Chapter 2

Performance Audit on Solid Waste Management in Urban Local Bodies

Chapter 2

Urban Local Bodies Department

Performance Audit on Solid Waste Management in Urban Local Bodies

2.1 Introduction

Solid Waste Management (SWM) is a pressing global challenge that demands immediate attention and effective solutions. With rapid urbanisation, population growth, and changing consumption patterns, the generation of solid waste has soared to alarming levels, exerting tremendous pressure on ecosystems, public health, and natural resources. The objective of SWM is to minimize the adverse effects of waste on human health and the environment.

2.1.1 Definition and Classification of Waste

Wastes[1] are materials that are not prime products (that is products produced for the market) for which the generator has no further use in terms of his/her own purposes of production, transformation or consumption, and of which he/she wants to dispose. Wastes are generally classified into Municipal Solid Waste (MSW), Bio-Medical Waste (BMW), Construction and Demolition (C&D) waste, e-waste, plastic waste, slaughterhouse waste, industrial waste and hazardous waste by virtue of their nature. They are also classified as biodegradable, non-biodegradable, combustible, dry and inert based on their characteristics.

2.1.2 Process of Waste Management

The process of waste management is depicted in ***Chart 2.1***.

Chart 2.1: Process of waste management

Source: Municipal Solid Waste Management Manual, 2016

[1] United Nations Statistics Division.

2.1.3 Regulatory Framework Governing Management of Waste

The Central Government has the power to take necessary measures for protecting and improving the quality of the environment under the provisions of the Environment (Protection) Act, 1986. The Ministry of Environment, Forests and Climate Change (MoEFCC), Government of India (GoI) notified (September 2000) the Municipal Solid Waste (Management and Handling) Rules, 2000 (MSW Rules, 2000). Subsequently, MoEFCC amended the MSW Rules, 2000 and introduced rules for management of biomedical, plastic, hazardous, C&D and e-waste. The Solid Waste Management Rules, 2016 notified on 08 April 2016 superseded MSW Rules, 2000. Further, judicial interventions have also had a significant impact on Solid Waste Management (SWM) across the country. The regulatory framework governing the management of different types of waste is indicated in ***Appendix 2.1***. Ministry of Housing and Urban Affairs (MoHUA), GoI, issued "Municipal Solid Waste Management Manual, 2016" (MSWM Manual, 2016) to provide guidance to ULBs on planning, design, implementation and monitoring of municipal solid waste management system.

2.1.4 Organisational structure with respect to functioning of Urban Local Bodies

The Additional Chief Secretary/ Principal Secretary to Government of Haryana, Urban Local Bodies (ULBs), Haryana is the head of the Administrative Department of ULBs and is assisted by Director, Urban Local Bodies Department, Haryana. The Directorate of Urban Local Bodies, Haryana (DULB) was established in April 1982, and is responsible for better co-ordination and to supervise working of ULBs in the State. In accordance with the powers conferred under the Haryana Municipal Act, 1973 and Haryana Municipal Corporation Act, 1994, DULB monitors these ULBs. The organisational structure with respect to functioning of ULBs in the State is indicated in ***Appendix 2.2*.**

2.1.5 Role of Urban Local Bodies in solid waste management

SWM is one of the 18 subjects devolved to the ULBs under Article 243W (12th Schedule) of the Constitution of India. Section 66A(b)(VI) of the Haryana Municipal Act, 1973 and Section 42 (6) of the Haryana Municipal Corporation Act, 1994, mandate management of solid waste as a function of ULBs.

There are 92 Urban Local Bodies[2] (ULBs) responsible for implementation of the Solid Waste Management (SWM) Rules, 2016 in the State of Haryana. As a measure of the quantum of responsibility, the total estimated solid waste

[2] Urban Local Bodies include Municipal Corporations, Municipal Councils and Municipal Committees

generation[3] in these ULBs during 2021-22 was 8,766 Tons Per Day (TPD). Out of the total waste generated, 4,297 TPD (49 *per cent*) was processed and the remaining 4,469 TPD (51 *per cent*) of total waste generated was dumped at dump sites without processing as discussed in **Paragraph 2.7.10**. For better management of Solid Waste in the State, these ULBs were further grouped into 13 clusters as discussed in **Paragraph 2.8.1**. Out of these 13 clusters, only one cluster i.e., Sonipat cluster is based on a waste to energy plant model which was commissioned in August 2021. The remaining clusters continue to be non-operational till date (March 2023).

