976	442	3	3	NA
7	Chhattisgarh (23.08.2018)	307	321	628	8728	430	386	Nil	1457	1104.493	1136.293	289	1	4	1	221.643	914.65	30	23	2

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8	Daman &Diu and Dadra & Nagar Haveli (05.12.20 18)	23	111	134	760	75	46	63	INP	322	322	Nil	Nil	1	Nil	Nil	322	26	26	INP
9	Delhi (25.07.20 18)	1478	3916	5394	50675	959	872	Nil	5394	24667.05	24667.05	3 only autoclave.	Nil	2	Nil	402	24264.47	557	557	2
10	Goa (02.01.20 18)	86	149	235	3523	603	601	INP	Nil	874	874	235	1	Nil	Nil	874	NIL	360	INP	Nil
11	Gujarat (31.07.20 18)	10936	18627	29563	193599	6401	6182	6529	26769	29070	29070	INP	INP	19	Nil	Nil	29070	2763	2764	INP
12	Haryana (15.11.20 18)	2351	1061	3412	48357	3024	2948	352	3393	11662.91	11662.91	Nil	Nil	11	Nil	Nil	11662.91	352	352	11
13	Himachal Pradesh (31.07.20 18)	496	2006	2417	13525	690	176	1775	1148	3018.8	3027.6	601	2	3	Nil	928.5	2099.1	907	907	3
14	Jharkhand (31.08.20 18)	1009	432	1086	28771	130	172	Nil	97	12498.04	10979.99	Nil	13	2	NIL	8592.99	2387	NA	702	INP
15	J & K (30.11.20 18)	804	880	1684	15347	662	470	1011	1281	4618.58	4172.7	2	1	3	NIL	831	3341.7	1015	547	3
16	Karnataka (20.11.20 18)	6484	25880	32364	199486	32364	23846	8086	21969	67339	67339	3327	3	26	4	7186	60153	5352	647	21

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17	Kerala (26.12.2018)	2130	7498	9628	102086	4845	4763	704	8725	40990	38869.38	20	14	1	Nil	3368.38	35500	Nil	31	1
18	Lakshadweep (29/4/2019)	10	15	25	250	Nil	Nil	25	NIL	423	INP	25	3	Nil	Nil	88	Nil	Nil	Nil	INP
19	Madhya Pradesh (31.07.2018)	2836	3526	6362	87165	3272	3250	3090	3474	14824	13569	1	1	13	Nil	204	13187	1348	652	8
20	Maharashtra (31.12.2018)	20487	43337	63824	293345	13580	12579	22	54111	61918	61918	313	4	30	2	2596	59322	22	26	20
21	Manipur (05.09.2017)	128	552	680	3629	130	85	INP	26	529.14	529.14	532	4	1	Nil	529.14	Nil	Nil	299	INP
22	Meghalaya (25.07.2018)	174	566	740	6666	339	339	401	21	1061.65	1061.5	88	1	1	Nil	663.58	398.07	Nil	Nil	Nil
23	Mizoram (31.07.2018)	94	18	112	1970	7	7	Nil	Nil	747.63	747.63	42	4	Nil	Nil	747.63	Nil	Nil	INP	NA
24	Nagaland (06.08.2018)	63	95	158	2411	158	158	Nil	Nil	626.5	626.5	158	4	Nil	Nil	626.5	Nil	Nil	Nil	Nil
25	Orissa (21.08.2018)	1470	876	2346	44186	417	485	5	528	14197.49	13171.47	1618	4	5	1	10422.78	2748.69	195	195	1
26	Puducherry (02.01.20	80	99	242	11621	188	162	Nil	423	5400	5400	Nil	Nil	1	Nil	Nil	5400	6	7	1



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	19)																			
27	Punjab (25.10.2018)	3568	3569	7137	65866	2375	2246	1987	7136	15203	15203	Nil	Nil	4	2	Nil	15203	1425	1430	4
28	Rajasthan (10.08.2018)	4458	1497	5974	111838	1815	1881	317	3249	22502.57	16166.99	987	Nil	9	7	2427.17	13739.82	1282	1364	3
29	Sikkim (23.08.2018)	36	8	73	1535	33	Nil	40	Nil	235.21	197.76	32	6	Nil	Nil	197.32	Nil	Nil	5	Nil
30	Tamil Nadu (16.08.2018)	3972	220	4192	135192	3956	3931	205	5343	46818.8	46818.8	Nil	Nil	9	3	Nil	46818.8	57	2	2
31	Telangana (16.08.2018)	3039	1163	4200	101907	1636	1633	348	4358	15719	15719	Nil	Nil	11	Nil	Nil	15719	350	359	9
32	Tripura (16.10.2018)	137	1753	1890	4694	342	342	Nil	207	1607	1582.88	749	4	1	NIL	1135	447.88	42	42	INP
33	Uttarakhand (14.01.2019)	593	256	856	9109	323	187	533	1146	2946	3837	251	5	2	Nil	891	2946	254	254	1
34	Uttar Pradesh (25.07.2018)	8445	4431	12876	199908	8522	7644	5232	3653	43554	43554	13	13	17	Nil	6505	37049	525	525	17
35	West Bengal (04.10.2018)	2685	3720	6405	115106	5676	5676	729	6405	29773.84	29894.84	1	Nil	6	2	125	29773.84	1728	1399	6

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I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	XIV.	XV.	XVI.	XVII.	XVIII.	XIX.	XX.	XXI.
36	DGAFMS (28.09.2018)	225	420	645	38490	590	492	Nil	Nil	28470.21	28470.21	404	106	Nil	Nil	26608.733	1861.248	Nil	Nil	Nil
	<b>Total</b>	87281	151302	238259	2094858	97099	84805	57010	169965	559084.5	518574	9841	225	198	24	81898.32	436503.3	23942	18210	128

Note.

INP: Information Not Provided