EPCA report 112

Hospital waste management for COVID-19: status and areas of improvement for the urgent attention of Hon'ble Supreme Court in compliance with directions of 21.7.2020

27.7.2020

On 21.7.2020, the Hon'ble Supreme Court directed that a meeting of the Central Pollution Control Board, Delhi Pollution Control Committee and ECPA and requisite stakeholders should be convened within three days from today and steps be taken with respect to clearing bio-medical waste of various hospitals and that of Corona patients.

In compliance with these directions, an urgent meeting was convened on 24.7.2020 of all stakeholders – Central Pollution Control Board (CPCB), state pollution control boards, municipal corporations of Delhi and key cities of NCR and health department officials. The meeting discussed the current state of management of COVID-19 waste and the urgent issues for improvement.

This report is in continuation of the EPCA report no 110 on biomedical waste management. The details received from CPCB on the current state of biomedical waste management in NCR and steps taken is provided in Annexure 1.

The following are the key issues that emerged in the discussions:

1. CPCB has been proactive in issuing directives/guidelines for the management of COVID-19 biomedical and plastic waste. These guidelines have evolved because of the dynamic situation from March 19th, when the issue was primarily regarding isolation wards in hospitals; to March 25th, when the issue of quarantine centers was added; In April the management of wastewater from treatment facilities was emphasized; June 6th guideline focused on the growing problem of waste handlers and the need for protective gear for sanitary workers and others involved in the waste system. In the latest review and guidelines (4th review), CPCB has stressed on the issue of segregation of generation household waste from infectious waste so that it does not over-load the treatment system.

2. The guidelines include the management of biomedical waste in homes, where there are patients under self-quarantine; isolation wards in railway carriages and other such institutional facilities in the private and public sector.

3. Based on the directions of the Hon'ble NGT, CPCB has also launched an APP to track biomedical waste (COVID19BWM). This allows generator of waste (urban local body in the case of home care and hospital or laboratory); the picker of the waste (transport of the ULB or the waste treatment facility) and the waste treatment operator to feed in data so that COVID-19 biomedical waste can be tracked and monitored.

4. With the increase in the number of COVID-19 positive cases, there is a huge increase in the quantum of biomedical waste generated. Based on data provided by CPCB the quantum

of biomedical waste generated has increased from 94 tonnes in May 2020 in states/UT of Haryana, UP, Rajasthan and Delhi to 761 tonnes in July (till 24.7.2020).[1] This data may be on the lower side as a number of generators have not yet registered on the APP or are not using the APP.

Biomedical waste generated in Delhi, Haryana, UP, Rajasthan

	May	June	July
Biomedical waste generated (metric tonnes/month)[2]	94	665	761

5. However, according to CPCB and state pollution control boards, the huge increase in June was also because biomedical waste from households and quarantine centers was not being segregated and so general waste was being mixed. This put pressure on the central facilities for biomedical waste disposal. Therefore, now there is an emphasis on the need to segregate the biomedical waste from general waste, even in households where there are COVID-19 patients. According to the guidelines, only the infected waste (PPE suits, gloves, masks, swabs) should be put in the "yellow' bag meant for incineration, while all the food and other waste should be collected as general waste.

6. CPCB's assessment is that at the current rate of bio-medical waste generation and if there is adequate segregation, then the common facilities (Common Bio-medical Waste Treatment Facilities or CBWTF) are adequate in the region. The data shows that the states and the region has adequate capacity for treatment of biomedical waste – Delhi can treat 2220 tonnes/month; Haryana 288 tonnes/month; UP 1656 tonnes/month and Rajasthan 72 tonnes/month. This obviously, will need to be carefully monitored and tracked as in case the generation load increases – as the case load increases – then other facilities like hazardous waste incinerators will have to be used for biomedical waste.

7. While the system for collection of biomedical waste from health care facilities and registered laboratories is well established, in the case of COVID-19, the biomedical waste is being generated in homes and quarantine centers. This is where the key complication arises, as urban local bodies (and increasingly village panchayats as positive cases increase in rural areas) have to track the patients on a real-time basis and then set up systems for collection of biomedical waste from individual households located in different parts of the city. The list of households is also dynamic – new infections means new households being added and as people get better, they need to be taken off the list.