2.2 Audit Objectives

This Performance Audit was conducted to assess whether:

- Strategy and planning of solid waste management in ULBs was commensurate with the solid waste generated and concurrent with the prevailing legal framework;
- Municipal tasks associated with solid waste management including collection, segregation, processing and disposal were effective, efficient and economical;
- Planning, construction, commissioning, operation and maintenance of solid waste management projects in ULBs was effective and efficient; and
- Monitoring of solid waste management system including assessment of environmental impacts was adequate and effective.

2.3 Audit Criteria

The criteria for evaluating the performance of SWM were derived mainly from:

- Solid Waste Management Rules, 2016;
- Municipal Solid Waste Management Manual, 2016 issued by GoI;
- Plastic Waste Management (Management and Handling) Rules, 2011;
- Instructions, guidelines, policies and orders issued by the State Government, State Pollution Control Board, Ministry of Environment, Forest and Climate Change, GoI and National Green Tribunal (NGT).

[3] Annual Report under Solid Waste Management Rules, 2016, Haryana State Pollution Control Board (HSPCB) for the year 2021-22

2.4 Scope and Methodology of Audit

The Performance Audit on 'Solid Waste Management in Urban Local Bodies' was carried out during June 2022 to May 2023. The period of audit coverage was from 2017-18 to 2021-22. Audit consisted examination of the records relating to SWM activities of 18 ULBs selected by applying simple random sampling (revenue division wise) for each tier of ULBs. List of 18 selected ULBs is indicated in ***Appendix 2.3*****.** Audit also scrutinised the records relating to SWM of DULB and Haryana State Pollution Control Board (HSPCB).

The audit methodology also involved joint physical verification (JPV) with staff of ULBs and collection of photographic evidence with GPS coordinates. An Entry Conference was held on 8 July 2022 with the Principal Secretary of Urban Local Bodies Department, Haryana, in which the audit methodology, scope, objectives and criteria were discussed. An Exit Conference was held on 5 January 2024 with the Commissioner & Secretary, Urban Local Bodies where audit findings were discussed and deliberations of the conference have been appropriately incorporated in the Report.

2.5 Acknowledgement and Constraints

Audit acknowledges the cooperation and assistance extended by DULB, selected ULBs and HSPCB in conducting the Performance Audit. However, assessment of performance of DULB/selected ULBs on various SWM activities was a challenging task due to inadequacy of reliable/consistent data and poor record keeping. Further, the selected ULBs did not furnish replies to audit observations, resultantly, Audit was constrained to draw conclusions based on limited records and information provided by DULB and selected ULBs.

Audit Findings

2.6 Planning and Strategy of Solid Waste Management

2.6.1 Entities Involved in Solid Waste Management

The framework for administration and management of MSW in India is broadly divided into three tiers - Central, State and Local Bodies. Other stakeholders that play a crucial role are households, businesses, industries, informal sector, Non-Governmental Organisations (NGOs), Community Based Organisations (CBOs), and Self-Help Groups (SHGs), *etc*. The role and responsibilities of stakeholders involved in the process of SWM in urban areas are given in ***Table 2.1***.

Table 2.1: Responsibilities of stakeholders involved in the process of SWM

Institution/ stakeholders	Role and responsibilities in SWM
Central Government (MoEFCC, MoHUA and CPCB)	Framing of legal and policy framework; Rules and Regulations; Policies and Norms; Guidelines; Manuals; technical assistance; promotion of research and development in Solid Waste Management; Capacity Building; financial support; Periodically review and monitor the implementation of laws and Rules.
State Government (DULB and SPCB)	Framing State Policy and SWM Strategy; monitoring and implementation of laws and Rules; Guidelines, Manuals, and technical assistance; financial support; reporting on Service Level Benchmarks (SLBs) to MoHUA; capacity building of local bodies; granting consent to set up treatment and disposal activities. Reviewing the performance of ULBs on waste management process; ensuring identification and allotment of suitable land for solid waste processing and disposal facilities.
ULBs (Municipal Corporations, Municipal Councils and Municipal Committees)	Implementation of State policy and SWM Rules; providing SWM services; preparation of SWM plan; framing byelaws; levy and collection of fees; financing SWM system; creating public awareness; and involvement of informal sector in SWM.

