

Joint Committee Inspection Report

In the Matter of

Original Application No.74/2021
'Kailash Kumar Changani Vs State of Rajasthan & Ors'

w.r.to

Hon`ble National Green Tribunal Central Bench Bhopal
order dated 27.09.2021

Date of Visit: 20 October, 2021

Location: Udaipur, Raj.

Glossary

APCD	Air Pollution Control Device
BMWM	Bio Medical Waste Management
CEMS	Continuous Emission Monitoring System
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CPCB	Central Pollution Control Board
CBWTF	Common Bio-medical Waste Treatment Facility
DG	Diesel Generator
ETP	Effluent Treatment Plant
GPS	Global Positioning System
HCF	Health Care Facility
HWM	Hazardous Waste Management
MT	Metric Ton
OCMS	Online Continuous Monitoring System
PLC	Programmable Logic Controller
PM	Particulate Matter
RSPCB	Rajasthan State Pollution Control Board
TSDF	Treatment Storage Disposal Facility

Joint Committee Inspection Report in the matter of Kailash Kumar Changani Vs State of Rajasthan &Ors'

Hon'ble NGT (CZ), Bhopal vide its order dated 27September, 2021 in OA no. 74/2021 'Kailash Kumar Changani Vs State of Rajasthan &Ors' directed under Para 1, 5 and 6 as :-

- 1. The issue raised in this application is violation of the Bio Medical Waste Management Rules, 2016 by wrongly operating CBWTF at RNT Medical College Udaipur wherein more than half of the waste is not being treated and is being dumped at Balicha dumping ground Udaipur which is owned by Udaipur Municipal Corporation and there is huge gap in generation of Bio Medical Waste and capacity to treat it.*
- 5. We deem it just and proper to call a report on the matter in issue, in present application, from a Joint Committee consisting of:-
 - (i) Representative of CPCB, Rajasthan.*
 - (ii) Representative of Rajasthan Pollution Control Board.*
 - (iii) Chief Medical Officer, Udaipur, Rajasthan**
- 6. The Committee is directed to visit the place and submit the factual and action taken report within six weeks. The State PCB will be the nodal agency for coordination and logistic support.*

In view of the above direction the M/s RNT medical campus, Udaipur Balicha dumping ground Udaipur and M/s En-Vision Enviro Pvt. Ltd. which is functioned as Common Biomedical Waste Treatment Facility (CBWTF) has been visited by the joint committee on 20th October, 2021 to assess the factual status of allegation made in petition, compliance status of Bio-medical Waste Management, Rules 2016 and Guidelines issued in this regard from time to time. The joint committee comprised of the following officers:

1. Sh.Vinay Katta, Regional Officer, RSPCB Udaipur
2. Sh. Dinesh Kharadi CMHO, Udaipur
3. Dr.Anoop Chaturvedi, Scientist 'B' Regional Directorate, CPCB, Bhopal

During visit representative of Udaipur municipal corporation Sh.Mahendra Samdhani Executive Engineer and Sh.S.N.Sharma, Health Officer representative of RNT medical college Ms. Shahin Banu Infection

control nurse, Sh. Gorav and representative of M/s En-vision Enviro Sh. Shrad Tamboli were present during the inspection and informed about present waste management practice and status of legal compliance. Ms. Payal Pancholi SO cum lab in-charge of regional office RSPCB Udaipur was also present along with her monitoring team.

The main issues raised in the petition by the applicant regarding the RNT medical college, Balicha trenching ground and CBWTF unit verification points as per 27.9.2021 order areas under :-

1. Illegal operation of CBWTF at RNT college campus and mismanagement of BMW.
2. Dumping of BMW at Balicha trenching ground.
3. M/s En-vision Enviro Ltd. (CBWTF) not complying the BMW guidelines.
4. CBWTF not having the capacity to treat BMW.

To verify the factual status the team has visited three locations i.e. RNT medical campus, Balicha trenching ground and CBWTF and observed the biomedical waste management related activity which includes verification of storage and segregation practice adopted, treatment equipments, record keeping, data transmission, APCD and ETP status etc. During the visit the team also interacted with RNT medical collage staff who are associated with waste management, workers of Balicha site, drivers, contract workers and helpers to find out the awareness level and subject knowledge of work assigned, and also tried to fetch out any other information which is related to this matter.