8. The municipal corporations – North, East, South, New Delhi, Gurgaon, Faridabad, Ghaziabad – explained that they had set up systems to collect the waste from individual households and from quarantine centers and to send it to CBWTF). However, South and North Delhi Municipal Corporations said that they were sending the waste to Waste-To-Energy plants and not to bio-medical waste treatment facilities for incineration.

[1] Data is for full state as NCR districtwise data is not available

[2] Correction as it is monthly data and not daily in Annexure 1

9. The municipal corporations said that they were providing 'yellow bags' and also educating households of the need to segregate the biomedical waste from the general waste. The biomedical waste in Gurgaon and Faridabad is being collected separately and this also improves the segregation and sorting at the household level.

10. All participants expressed concern that the increase of plastic waste because of COVID-19, which is adding to the problems of general solid waste management in the cities. The collection of this waste – which is not from infected households or quarantine centers – is a huge challenge as it increases the need for segregation at the household level so that general waste can be recycled and not sent to landfills.

Recommendations based on the discussions for the consideration of the Hon'ble Court and for directions

Based on the deliberations at the meeting convened on 24.7.2020, the following are the directions that the Hon'ble Supreme Court may consider:

1. It is important to track the bio-medical waste on a daily basis and to ensure that it is collected, transported and sent to a registered common bio-medical waste treatment facility (CBWTF). **All municipal corporations and state pollution control boards may be directed to use the COVID19BWM APP. This may be made mandatory, so that CPCB can track all the bio-medical waste and ensure that it is being sent for treatment.**

2. **The South and North Municipal Corporations may be directed to send the bio-medical waste to CBWTF and not to the waste to energy (WTE) plants.** This is because WTE's are not designed to incinerate bio-medical waste, which needs a double-incineration chamber and protocols for storage and emission control.

In the management of bio-medical waste the working of the common facility will be critical. it is important that there is full monitoring of their functioning. The temperature data – provided through the sensors installed in the plants provide information on the functioning of the plants and therefore, this needs to be monitored and enforcement stepped up.

3. **All state pollution control boards/committees (Haryana, UP, Rajasthan and Delhi) may be directed to ensure that all common facilities have online continuous emission monitoring systems (OCEMS) installed in the plants and that the data from this is transmitted to both the state board website and CPCB.**

4. **CPCB may be directed to ensure that the data from real-time OCEMS is monitored on a daily basis and information shared with state boards so that action can be taken, where necessary.**

5. It is also the experience of data from air quality that when this is made public and available, it leads to better scrutiny and effective monitoring.

CPCB may be directed to make the real-time OCEMS data available publicly on its website, particularly for temperature so that working of the common facilities are known.

6. Segregation of COVID-19 waste at the household/quarantine needs to be done with utmost care so that infected bio-medical waste is sent for incineration and it is not mixed with general solid waste.

The municipal corporations may be directed to ensure that they educate households about segregation and also send the bio-medical waste for treatment to common facilities only.

7. The management of bio-medical waste requires tracking, not just of COVID-19 waste but also of all hospital waste across the country. EPCA has already in its report 110 pointed out the importance of bar-coding. This will allow state boards/CPCB to track all waste generated and its management. The Hon'ble Court in its direction of 21.7.2020 has noted the issue of bar-coding and its importance. The bar-coding is best done through state boards or through CPCB so that it can be regulated across the country. It should not be left to CBWTF operators as this will not allow for good management.

The Hon'ble Court may direct MOEF&CC/CPCB to work out a national bar-coding system/portal for tracking bio-medical waste.