Source: SWM Rules, 2016

Whether strategy and planning of solid waste management in ULBs was commensurate with the solid waste generated and concurrent with the prevailing legal framework.

In this regard, audit findings are detailed below:

2.6.2 State Policy and Strategy on Solid Waste Management

Rule 11(a) of SWM Rules, 2016 requires the State Government to prepare a State policy and strategy for SWM within one year from the date of notification of these Rules (i.e. 8 April 2016) in consultation with stakeholders including representative of waste pickers, self-help groups and similar groups working in the field of waste management.

Audit observed that the State Government approved the SWM policy and strategy on 09 July 2018 with a delay of 15 months and that too, without consulting various stakeholders. The delay in preparation of SWM policy and strategy was stated to be due to procedural issues by the Department. The overall delay in finalisation of the State Policy also had a cascading impact on the management of SWM ecosystem in the State. Integrated Solid Waste Management[4] (ISWM) projects could also not be started/implemented in time as discussed in **Paragraph 2.8.1**. Further, due to non-participation of various stakeholders (waste pickers, self-help groups and similar groups working in the

[4] Integrated Solid Waste Management (ISWM) refers to a comprehensive approach to manage solid waste that involves a combination of strategies like collection, segregation, secondary storage, transportation and processing of waste.

field of waste management) in the policy making, DULB missed opportunities in terms of on boarding of all stakeholders, streamlining of efforts to reduce, reuse and recycle under SWM activities and a coherent approach towards achievement of intended objectives of SWM.

DULB in its reply stated (October 2024) that there was procedural delay in issuance of State level policy in a time bound manner. It was further stated that State had successfully implemented SWM practices involving various stakeholders. However, the reply is silent on non-involvement of stakeholders in the policy-making process.

2.6.3 Municipal Solid Waste Management Plan

Rule 15(a) of the SWM Rules, 2016 stipulates ULBs to prepare a SWM plan as per State policy and strategy on SWM within six months from the date of notification of State policy and strategy. Further, the MSWM Manual, 2016 (Section 1.4.5 and 1.4.6) emphasised the need for ULBs to prepare short-term (five years) and long-term (20-25 years) SWM plans encompassing (i) institutional strengthening; (ii) human resources development; (iii) technical capacity building; (iv) financial capacity and arrangements (v) community participation; (vi) legal framework and mechanism for enforcement; and (vii) public grievance or complaint redressal. The short-term plan should lead to the achievement of the long-term plan. Each short-term plan should be reviewed every two to three years, to ensure higher success of implementation of all plan activities.

Audit observed that none of the 18-test checked ULBs had prepared any short-term or long-term plan. In the absence of these plans, planning and selection of infrastructure projects in ULBs was not based on needs analysis covering future population forecast, anticipating lifestyle changes and change in socio-economic profile of the ULBs.

DULB in its reply stated (October 2024) that under Swachh Bharat Mission, SWM plan and city sanitation plan were prepared and implemented by ULBs. The reply is not acceptable, as ULBs did not prepare any SWM short-term/long-term plan as per State policy and strategy on SWM.

2.6.4 Provision/Demarcation of Separate Space for SWM Activities in Residential/Non-residential Plotted Colonies

Rule 11(h) of the SWM Rules, 2016 envisages that State Government through the Director of Local Bodies shall direct Town and Country Planning Department of the State and local bodies to ensure that a separate space for segregation, storage and decentralised processing of solid waste was demarcated in the development plan for group housing or commercial, institutional or any other non-residential complex exceeding 200 dwelling units or having a plot area exceeding 5,000 square meters. Further, Rule 15(ze) of

SWM Rules, 2016 envisages that ULBs were to ensure that provisions for setting up of centers for collection, segregation and storage of segregated waste are incorporated in the building plan while granting approval of building plan of a group housing society or market complex.

