

CHAPTER 7

Effectiveness of Monitoring

Objective 6: To assess whether monitoring was effective in checking non-compliance.

Monitoring is a means of ensuring that compliance to rules is taking place. Since municipalities, hospitals and districts all over the country implement the waste rules, it is important to ensure, through monitoring, that implementing bodies at the state level are following the prescribed rules. According to Agenda 21, monitoring is a key prerequisite for keeping track of changes in waste quantity and quality and their resultant impact on health and the environment and governments should develop and apply methodologies for country-level waste monitoring.

Agenda 21 also states, “*Standard setting and monitoring are two key elements essential for gaining control over waste-related pollution.*” Audit findings with respect to effectiveness of monitoring are discussed below:

7.1 At the Central level

(a) Municipal solid waste

As stated in Chapter 5, paragraph 5.3.1, MoEF was of the view that the Ministry of Urban Development was the nodal agency, at the central level, responsible for implementation of the municipal solid waste rules. However, Ministry of Urban Development opined that it was the responsibility of MoEF to monitor the implementation of the Municipal Solid Waste (Management and Handling) Rules. Ministry of Urban Development had not set up any body for monitoring the implementation of these rules and does not provide any waste related data or monitoring reports to MoEF. Thus, the municipal solid waste rules were not being monitored by Ministry of Urban Development. It was noticed in audit that monitoring of the municipal solid waste rules by MoEF was also weak as discussed below.

According to Rule 8 of Municipal Solid Waste (Management and Handling) Rules, CPCB had to prepare a consolidated annual review report on management of municipal solid wastes and forward it to the Central Government along with its recommendations before 15 December every year. It was observed in audit that the review reports submitted by CPCB to MoEF did not contain any reports on the monitoring of the waste disposal facilities like incinerators, landfills etc., nor did it contain any report on whether municipalities were disposing waste according to the standards laid down in the rules. Thus, MoEF was unaware whether the waste disposal facilities were meeting the standards prescribed in the rules and whether waste was being disposed in a manner that was safe for health of the people as well as the environment.

MoEF was silent on the query of Audit as to whether MoEF had satisfied itself that implementation of municipal solid waste rules was taking place as envisaged in the central rules. MoEF stated that it has conducted a review on the working of the municipal solid waste rules; however, no records were produced to Audit to verify whether the

review took place. MoEF/CPCB also stated that independent evaluation of the working of the Municipal Solid Waste (Management and Handling) Rules had not taken place. An evaluation, whether conducted by MoEF/CPCB or by any independent agency, would have resulted in an impartial assessment of the efficacy of these laws and action could have been taken to plug the lacunae pointed out by the independent evaluation, which would have led to better management of municipal solid waste.

(b) Bio-medical waste

As stated in Chapter 5, paragraph 5.3.1, MoEF was of the view that Ministry of Health and Family Welfare was the nodal agency for the implementation of rules relating to bio-medical waste. However, Ministry of Health and Family Welfare opined that it was not its responsibility to monitor the implementation of Bio-Medical Waste (Management and Handling) Rules. It did not have a mechanism/ body to monitor the implementation of these rules and it had not sent any bio-medical waste related information to MoEF. Nor did it receive any data regarding waste from MoEF/CPCB. Thus, MoH&FW was not monitoring compliance to bio-medical waste rules.

According to CPCB, the PCB in each state was the prescribed authority to check whether the hospitals/ operators were complying with the Bio-Medical Waste (Disposal and Handling) Rules and CPCB conducted monitoring in some cases. CPCB further stated that based on its monitoring, it had issued show cause notices during 2006-08 to Common Bio-Medical Waste Treatment Facilities for the violation of bio-medical waste rules. However, no records were made available to show whether hospitals were being monitored by CPCB. In the absence of continuous monitoring of hospitals, it was not clear how MoEF/CPCB had satisfied themselves that biomedical waste rules was being implemented by the hospitals. MoEF also confirmed that it was not satisfied with the implementation of the Bio-Medical Waste Rules. Thus, monitoring of the bio-medical waste rules appeared to be ineffective.

(c) Plastic waste

There was no mechanism in place to ensure that monitoring of the Recycled Plastics Manufacture and Usage Rules was taking place. No review or independent evaluation of the efficacy of these Rules has been done.

