

Srishti Medical Waste Update

Towards Responsible Healthcare



SRISHTI *med waste* UPDATE

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Prescribed authorities for Bio Medical waste have been notified in 18 States / UTs , including-

State	Prescribed Authority
Andhra Pradesh	Pollution Control Board
Maharastra	-do-
Madhya Pradesh	-do-
Himachal Pradesh	-do-
West Bengal	-do-
Punjab	-do-
Arunachal Pradesh	-do-
Tamil Nadu	-do-
Tripura	-do-
Orissa	-do-
Pondicherry	-do-
Daman & Diu	-do-
Delhi	-do-
Chandigarh	-do-
Karnataka	Public Health
Goa	DHS
Gujarat	Environment & Forest
Meghalaya	-do-, DHS
Kerala	PCB

CPCB Survey

A survey recently carried out by the Central Pollution Control Board, in Delhi revealed some disturbing facts. CPCB reported that secondary chambers of some of the incinerators were not working properly causing emission of harmful pollutants. The thermocouples (temperature measuring device) were out of order in most of the incinerators, hence the actual operating temperatures could not be known.

The Primary chambers were also not operating at prescribed temperatures due to which waste was not being properly burnt. Most of the hospitals do not maintain record of operation of incinerators. Thus making it difficult to monitor the operation of incinerators in terms of operation temperature attained while operation, quantity of waste incinerated etc.

The rules restrict the burning of plastic, but most of the hospitals were burning all their

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plastic waste. Some of the hospitals were selling their disposable / bottle waste on contract basis without any prior treatment.

Thus possibility of these disposable being recycled cannot be ruled out. Most of the incinerators were operated by unskilled operators like Safai Karmcharies etc. who are not aware of know how of an incinerator.

In the absence of proper check by the hospital authorities, the infectious wastes stacked near the incinerator plant is being sorted by scavengers. This is a serious threat, which may enhance the use of recycled infectious disposable/ bottle waste.

The CPCB carried out stack emission in seven hospitals during March-April, 1999.

The stack emission monitoring analysis shows that the particulate matter is exceeded by more than five to fifty times of the permissible limit and HCl levels were 4 times than the permissible levels.



Alternatives

Delhi Autoclaves

Finally Delhi has got eight autoclaves and these have been installed in the following hospitals - Lok Nayak Jai Prakash Hospital, Lal Bahadur Shastri Hospital, Deen Dayal Upadhaya Hospital, Guru Tegh Bahadur Hospital, GB Pant Hospital, Rao Tula Ram Hospital, Sushruta Trauma Centre and Babu Jagjiwan Ram Hospital. Of these eight autoclaves, four have a capacity of 1700 litres and the other four of 800 ltrs. According to the Delhi Government the autoclaves can be run for 10 hrs. a day and taking into consideration that one cycle takes 2 hrs., the capacity is five times that mentioned. Thus, they are planning to offer these facilities to private nursing homes at some cost. Though the cost has not been finalised it may come to around Rs. 7/ kg of waste.

Bombay

Municipal Corporation of Greater Mumbai (MCGM) launched an International Competitive Bid (BIO-MED 01/99) for the setting up of three Bio-medical waste treatment facilities on Build-Own-Operate basis. This tender is significant in that the MCGM would be one of the first Indian Municipal Corporation to establish centralized facility for the treatment of Biomedical waste. However, on closer inspection the tender booklet reveals that the MCGM recommends that 70 percent of the Biomedical waste will require incineration (unlike the survey figures of 15-20%) and the remaining waste could be treated through alternate technologies. While the inclusion of non-burn technology is encouraged, it is the renewed focus on incineration that is of serious concern. An investment in more incinerators will only make it more difficult to monitor and regulate these systems as there is a serious deficiency in the management and

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monitoring of the existing incinerators in the city and a lack of environmental monitoring devices with the Maharashtra Pollution Control Board (MPCB).

Several vital issues remain unclear about the tender including security at the treatment site to prevent the illegal repackaging and reselling of medical products that come for treatment. Another worrying aspect is that the MCGM wishes to allot the entire tender, for all three sites, and all types of equipment to one party. This, we fear, will lead to **monopolistic control thereby giving unfair pricing to private hospitals**, leaving them with two options:

- i) to avoid using the facilities for the treatment of waste and;
- ii) to charge patients, namely citizens, for the increased costs of waste treatment.

Instead, the focus should be on segregation within medical facilities through greater monitoring and regulation by the MPCB.
(Mumbai Med Waste Action Group)

Tata Memorial Hospital installs a Hydroclave

Tata Memorial Hospital does not require an incinerator despite the fact the total amount of infectious waste generated per day is approximately 350 Kgs and sharps is about 2 Kgs/day. They have invested in a hydroclave / steam sterilizer.



After 3 years of careful planning and regular meetings, the hydroclave was finally purchased and began functioning on the 14th of September 1999. A room was specially designed and there is no manual handling of the waste once it comes out of the hydroclave. A shredder has been attached and the waste is carried to the municipal garbage collection point via a conveyer. No major problems have been encountered throughout the setting up of this facility. However, a lot of effort has gone into getting the segregation system operational. Dr. Kelkar, involved with the waste management system of the hospital feels that at present people have got the impression that once you set up a system all the troubles are over, though what people miss is the most important part i.e. management of waste through segregation and getting a team together.

Approximately 4-5 cycles are run per day, 5 days a week and 2 Saturdays in a month. Only the infectious waste goes into the hydroclave while the non-infectious waste is recycled. The operators too, are qualified graduates with experience in handling autoclaves and boilers in the hospital.