Annexure 1

Action Taken by CPCB during COVID-19 Pandemic:

Action Taken by CPCB for effective management of COVID-19 biomedical waste is given below;

- Guidelines for COVID Waste Management - CPCB issued guidelines for "Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/ Quarantine of COVID-19 Patients" on 19.03.2020 and thereafter revised the said guidelines on 25.03.2020, 18.04.2020, 10.06.2020 and 17.07/2020 respectively to provide elaborate guidance to different stakeholders from time to time as per evolving situation, updated scientific understanding and to facilitate smooth management of COVID-19 related waste.

- Awareness Material – A separate page " https://cpcb.nic.in/covid-waste-management/ " has been created on CPCB website for sharing information related to COVID-19 Waste Management with SPCBs and other stakeholders. Awareness material comprises of CPCB Guidelines; Posters for Hospitals; Dos and Don'ts; COVID-19 related videos; Pictorial Guidelines on overall biomedical waste management including COVID-19 waste management in hospitals; User manual for Mobile Application and Web Application for COVID-19 biomedical waste tracking App and COVID-19 related Audios – Radio Jingles.

- COVID-19 waste Tracking App – CPCB completed development of COVID-19 biomedical waste tracking App named 'COVID19BWM' and 1st version of the App has been introduced and a demonstration was given to SPCBs/PCCs on 06/05/2020. Thereafter, implemented COVID19BWM Mobile and Web Portal App for tracking of COVID related biomedical waste.

- High Level Task Team – CPCB constituted High Level Task Team (HLTT) under the Chairmanship of Chairman, Central Pollution Control Committee with representative members from following Ministries / Departments: Ministry of Environment Forest & Climate Change, Ministry of Health & Family Welfare, Ministry of Jal Shakti, Ministry of Housing & Urban Affairs and Ministry of Defence. High Level Task Team held a review meeting under the chairmanship of Chairman, CPCB on 26.05.2020, with State Government Departments of Environment, Health and Urban Development, and SPCBs/PCCs to discuss management of COVID-19 waste in respective State / Union Territory.

- Model Plans for Villages and Sub-Divisions – CPCB has also prepared draft template of model plan for management of COVID-19 related wastes in the jurisdiction of village Panchayats and Sub-Divisions or Tehsils.

COVID-19 BMW Management in NCR:

Based on the information received from SPCBs/PCCs as well as the data received at CPCB COVID-19 Waste Tracking Application, following the COVID-19 waste generation and its disposal scenario:

S.No.	Name of NCR State	Name of City	No. of COVID-19 Waste Generators	Quantum of COVID-19 BMW in May (in tons/day)	Quantum of COVID-19 BMW in June (in tons/day)	Quantum of COVID-19 BMW in July (in tons/day)	No. of CBWTFs involved in disposal of COVID-19 Waste	Name of CBWTF	Installed Capacity (incinerator capacity for 16 hrs. operation) in tons/day
1.	Delhi	NCT of Delhi	315	25.187	372.479	349.006	02	SMS Water Grace Pvt. Ltd.	24
								Biotic Waste Solution Ltd.	50
2.	Uttar Pradesh	Bhagpat, Gautambudh Nagar, Ghaziabad, Hapur, Meerut & Muzzafarnagar	45	14.5	137	247.32	04	Synergy Waste Management, Meerut	2.4
								Semb Ramkey Environmental Solutions, Ghaziabad	2.4
								Center for Pollution Control, Varanasi	2.4
								Environ Waste Connections	2.4
3.	Haryana	Bhiwani, Charkhi Dadri, Faridabad, Gurgaon, Hisar, Jhajjar, Jind, Karnal, Mahendergarh, Panipat, Rewari, Sonipat & Rohtak	160	54.1	155.89	162.23	07	Maruti Bio-Medical Waste Management Co.	4.8
								Golden eagle waste management co.	4.8
								Biotic Waste Ltd- Gurgaon	24
								Synergy Waste Management (P) Ltd-Hisar	7.2
								S. D. Bio-Medical Waste management co	4.8
								Divya Waste Management Plan	4.8
								Haat Supreme Waste tech (P) Ltd	4.8
4.	Rajasthan	Alwar, Bharatpur	11	Information Not Available	Information Not Available	3.27	01	Hoswin Incinerator Pvt. Ltd., Alwar	2.4