Thus, the monitoring of the municipal solid waste rules, bio-medical waste rules and plastic rules, at the central level, did not appear to be effective. Systems were not in place to check compliance to rules by municipalities, hospitals and district authorities. Lack of systems checking compliance would lead to disposal of waste in a manner causing harm to health and environment.

7.2 At the level of the states/PCBs

(a) Municipal solid waste

(i) According to Article 6 of Municipal Solid Waste Rules, PCBs in each state shall monitor the compliance of the standards regarding ground water, ambient air, leachate quality and the compost quality including incineration standards as specified under the

rules. This was required to make sure that waste disposal methods did not lead to contamination of air, ground water and surface water. It was noticed in audit that out of 24 sampled states, activities undertaken for monitoring by PCBs were as follows:

- Monitoring of compost plants and other waste processing facilities was done by the PCBs of *Karnataka, Delhi, Orissa* and *West Bengal* while it was not done in *Himachal Pradesh, Punjab, Uttarakhand, Sikkim, Bihar, Uttar Pradesh* and *Kerala*.
- Monitoring of ground water, ambient air, leachate quality and compost quality was being done only partially in *Delhi, Orissa* and *Himachal Pradesh*.
- Further, monitoring of emission standards was done only in *Gujarat*.
- In rest of the 12 states, it could not be verified whether any kind of monitoring activities were undertaken by the PCBs.

It appeared that PCBs of the states were not monitoring regularly whether municipal solid waste was being disposed in an environmentally safe manner and in a manner not to pose health risks.

(ii) Audit checked records of 56 municipalities/municipal corporations in the 20 states to verify the effectiveness of monitoring of the municipal solid waste rules by the PCBs, state governments and municipalities. Test check of activities related to monitoring revealed the following inadequacies:

| Activities for monitoring of municipal solid waste rules | Done | Not done | Not verifiable | Total |
|---|-----------------|----------|----------------|-------|
| Action to be taken by PCBs in the sampled municipalities | | | | |
| 1. Monitor compliance of standards regarding ground water, ambient air, leachate quality and the compost quality including incineration standards of the waste processing and disposal facility set up in the municipality. | 2 | 38 | 16 | 56 |
| 2. Cancellation of authorisation for violation. | 0 | 34 | 22* | 56 |
| Action to be taken by the municipalities | | | | |
| 1. Municipal authorities ensure that compost or any other end products comply with standards as specified in Schedule-IV of the Act. | 4 | 34 | 18** | 56 |
| 2. To prevent pollution problems from compost plant and other processing facilities, municipal authorities monitor according to provisions in the rules. | 4 | 26 | 26** | 56 |
| 4. Ambient air quality monitoring, monitoring of compost quality and monitoring of disposal leachates done by municipal authorities as envisaged in the rules. | 0 | 36 | 20** | 56 |
| 5. Incinerators met the operating and emission standards as specified in the rules. | 1 | 8 | 47*** | 56 |
| Action to be taken by the state government | | | | |
| 1. State government monitors the performance of waste processing and disposal facilities of the municipality once in 6 months. | 6 (11 per cent) | 29 | 21 | 56 |
| *also includes those municipalities which did not get authorisations | | | | |
| ** includes those municipalities which do not have composting/ processing facilities | | | | |
| *** includes those municipalities which do not have incinerators | | | | |

It could be seen that there was hardly any monitoring by PCBs, state governments and municipalities, as no checks were being exercised to see that waste processing and disposal facilities meet the compliance criteria outlined in the municipal solid waste rules. In the absence of effective monitoring, contamination of the environment and hazards to public health cannot be ruled out.

(iii) With respect to independent evaluation of municipal solid waste rules, out of 20 states sampled, it was noticed that:

- Independent evaluation of the implementation of the Municipal Solid Waste (Management and Handling) Rules, 2000 was not conducted by 70 *per cent* of sampled states.
- It could not be verified in audit whether 30 *per cent* of the sampled states had conducted independent evaluation of the implementation of the Municipal Solid Waste (Management and Handling) Rules, 2000. List of states is attached in **Annexure 2**.