Audit observed that DULB had not issued any direction to the Town and Country Planning (T&CP) Department in this regard. It was further observed that DULB approved/ sanctioned (April 2017 to September 2022) 14 development plans for various group housing societies/ plotted colonies/ Commercial and Institutional establishments having area ranging from 5,253.78 to 17,455.66 square meters in Gurugram and Karnal as details given in ***Appendix 2.4***. However, no separate spaces were earmarked for segregation, collection, storage, decentralized processing of solid waste in these development plans in contravention to *ibid* Rules.

Similarly, during physical verification carried out in two group housings societies[5] where construction was in progress and license was issued (June 2019 to February 2021) by T&CP Department under jurisdiction of Municipal Corporation, Sonipat, it was observed that neither demarcation was done for SWM in the layout plans nor any space was demarcated for SWM on actual site.

DULB in its reply stated (October 2024) that it had directed (May 2023) its Town and Country Planning Cell to ensure separate spaces for segregation, storage and decentralized processing of solid waste in the development plan. The reply was silent about direction to the T&CP Department, in this regard, by the DULB.

The fact remains that due to delay in directions from DULB, development plans for various group housing societies/ plotted colonies/ Commercial and Institutional establishments were approved without earmarked space for segregation, collection, storage, decentralized processing of solid waste.

2.6.5 Earmarking of Dedicated Area in Industrial Estate for Recovery and Recycling Facility of Solid Waste

Rule 11 (i) of the SWM Rules, 2016 provides that the State Government through the Director of Local Bodies is required to direct developers of Special Economic Zone, Industrial Estates, Industrial Parks to earmark at least five *per cent* of total area of plot or minimum five plots or sheds for recovery and recycling facility.

Haryana State Industrial and Infrastructure Development Corporation Limited (HSIIDC) is the nodal agency for development of industrial infrastructure in the State. As on July 2022, HSIIDC had developed 28 Industrial Estates/ Industrial

[5] Shri Ram Residency having area 7.95 acre and PP Greens having area 12.01 acres.

Model Town/Industrial Parks having an area of 21,057 acres at various places in the State.

Audit observed that HSIIDC had not provided requisite infrastructure/facilities in any of its owned Industrial Estates/ Industrial Model Towns/ Industrial Parks to dispose of solid waste so far (March 2023) despite directions issued by DULB in October 2020 and March 2021 for managing their waste at their own level.

During exit conference (January 2024), the Department stated that necessary directions would be circulated to the concerned in this regard.

2.6.6 Framing Byelaws for Solid Waste Management

Rule 15 (e) of the SWM Rules, 2016 provides that ULBs were to frame byelaws[6] incorporating provisions of these Rules within one year from the date of notification of these Rules. Further, Rule 15 (zf) of the SWM Rules, 2016 provides that each ULB was to frame byelaws and prescribe criteria for levying a spot fine for persons who littered or failed to comply with the provisions of these Rules and delegate powers to officers or local bodies to levy spot fines as per the byelaws framed. Accordingly, DULB issued (March 2019) draft SWM byelaws, 2018 to the ULBs.

Audit observed that out of the 18-test checked ULBs, three ULBs (Gurugram, Sonipat and Shahabad) had not notified the SWM byelaws even after lapse of more than seven years of notification of the SWM Rules, 2016. Further, 15 ULBs notified byelaws with inordinate delays. A delay of 695 days occurred on the part of DULB due to delay in getting the byelaws approved from the State Government while delay ranging between 61 to 638 days was attributable to concerned ULBs in issuing of byelaws. ULB-wise position is indicated in ***Appendix 2.5*.**

Audit further observed that ULBs in Haryana were not empowered to make byelaws without approval of the State Government. As the DULB failed to get the draft byelaws approved from the State Government within the prescribed timeline in the *ibid* Rules, consequently, there were delays in notification of byelaws by ULBs. Further, failure to notify the byelaws by the three ULBs reflects lack of seriousness on their part.

During exit conference (January 2024), the Department stated that preparation of SWM byelaws by all ULBs would be ensured. However, the fact remained that the ULBs failed to enforce SWM Rules due to delay in notification of byelaws.

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[6] "byelaws" means regulatory framework notified by local body, census town and notified area townships for facilitating the implementation of these Rules effectively in their jurisdiction.