During visit geographical coordinates, photographs and other relevant information were also collected which are incorporated in the Report. The main observation of the team is given below:

ISSUE 1 - Illegal operation of CBWTF at RNT college campus and mismanagement of BMW.

1. Ravindra Nath Tagore Medical College, Udaipur is a Govt. medical college. The college was established in 1961, R.N.T. Medical College, Udaipur City. There are five hospitals attached to this Medical College. These are Maharana Bhupal Govt Hospital; Pannadhay Rajkiya Mahila Chikitsalaya; Seth Ram Vilas Bhuwalka Yakshma Arogya Sadan;

Shri Khemraj Katara Satellite Hospital, Hiran Magri sector no 6 & Shri Sunder Singh Bhandari District Hospital, Chandpole.

2. The Maharana Bhupal Govt Hospital having the 1146 bed strength and consent was expired on 30.11.2013 and further applied for renewal on the basis of that RSPCB, RO Udaipur visited the hospital on 20.11.2020 and issued notice on 28.6.2021 for necessary improvements, hospital yet to submit the action taken report, hence renewal still under consideration with RSPCB. The copy of the notice enclosed as Annexure-01
3. The Pannadhay Rajkiya Mahila Chikitsalaya having the 540 bed strength and consent expired on 31.8.2021.
4. It was observed that there is no CBWTF installed in RNT medical college campus and entire BMW is being sent to M/s En-vision Enviro Ltd. which is located around 20 km away from the RNT medical college. Hence it is false allegation as mentioned in the petition.
5. During inspection randomly 05 wards i.e. Emergency, NICU, Medicine, Surgical, and Orthopedics visited in RNT medical college and interacted with paramedical staff to know the factual status and it was observed that they have knowledge about BMW segregation, but its implementation was poor due to casual attitude and weak supervision.
6. The BMW shall be segregated into containers or bags at the point of generation in designated colour coded bin/container but it was observed at most of the nursing station, waste generation points only one or two bins are available, hence proper segregation of BMW is not being done. It was also observed during the visits that lack of segregation practices results in the mixing of hospital wastes with general wastes.
7. The general housekeeping work including waste collection from ward to ward has been outsourced but outsourced staff is not that much trained about the 4 type of BMW segregation, so unknowingly they are mixing the waste. A formal short duration training (1 or 2 days) was given to doctors and nurses only, that too not very frequently, while a majority of the waste handlers especially the ward boys, sweepers and sanitary workers had not undergone practical training for safe handling of BMW and hence they probably unaware about proper management. However the attitude of infection control department and BMW management supervisors were found very positive and they are working sincerely for continual improvement of waste management in limited infrastructure and budget.
8. The hospital has provided isolated centralized BMW storage facility. It was observed that the BMW and MSW are being stored separately but at common location hence the possibility of interchanging of waste bags may not be ruled out. The hospital administration has unknowingly purchased

green colour bags for BMW collection but this colour is not recommended for collection of any category of waste so that it creates the confusion and probably this issue may be main cause for mismanagement. However hospital administration assured to sort out this issue very soon.

9. Both the hospitals having membership of CBWTF and sending entire BMW to CBWTF on regular basis and records are being maintained. It was observed that M/s En-vision environ ltd. collecting the BMW from medical college campus on regular basis which was also verified by GPS tracking data for the complaint period (1.8.2021 to 7.8.2021) and previous day (19.10.2021) of inspection. The GPS data sheet enclosed as Annexure-02
10. For tracking of waste bar coding is required however hospitals have not adopted bar code system so far as the matter of its implementation is pending at government level.
11. As per the waste collection data of CBWTF it was observed that less quantity of plastic waste reached for treatment hence the possibility of its pilferage from the wards may not be ruled out.
12. As discussed with contractor of housekeeping, in-charge of waste management and other associated members of waste management they accept that during the peak time of second wave of Covid minor mismanagement was happened due to acute shortage of trained staff, unwillingness of waste collection by sanitary staff and unknown fear of corona virus but same has been managed very soon.
13. As informed that the present man power supplier agency is not working properly and internal complaints of poor services were received from last few months, in this regard hospital administration issued letter and verbal instruction also given for further improvements. As no improvement observed so finally hospital decided no further renewal will be granted to this firm.
14. The NICU was maintained properly w.r.to BMW management and same type of practices may be adopted in other wards also.