(iv) Analysis of leachate and ground water samples from landfill sites in some states revealed the following:

- In **Delhi**, analysis report of Bhalaswa landfill showed that TDS¹⁹ of ground water was 800 *per cent* more than the desirable limit and hardness content of the ground water was 633 *per cent* in excess of the permissible limit. Analysis of leachate from Bhalaswa landfill site revealed that TDS was 2000 *per cent* in excess of the permissible limit and the hardness content was 533 *per cent* in excess. The presence of high chlorides 4100mg/l and 10995mg/l against the desirable limit of 250mg/l also indicates the critical condition of Bhalaswa landfill site. TDS at Okhla landfill site was also 244 *per cent* in excess of the desirable limit. This shows that the ground water of landfill sites has been critically contaminated with leachate generated from the landfill site. Ambient air quality monitoring work for the year 2005 has been conducted which indicates critical levels of air pollution.
- In **Punjab**, samples of ground water from hand pumps at four places had been collected from the Municipal solid waste open dumpsite near Bhagatanwala gate, Amritsar on 31 October 2007, in the presence of the nominee of the municipality of Amritsar and Punjab Pollution Control Board. These samples were sent to the Environmental Laboratory of the SPCB at Patiala for analysis. The State Pollution Control Board, Amritsar, intimated that none of the samples collected from the dumpsite at Bhagatanwala, Amritsar, met the acceptable limit for drinking water and were thus, not fit for drinking purposes.

¹⁹ Total Dissolved Solids.

- In *Tamil Nadu*, two water samples collected from the dumpsite at Pallikaranai swamp area revealed that dissolved solids, chlorides and cadmium were far above the prescribed desirable limits.

Evidently, monitoring of municipal solid waste rules was lax and it could not be ensured that disposal of municipal solid waste took place in an environmentally safe manner and so as not to cause public health problems.

(b) Bio-medical waste

(i) According to Section 11 of Bio-Medical waste (Management and Handling) Rules, every authorised person²⁰ shall maintain records related to the generation, collection, reception, storage, transportation, treatment, disposal and/or any form of handling of bio-medical waste in accordance with these rules and any guidelines issued. Further all records of hospitals/operators shall be subject to inspection and verification by the prescribed authority at any time. Of the 15 states sampled for bio-medical waste, it was noticed that:

- State government of only 33 *per cent* of sampled states ensured that records of operators were inspected.
- No such inspection was carried out by the state governments of 33 *per cent* of sampled states.
- It could not be verified in audit whether 34 *per cent* of sampled state governments ensured that the Authority for granting authorisation inspected records of the operator. List of states is attached in **Annexure 2**.

(ii) Prescribed authorities (PCBs) were given power to inspect records and cancel authorisations for violation of the bio-medical waste Rules. With respect to cancellation of authorisations by PCBs for improper management of bio-medical waste, it was noticed in the 15 sampled states that:

- In 27 *per cent* of the sampled states, authorisations to hospitals were cancelled by PCBs.
- No authorisations were cancelled by PCB in 60 *per cent* of the sampled states.
- It was not verifiable whether authorisations were cancelled in the rest of the 13 *per cent* of the sampled states. List of states is attached in **Annexure 2**.

(iii) With regard to state governments/PCBs checking the compliance to bio-medical waste rules by hospitals, it was noticed in audit that out of the 15 states sampled,

- Only the state governments/PCBs in 47 *per cent* of sampled states had checked whether the hospitals/operators were complying with the provisions of bio-medical waste rules, specially the compliance criteria.

²⁰ A person who had received authorisation to operate a bio-medical waste treatment facility; can be a hospital or an operator.

- No such checking was done by state government/PCBs in 20 per cent of the sampled states.
- It could not be ensured whether checking for compliance by state government/PCB took place in 33 per cent of the sampled states. List of states is attached in **Annexure 2**.

(iv) With respect to independent evaluation, out of the 15 sampled states it was observed that:

- 80 per cent of the sampled states did not conduct an independent evaluation of the Bio-Medical Waste (Management and Handling) Rules, 1998.
- It could not be ensured whether the independent evaluation took place in 20 per cent of the sampled states. List of states is attached in **Annexure 2**.