DULB in its reply stated (October 2024) that all ULB byelaws were prepared and approved at the State level and there were procedural delays in obtaining approval. The reply is not acceptable as three ULBs (Gurugram, Sonipat and Shahabad) still had not notified their byelaws (September 2024).

2.6.7 Engagement of Informal Stakeholders in Solid Waste Management

Rule 11(c) of the SWM Rules, 2016 envisage that policies and strategies should acknowledge the primary role played by the informal sector of waste pickers, waste collectors and recycling industry in reducing waste and provide broad guidelines regarding integration of waste picker or informal waste collectors in the waste management system. State Policy and Strategy on SWM assigned responsibility to DULB for the same. Further, Rule 15 (d) also provides that ULBs must establish a system for formation of Self-Help Groups (SHGs) and integrate them into the Solid Waste management system including door-to-door collection.

Audit observed that the Department did not carry out any such activity. No system was developed for formation of SHGs. Further, as on March 2022, only 13[7] out of 18 test checked ULBs initiated the process of registering waste pickers. This has resulted in non-compliance of SWM Rules to that extent.

DULB in its reply stated (October 2024) that ULBs had already begun the process of registering waste pickers and formalizing their roles in street sweeping and door-to-door waste collection either directly or through contractual agencies. However, the fact remains that the Rules were not fully complied with by the ULBs despite lapse of more than eight years from the applicability of SWM Rules, 2016.

2.6.8 Capacity Building

Rule 11(k) and 15 (zc) of the SWM Rules, 2016, requires DULB and ULBs to arrange for capacity building of staff for managing solid waste, transportation or processing of such waste at source etc. Similarly, Section 1.4.5.5 of MSWM Manual, 2016 laid emphasis upon training and enhancing the capacities of staff in MSWM activities. The approach to capacity building in MSWM should not only focus on technology but also on different aspects including governance, financing and improved service delivery aspects for different stakeholders i.e., senior officers, collection staff, transportation staff, staff at processing plant, elected representatives and NGOs / community based organizations (CBOs) for better management of SWM activities.

[7] Bahadurgarh, Beri, Faridabad, Gurugram, Haily Mandi, Kaithal, Nilokheri, Panchkula, Panipat, Palwal, Sonipat, Tohana and Uklana.

Audit observed that the DULB had organized seven training programmes [on topics i.e. Swachh Survekshan, SWM, Plastic Waste Management and Swachh Bharat Mission (SBM-2.0)] during the period 2017-22. Audit observed that during the period, only two training programmes directly related to SWM for senior officers were organised by DULB. It was further observed that the Department had not conducted any capacity building programmes for other stakeholders i.e. collection staff, transportation staff, staff at processing plant, elected representatives and NGOs/ CBOs. As such, capacity building for institutional strengthening was deficient during 2017-22.

DULB in its reply stated (October 2024) that several training programs were conducted under the SBM. The reply is not acceptable as the Department had not conducted any capacity building programmes for other stakeholders i.e. collection staff, transportation staff, staff at processing plant, elected representatives and NGOs/ CBOs.

2.6.9 Service Level Benchmarks

As a part of the on-going endeavour to introduce greater accountability among ULBs to improve urban services, Ministry of Housing and Urban Affairs (MoHUA) had set (2008) Service Level Benchmarks (SLBs) at the national level for service provision in four key sectors i.e., Water supply, Waste water management, Solid waste management and Storm water drainage. Monitoring performance and improvements was envisaged as the goal of the Service Level Benchmarking.

The performance of 16 test-checked ULBs [8] against eight performance indicators set under SLBs for SWM sector during 2021-22 is indicated in the ***Table 2.2***.