ISSUE 2 - Dumping of BMW at Balichadumping ground.

1. The team also visited Balicha dumping ground to verify illegal dumping of BMW and it was observed that it is open dumping ground and there is no fencing around it.
2. Complaints related to dumping of BMW at this site was also published recently in local news paper in this regard Regional Officer RSPCB take self

cognizance and his team visited the place on 13.8.2021 then issued a notice to municipal corporation Udaipur on 9.9.2021 for taking necessary steps to prevent it. In compliance of that municipal corporation taking the corrective action and informed RSPCB on 28.9.2021 which is enclosed as Annexure-03

3. The municipal corporation started the fencing work all around the dumping site to prevent any unauthorized dumping. Security guards were also deputed for round the clock monitoring. The security guard maintaining all vehicle details and keeping vigil about which type of waste is being dumped by the vehicles but this arrangement was not available earlier.
4. It was observed that none of the government hospital and most of the non-bedded HCFs still not adopting the bar code system for waste tracking, so in this type of situation it very difficult to trace out the source of BMW dumped at dumping ground. The medical waste generated from households is being dumped at Balicha dumping ground by Municipal Corporation as there is no agreement with M/s En-vision enviro ltd. for its disposal. Hence the possibility of BMW dumping by non-member HCFs may not be ruled out.

ISSUE 3 - CBWTF not complying the BMW guidelines:

1. Team also visited M/s En-vision Enviro ltd. (work as CBWTF) to verify the provisions of BMWM Rules 2016.
2. The CBWTF has valid authorization upto 31.3.2023.
3. At the time of visit CBWTF was operational at full capacity. As per consent, the unit is having 50 kg/hr capacity incinerator, 50 kg/cycle autoclave and shredders of 50 kg/Hr. On average basis 1200 kg waste treated per day in which 700 to 800 kg waste is incinerable category and remaining is recyclable and sharp waste.
4. The recyclable waste is autoclaved followed by shredder. The unit has also provided concrete make sharp pit for disposable of metal sharp and needles.
5. It was observed that the PLC system is attached with the incinerator and incinerator is partially operated on it.
6. In compliance of CPCB guidelines for management of Covid waste revision-4, the unit has provided separate waste collection mechanism with dedicated vehicle but same could not be physically verified because all the vehicles were in the field for waste collection.

7. The unit has provided separate area for treated and untreated waste storage (15 ft X 20 ft) and seems it is sufficient to fulfill the present requirement of waste storage. It was observed that proper segregated and bar coded waste is not being received at the facility hence operator re-segregated the waste at the facility for sorting the recyclable material.
8. It was also observed that significant quantity of recyclable waste collected and received in yellow category bag which is further autoclaved. The traceability of this type of bags could not be done as there is no bar coding system and nothing mentioned on the bag regarding its identification.
9. As informed by the in charge of the facility the waste is collected from the member HCFs by the dedicated vehicles and every day the collection starts in the morning and completed in the evening. The collected waste is treated / incinerated same day.
10. During visit semi automatic feeding was practiced. As informed by the unit representative the up-gradation work of present incinerator has been completed and now it is complying the 2 second residence time. The certificate provided by the firm is enclosed as Annexure-04
11. The incinerator is found equipped with Air Pollution Control Device (APCD) which comprises ventury scrubber, demister attached with 30 meter stack. The water is used as the medium in ventury scrubber to suppress the dust emission from laden flue gas. The dust emission trapped in the water is collected as sludge in the settling tank.
12. The temperature of primary chamber and secondary chamber was observed 829°C and 1052°C respectively, but same as not transmitted or updated on CPCB website.
13. For the treatment of waste water generated from floor washing, vehicle washing and scrubber, the unit has provided 5 KL capacity ETP which comprised of Oil and Grease trap, Chemical dosing tank, coagulation Chamber, Primary Settling Tank, secondary settling Tank, PSF & ACF, Disinfection Tank. As informed by operator treated water is stored in overhead tank and further used in horticulture and gardening purpose.
14. The unit has provided DG sets for emergency operation of plant and machinery in case of power supply failure.

ISSUE 4 - CBWTF not having the capacity to treat BMW:

1. The unit has installed 50 Kg/Hr capacity incinerator. It is observed from the record that compare to the yellow category incinerable waste received at the

site and the capacity of incinerator is near about to its maximum treatment capacity. On average basis 800 to 900 Kg yellow category of waste received at CBWTF and this much quantity will take 16-18 Hr for incineration.