(v) Audit checked the records of 180 hospitals in 15 states. Only 13 per cent of sampled hospitals were being monitored as brought out in the table below:

| Monitoring of bio-medical waste rules in the hospitals | Done | Not done | Not verifiable | Sampled hospitals |
|--|-----------|-----------|----------------|-------------------|
| Assam | 0 | 0 | 12 | 12 |
| Delhi | 0 | 0 | 12 | 12 |
| Gujarat | 0 | 0 | 12 | 12 |
| Maharashtra | 0 | 12 | 0 | 12 |
| Orissa | 8 | 2 | 2 | 12 |
| Punjab | 0 | 12 | 0 | 12 |
| Rajasthan | 0 | 12 | 0 | 12 |
| West Bengal | 4 | 8 | 0 | 12 |
| Tripura | 0 | 0 | 12 | 12 |
| J&K | 0 | 0 | 12 | 12 |
| Haryana | 0 | 0 | 12 | 12 |
| Madhya Pradesh | 0 | 12 | 0 | 12 |
| Andhra Pradesh | 9 | 3 | 0 | 12 |
| Tamil Nadu | 0 | 12 | 0 | 12 |
| Uttar Pradesh | 2 | 10 | 0 | 12 |
| Total | 23 | 83 | 74 | 180 |
| <i>Per cent</i> | 13 | 46 | 41 | |

Thus, monitoring of bio-medical waste rules was lax and the state governments/PCBs could not seek an assurance whether bio-medical waste disposal was taking place in line with the rules.

(c) Plastic waste

(i) According to Article 3 of Recycled Plastics Manufacture and Usage Rules, the prescribed authority for enforcement of the provisions of rules related to the use, collection, segregation, transportation and disposal shall be the District Collector/Deputy Commissioner (DCs) of the concerned district. It was observed in 20 states sampled that:

- Only in 35 per cent of the sampled states, DCs of the district were monitoring the implementation of these rules.
- No monitoring was being done by DCs in 15 per cent of the sampled states.

- It could not be verified whether monitoring was done by DCs in 50 per cent of the sampled states. List of states is attached in **Annexure 2**.

(ii) Effectiveness of monitoring was also studied by audit in 60 districts around the country. It was noticed in audit that:

- Monitoring by DCs of the districts or the state government/PCB as to whether vendors were following the provisions of this rule took place only in two districts of *Gujarat* and *Uttar Pradesh*.
- No monitoring took place in two districts of *Punjab*, *West Bengal*, three districts of *Karnataka* and one district in *Uttarakhand*.
- In *Assam*, *Delhi*, *Maharashtra*, *Orissa*, *Chhattisgarh*, *Himachal Pradesh*, *Jharkhand*, *Kerala*, *Andhra Pradesh* and *Bihar* it was not verifiable whether any monitoring was done by DCs of the districts or the state government/PCB as to whether vendors were following the provisions of this rule.

Thus, monitoring of the plastic rules was also lax.

MoEF (August 2008) did not offer any comments on the poor monitoring of municipal solid waste rules as pointed out by Audit. However, MoEF explained that the presence of high TDS in the ground water around the landfill does not conclusively indicate that the source for the same is landfill and that unless baseline data at the time of setting up of landfill was available and thereafter a change towards higher trend was observed, then only the possibility of leachates due to landfill could be thought of. MoEF further stated that to find the reason for the higher TDS needs a wider review and analysis. With regard to bio-medical waste, MoEF stated that CPCB had monitored inspection of few hospitals and as a follow up, either show-cause notices were issued to the defaulters or the concerned prescribed authority had been asked to take necessary follow-up action. With respect to plastic waste, MoEF stated that CPCB was coordinating with PCBs in implementation of plastic waste rules.

The reply has to be viewed in light of the fact that monitoring of the municipal solid waste, bio-medical waste and plastic waste rules was weak, as commented upon by Audit. Both at the central level and at the state level, monitoring was not taking place as envisaged in the rules. Poor monitoring would lead to violations of the waste rules, which would cause environmental damage as well as affect health of citizens. As for the analysis results which showed high TDS levels, the fact remains that such monitoring of ground water needed to be undertaken by CPCB itself to ensure that there was no deterioration of water quality. No evidence was found to show that CPCB had undertaken this exercise, and the deteriorating water quality validates audit observations on weakness of CPCB and MoEF in monitoring environmental degradation.

Recommendations

- *At the central level, MoH&FW/MoEF/CPCB and at the level of the states, the PCBs should draw up comprehensive schedules for sustained monitoring of*

municipalities and hospitals.

- *Regular monitoring of waste disposal facilities like compost plants, incinerators etc., should be done by CPCB/PCBs.*

Conclusion

Monitoring of the municipal solid waste, bio-medical waste and plastic waste rules was lax and ineffective. In the absence of effective monitoring, violation of rules would escape detection. Violation of rules would also result in contamination of the environment, besides posing risks to human health.