Table 2.2: Status of Service Level Benchmarks in test checked ULBs

Sl. No	Performance Indicators	Bench mark/targets (in *per cent*)	Target achieved by number of ULBs in 2021-22
1.	Household level coverage of SWM services	100	8
2.	Efficiency of collection of municipal solid waste	100	9
3.	Extent of segregation of municipal solid waste	100	4
4.	Extent of municipal solid waste recovered	80	7
5.	Extent of scientific disposal of municipal solid waste	100	3
6.	Extent of cost recovery for SWM services	100	0
7.	Efficiency in redressal of customer complaints	80	15
8.	Efficiency in collection of SWM user charges	90	0

Source: Information furnished by ULBs

ULB wise status during 2017-22 is indicated in ***Appendix 2.6***. Analysis of ***Table 2.2*** shows that majority of the test checked ULBs had not achieved the

[8] Information not provided by Gurugram and Panchkula.

benchmarks under various performance indicators particularly relating to scientific disposal of MSW, segregation of MSW, cost recovery for SWM services, and efficiency in collection of SWM user charges. Municipal Corporations of Gurugram and Panchkula did not provide data of the service level benchmarks. Only MC Sonipat and MC Kalka achieved all SLBs of SWM activities except cost recovery in SWM services and collection of SWM user charges in 2021-22. Criteria/procedure adopted by the test checked ULBs in arriving at these figures were not provided to Audit. In absence of the same, Audit could not verify the authenticity of data provided by the test checked ULBs.

DULB in its reply stated (October 2024) that ULBs are expected to meet the SLB benchmarks after the implementation of SBM 2.0 during 2021-26. However, the fact remained that ULBs failed to achieve the SLBs so far (October 2024) despite these benchmarks being fixed in 2008.

2.6.10 Financial Planning

2.6.10.1 Assessment of requirement of funds

As per Section 1.4.5.6.2 of MSWM Manual 2016, SWM services are sustainable only if they are financially viable on a stand-alone basis. Therefore, the assessment of financial viability is the most critical step in planning a SWM system.

Audit observed that ULBs in the State were dependent on Government grants from Central Finance Commission (CFC), State Finance Commission (SFC) and Swachh Bharat Mission (SBM). As per Sixth SFC Report (December 2021), Government grants constituted 43 *per cent* of the total expenditure of all the ULBs in the State during 2017-21 as depicted in ***Table 2.3*****.**

Table 2.3: Expenditure of all ULBs in Haryana met from Municipal funds and grants

(₹ in crore)

Year	Expenditure from Municipal Funds	Expenditure from Grants	Total Expenditure	Percentage of total expenditure out of grants
2017-18	2354.68	1706.33	4061.01	42
2018-19	2122.39	1550.03	3672.42	42
2019-20	2391.44	2104.95	4496.39	47
2020-21	3116.14	2068.8	5184.94	40
Total	**9984.65**	**7430.11**	**17414.76**	**43**

Source: Sixth SFC Report

Note: Information for 2021-22 was not provided by DULB.

DULB prepared the Technical Feasibility Reports (TFR) for all the clusters for implementation of Integrated Solid Waste Management (ISWM) projects. However, financial requirements or financial capabilities of the ULBs to execute and sustain the SWM activities were not assessed in these TFRs.

Further, none of the test checked ULBs jointly or independently carried out such exercise for ISWM projects.

Since the financial capabilities of ULBs were not considered, there were gaps in terms of requisite analysis for requirement of funds to develop and maintain the necessary infrastructure. Consequently, there is a risk to the adequacy of funding to provide SWM services in all areas within the jurisdiction of ULBs particularly in view of the ULBs' dependency on grants as discussed in ***Table 2.3.***

DULB in its reply stated (October 2024) that the TFRs were prepared for checking the financial feasibility of the ISWM Projects and not for their implementation. Reply is not acceptable as financial capability of ULBs was not assessed in the TFRs which is crucial for long term sustainability of the ISWM projects.

2.6.10.2 Levy and Collection of Solid Waste Management User Fee

Rule 15 (f) of SWM Rules, 2016 prescribes that ULB is authorised to collect user fee/charges as determined by it from time to time on its own or through its authorised agency from all waste generators for SWM to cover its operating cost for financial viability. The State Government notified (October 2011) indicative monthly user charges for various categories of waste generators and ULBs were authorised to levy their own user charges and revise the same from time to time.

Audit observed that 14 test checked ULBs[9] had not evolved any mechanism for assessment and raising of bills for SWM user charges on a periodical basis. Audit also observed that four test checked ULBs[10] had not collected any user charges during 2017-22 and the remaining 10 test checked ULBs were collecting SWM user charges as per the indicative monthly user charges from various categories of waste generators as notified by the State Government through No Dues Certificate Portal[11]. It was further observed that none of the test checked ULBs prescribed its own user charges in order to make the SWM function a self-sustaining activity.