2. The functionality of the autoclave was also verified as autoclave was in operation during visit. Spore test of each batch and records were maintained as per rules which is enclosed as **Anexure-05**
3. Shredder was found operational and kept near autoclave fixed on RCC foundation. The capacity of shredder is 50 kg/Hr and presently this capacity is sufficient to shred the receiving waste.
4. The unit has claimed that as the operation of new facility in Dungurpur area approx 1500 beds reduced from the present capacity. As mentioned in petition Ananta institute of medical college and American international institute of medical science having 810 and 700 beds respectively but as per annual report submitted by the institutes they are having 650 and 100 beds only, so the gap of near about 800 beds is exist.
5. As per the direction of district administration of Rajasthan the unit collecting the waste from Sirohi and Pali rural area, however it is not in the coverage area of this unit but due to unavailability of the facility in that area the unit is providing his services in this area.
6. In the view of above it seems that presently the unit is able to treat the collected waste but further addition of large number of beds may create the problem as the incinerator is running at its optimum capacity.

OCEMS, Bar coding facility:

1. As per the guideline of CPCB, the unit has installed M/s Prima, make CEMS in incinerator stack to monitor primary & secondary chamber temperature, CO and CO₂. The CEMS data available at CPCB and RSPCB website which was verified during visit. The OCMS data sheet for the duration of 1.10. 2021 to 21.10.2021 enclosed as **Annexure-06**
2. During inspection, it is informed by the CBWTF that data is being transferred to the RSPCB/CPCB server through internet but due to poor internet connectivity in this area data transfer is sometimes hampered.
3. The unit has started the bar coding facility but its implementation at ground level was found poor. As per the record most of the HCFs are still not adopting the bar coding system due to lack of awareness in the matter. However implementation of the bar code system is the joint responsibility of the Occupier as well as Operator of a CBWTF.

Record keepings :

The overall record keeping was found average and it need to improvement through digital type of proof rather than manual. Manual log book for incinerator, autoclave, shredder and ETP operation were maintained however as per norms PLC prints out or electronic tamper proof record is to be maintained.

Emission and Ambient air quality monitoring

1. During the visit the team conducted the stack emission monitoring to assess the performance of APCD and emission value are given in the table below:

S.No	Location	PM (mg/Nm ³)	NO _x (mg/Nm ³)	Remarks
01	Incinerator stack	44	11	Emission values complying the norms.
Standard limit		50	400	

All the emission results were found within the limit, as given in BMWM Rules, 2016.

As per the emission data received by CEMS the values of CO and CO₂ were observed 0.131% and 0.90% respectively on the basis of it the combustion efficiency is 79.57% against standard of at least 99.0% it may be because of mix type of waste burned during monitoring.

2. To assess the air quality in the vicinity of the unit ambient air monitoring performed at two locations i.e. inside the plant premises in down and up wind direction. The result of ambient monitoring as given below:

S. No.	Location	PM ₁₀ (ug/Nm ³)	SO ₂ (ug/Nm ³)	NO ₂ (ug/Nm ³)	Remarks
01	Near main gate of the unit	81	7.6	12.1	Monitoring affected due to heavy vehicle movement in front of CBWTF.
Standard		100	80	80	

The ambient monitoring shows that all the values are well within the limit.

Others :

1. The only positive thing is that the present Superintendent and his infection control team shown the responsive and cooperative attitude to adopt functional BMWM system through time targeted action plan.
2. As informed by facility operator in-spite of organizing so many awareness program and personnel interaction with cleaning staff and CHC & PHC, problem of waste segregation at source is not solved even some of the hospital not willing to give waste and also not obtaining the membership of CBWTF.
3. The unit has obtained authorization under HW Rules for generation of incineration ash. As informed by the unit representative recently they have disposed 3.98 MT of ash through TSDF, Gudli on 4.10.2021. It was observed still 1 to 2 MT of ash still stored inside the room for disposal. The unit has displayed the hazardous information board at main gate of the unit but it was not updated properly. Copy of the manifest enclosed as **Annexure-07**
4. The plastic and other recyclable material collected from various hospitals is being stored inside the room for further treatment. The collected plastic disinfected and shredded and sold to authorize plastic waste recycler. Recently the unit has sold out 14 T of plastic and record of the same has been maintained. The receipt of plastic waste recycling enclosed as **Annexure-08**
5. As per the CPCB guideline the unit has downloaded the 'COVID19BWM' app and submitting the Covid waste collection data on it.
6. The facility has done all the necessary vaccination to staff engaged in waste collection and treatment i.e. Tetanus and Hepatitis-B.
7. As the unit is collecting and storing the medical waste so it is obvious some foul smell is generated inside the untreated waste storage room but outside the premises there was no foul feel observed by committee members during the visit. However unit is spraying disinfectant solution on regular basis to control the odor related problem if any.