(Toxics Link- Mumbai)

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Experimenting with waste

Kushul Orthopaedic Hospital and Research Centre are trying to treat the hospital waste by a biological method. The method includes collecting all the waste (including paper, infected cotton, gauze, blades, nails, plaster of paris, amputated limbs and all hospital plastic) and putting it in large ditches with a capacity of 24 cu ft. Everyday the waste is covered with a thin layer of cow dung and soil. The process goes on till the ditch is full. . Finally a thick layer of cow dung (5cm) and soil (3cm) is put on it to cover the pit. Twice a year, the pits are dug up, once in November/ Dec and once in June/ July. The biodegraded waste is used as manure and the non-biodegradable stuff is used for land reclamation. During the nine month period of composting, medicinal plants Castor oil, Dhatura, Aak or Madar, Ban Tulsı are grown in abundance on these pits, on the presumption that toxic material present in the hospital waste is detoxified by these plants. Research work on similar lines are going on elsewhere in the world also and once this system gets approval from the scientific world and the pollution control boards it would be a good alternate for smaller set ups and all others
(Dr RC Gupta-78-B, Tagore Town, Allahabad)

Incinerator Update

Pollution Control Equipment

The carbon injection system supposed to be a pollution control system, does work to reduce flue emissions of mercury but only by capturing and introducing it to the fly ash. Some of the resulting mercury then volatilises (goes airborne as a gas) from the ash because of its finely dispersed condition. Thus pollution control equipment simply changes the mode of pollution- from air to soil and water.

Argentina

Recently, environmentalists in Argentina won their battle against incinerators when the chimneys and ovens of the Cineres SA company in Empalme Villa Constitution were dismantled. Around 5000 kilos of medical waste was being incinerated there per day.

The waste treatment site has been taken over by a new firm and the new owners propose to treat the medical waste with an autoclave.

Spain

Greenpeace activists blocked gates to the Sogama Incinerator, under construction in La Coruna, Spain. If installed the incinerator would be the largest in Spain and a new source of dioxin.



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Madhya Pradesh



Recently a story in a Bhopal's daily "Dainik Jagran" documented the arrival of the idea of incinerators in the state in 1997. A tender was floated for 6 incinerators in 6 major hospitals in the state. The status of these incinerators being - three of them installed and non-functioning at Indore, Rewa and Jabalpur, purchase of two incinerators approved for Raipur and Gwalior and preparations on for one at Ujjain.

Incinerator in Bhopal often runs at temperatures as low as 200 to 250. Most of the senior Government officers contacted were not aware of the problems with incinerators or for that matter about the technology.

Senior officers need to be told about the technology before such a system is handed over to them, so that they make sure that the incinerator always works in the optimum range and not like the one in Bhopal. Madhya Pradesh Government can even go in for alternative technologies rather than investing in an outdated and harmful technology like incineration.

Dioxin air survey

Residents of housing complex near a naval base in Japan have suffered from the smoke exhausted by the incinerating facility near it. The joint investigation team of Japan Environmental Agency (JEA) and US Forces Japan (USFJ) conducted the dioxin survey which showed 52-picogram dioxin per one cubic meter of air. This amount is 72 times of the standard amount (0.8 picogram). While JEA have continued survey with USFJ for 56 days from July to September the average 8.0 picogram and the maximum of 52 picogram was recorded at the point 300 north from the incinerator.

A health risk assessment by the navy found that a three-year stint on the base was equivalent to smoking cigarettes for more than 70 years.

Events

Society for Development of Environmental Laws and Management, New Delhi (E- Law Society) organised a one day workshop on "Hospital Waste Management: Law and Reality" on 6th October, in association with CPCB and DPCC. The workshop brought together the legal and medical waste experts, hospital authorities and implementing bodies. The main highlights of the seminar were - discussion on the limitations of the Bio- Medical Waste (Management & Handling) Rules 1998, penal consequence, loans for establishing centralized facility, upcoming facilities etc. Penal consequences have not been mentioned in the Rules, but legal experts clarified that fines would be in accordance with the Section 15 of the Environment (Protection) Act 1986, under which the said Rules have been notified. The act states that whoever fails to comply will be punishable with imprisonment for a term, which may extend to five years or with fine, which may extend to Rs. 1,00,000 or with both. In case the failure continues, with additional fine, which may extend to rupees five thousand per day.

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CPCB organized a two day long workshop on Incinerator technology.

The focus of the workshop was incinerator operation and training. Incinerator manufacturers gave presentations on their products and the new pollution control measures and devices available were discussed. There were presentations from the CPCB about the other aspects of incinerator like operation, sampling and analysis of flue gases and the CPCB experience with presently running incinerators. The workshop was attended by State Pollution Control Boards and various hospitals administrators.

Advisory Committee Meeting - The first advisory committee meeting for Delhi was held and the major points of discussion were zonal (Centralized) facilities for Delhi, training for all hospital staff and waste collectors of municipal corporation and initiation of segregation in all the hospitals. The Delhi Nursing Homes Forum and DPCC (Delhi Pollution Control Committee) proposed to map nursing homes to make it easier to plan transport for a common facility.

Forthcoming - Srishti is planning to organize a seminar on medical waste practices around the country. The seminar would focus on the grassroots level work being done by various people around the country and the success or problems they have encountered. The seminar entitled *Medical Waste: The Emerging Experiences in India* is scheduled for the 5th of February, 2000 and will be held at the India Habitat Centre (Gulmohar Hall) - New Delhi in collaboration with Central Pollution Control Board and Delhi Pollution Control Committee.

Srishti Node- Srishti would soon be opening up a node in Chennai. The node will begin functioning in December. For any queries on medical waste in Southern India you can contact Ms. Megha Kela Rathi at the following address-
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