The ULBs incurred expenditure on door-to-door waste collection and other SWM activities as depicted in ***Table 2.4***. Thus, due to non-assessment and short recovery of user charges, ULBs could not recover the cost of providing SWM service as depicted in ***Table 2.4.***

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9 Except four ULBs Faridabad, Gurugram, Panipat and Sonipat, where ISWM project had been awarded to private concessionaire and the Concessionaires were collecting user charges at their level.

10 Kalka, Palwal, Panchkula and Punhana.

11 Whenever owner of any household unit comes for obtaining No Dues Certificate from respective ULBs.

Table 2.4: Details of receipt and expenditure of 14 test checked ULBs on SWM activities

(₹ in crore)

Year	Capital expenditure	Recurring expenditure	Total	User Charges collected	Percentage of user charges recovered to the recurring expenditure
A	B	C	D=B+C	E	F = E/C *100
2017-18	1.78	70.94	72.72	0.26	0.37
2018-19	2.82	60.63	63.45	0.59	0.97
2019-20	3.38	74.59	77.97	0.59	0.79
2020-21	2.71	102.49	105.20	1.58	1.54
2021-22	3.27	102.63	105.90	3.47	3.38

Source: Information furnished by test checked ULBs.

It is evident from ***Table 2.4*** that collection of user charges was meagre and ranged between 0.37 and 3.38 *per cent* against the recurring expenditure incurred on SWM activities in these ULBs during 2017-22. The ULBs were leveraged on the DULB capabilities to bail them out *via* grants from GoI or expenditure routed through the Consolidated Fund of State, effectively creating strain on the State finances.

During exit conference (January 2024), the Department stated that rates of user fees are very low and efforts would be made to increase recovery of user charges in future.

2.7 Segregation, Collection, Processing and Disposal of Municipal Solid Waste

Whether municipal tasks associated with solid waste management including collection, segregation, processing and disposal were effective, efficient and economical.

In this regard, audit findings are detailed below:

2.7.1 Segregation and Collection of Waste at Source/Household Level

As per SWM Rules, 2016, DULB is responsible for ensuring the implementation of provisions of these Rules by all ULBs. MSWM Manual, 2016 (Section 2.2.1) stipulates that ULBs must accord highest priority for segregation of waste at source.

Audit observed that the test checked ULBs did not maintain day/month wise data of waste collected. Further, criteria/procedure adopted by ULBs in arriving at data regarding segregation at source and door to door collection were not provided to Audit. In absence of the same, Audit could not verify the authenticity of data provided by the test checked ULBs. Status of segregation at source and door-to-door collection in the State is given in ***Table 2.5***.

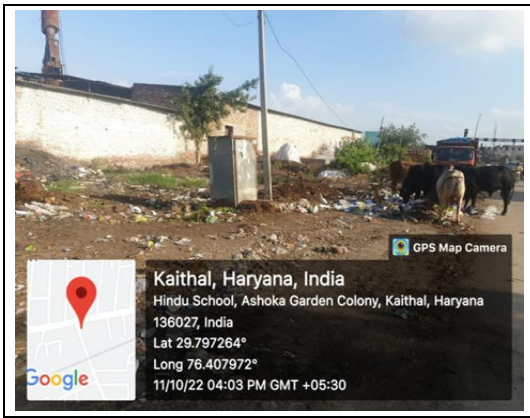
Table 2.5: Percentage of segregation at source and percentage of door-to-door collection in all the ULBs of the State

Period	Segregation at source (in *per cent*)	Door-to-door collection (in *per cent*)
2017-18	Data Not Available	Data Not Available
2018-19	20	Data Not Available
2019-20	64	93
2020-21	72	95
2021-22	70	98

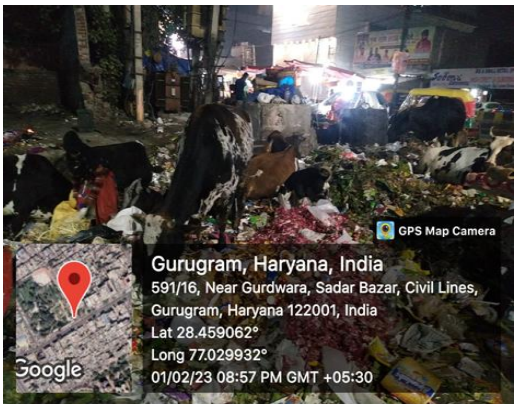
Source: Information provided by the HSPCB.