Recommendation:-

On the basis of the joint inspection and monitoring by committee the following recommendations are given by the committee:-

Action by RNT medical college:

1. The BMW and MSW must be stored at different location to avoid any mixing or interchanging of bags.
2. Hospital administration may coordinate with RSPCB regarding organizing awareness and training program at department level w.r.t. segregation, collection, storage, and proper documentation.
3. The BMW must be collect in designated color bag as given in schedule-I of BMWM Rules, 2016.
4. The consent and authorization must be obtained from RSPCB at the earliest.
5. Bar code system must be adopted for waste tracking.
6. Documentation of waste management must be maintained properly.
7. Strict instruction may be given to waste contractor and supervisor regarding proper on site segregation and collection.
8. Special training may be given to sanitary workers and outsourced staff for better management of BMW.

Action by Udaipur municipal corporation:

1. Fencing work at the periphery of the dumping site must be completed at the earliest.
2. For disposal of house hold BMW a agreement must be signed with CBWTF.
3. Computerized record of waste and vehicles may be maintained at dumping site.
4. If any illegal BMW received at site then the information should be given to RO,RSPCB and M/s En-vision Enviro Ltd. immediately.
5. Sign board of waste characterization may be placed at prominent location of site for awareness.
6. If BMW found in any collection bin inside the city the action must be taken as per rule.
7. Possibility of CCTV installation may be explored for better monitoring round the clock basis at the dump site.

Action by M/s En-vision Enviro Ltd:

1. New membership should be stopped when bed strength will be reached upto 10000 beds or total waste quantity reaches above the treatment capacity whichever is earlier.
2. To provide all necessary help to state government regarding awareness & training and establishment of bar code system.
3. To improved the combustion efficiency of the plant put more

emphasis on the spot segregation or whatever rectification required in this regard.

4. Possibility of higher capacity of incinerator and autoclave installation may be explored with all necessary permission from RSPCB or other concern agency.
5. To maintain all the logbooks properly and temper proof related to incineration system, waste movement and collection system and treated waste disposal.
6. To organize more awareness programs and interaction meet with member hospitals so that waste could be segregated properly at source.
7. To maintain all the safety measure and good housekeeping at all the time.
8. The unit shall comply all the condition as given in authorization.

Action Taken :-

1. On the basis of committee recommendation RSPCB may issue notice to RNT, UMC and CBWTF for the compliance of the above points and directing them to submit the time bond action plan for its timely execution. The Regional office of RSPCB, Udaipur communicated the matter to Head Office Jaipur for issuing the same.
2. Due to the overburden on the medical facilities and large quantities of BMW waste being generated as a result of the outbreak of second wave of COVID-19 pandemic, and the importance of medical college and CBWTF, the said facility was allowed to operate for the time being, and no stringent action has been taken at that time.

(Dinesh Kharadi)
CMHO, Udaipur

(Vinay Katta)
Regional Officer, RSPCB, Udaipur

(Payal Pancholi)
Scientific Officer, RSPCB, Udaipur

(Dr Anoop Chaturvedi)
Scientist-B, CPCB-RD-Bhopal

Photograph during the visit



Committee meeting and visit of sites
on 20.10.2021





BMW segregation and collection system



22-Oct-2021 at 12:14:42 PM
New MICU, MBGH udaipur



BMW segregation poster



BMW storage room



Common space for BMW and MSW storage



Main gate of Balicha dumping site



Committee visit at Balicha sites



Balicha open dumping site



View of M/s Envision Enviro (CBWTF)
Udaipur





Storage room at CBWTF



ETP



Ash storage area



View of Stack, OCEMS and Hazardous display board at site