Test checked ULB wise position regarding segregation at source and collection during 2017-22 is given in ***Appendix 2.7***. Out of 16 test checked ULBs[12], only five ULBs[13] achieved segregation at source ranging from 91 to 100 *per cent*, eight[14] ULBs achieved segregation at source ranging from 51 to 90 *per cent* and in three ULBs[15] the same ranged between zero and 50 *per cent* during 2021-22. Actions taken or proposed to be taken by DULB for achieving 100 *per cent* segregation at source and collection of waste were not furnished to Audit.

As per information provided by 17 test checked ULBs[16], 15 ULBs had nil Garbage Vulnerable Points[17] (GVPs) and in remaining two ULBs, there were 207 GVPs (Faridabad: 205 and Narnaul: 2). However, during physical verification of the garbage sites in these ULBs, it was seen that GVPs existed in all the ULBs which reported 'nil' GVPs. This indicates that the ULBs were not maintaining/ reporting correct data.



Non-segregated garbage dumped in open area



Non-segregated garbage dumped in sabzi mandi area

12 Information not provided by Gurugram and Panchkula.

13 1. Nilokheri, 2. Panipat, 3. Shahabad, 4. Sonipat and 5. Tohana.

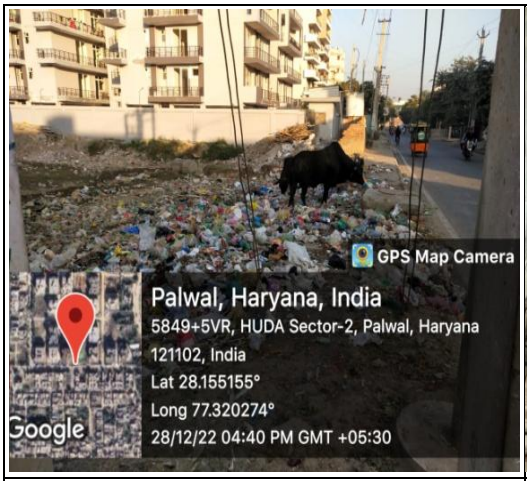
14 1. Bahadurgarh, 2. Faridabad, 3. Haily Mandi, 4. Hisar, 5. Kalka, 6. Narnual, 7. Palwal, and 8. Uklana.

15 1. Beri, 2. Kaithal and 3. Punhana.

16 Haily Mandi did not furnish any data.

17 Garbage Vulnerable Points are areas where garbage piles up due to constant dumping by locals, travelers, or passersby. They can be a significant obstacle to keeping a city clean.

Further, during joint physical verification, it was noticed that waste was found to be dumped on roadside and spread around the visited sites of GVPs in all the selected ULBs. It was also observed in MC Panipat that even when the segregated waste at household level was handed over to the garbage collector, it was subsequently mixed with other waste and transported to dumpsite.



Non-segregated garbage dumped near residential area

Collection of non-segregated garbage

The low rate of segregation exacerbates the challenges associated with waste management. Without proper segregation, recyclable and non-recyclable waste gets mixed, making it difficult to recover resources effectively. This not only results in the loss of potential recycling opportunities but also puts additional strain on landfills, which receive a higher volume of unsegregated waste.

DULB in its reply stated (October 2024) that audit observations are based on data from 2017-22 and after that significant improvements had been made in waste collection, transportation and processing. DULB has issued directions to closely monitor collection and segregation activities and impose penalties for non-compliance. However, no document in support of the reply was furnished to audit.

2.7.2 Segregation of Sanitary Waste

Section 17 of MSWM Manual, 2016 provides that Sanitary waste (e.g., diapers, sanitary napkins, tampons, incontinence sheets and any other similar waste) should be wrapped securely in the pouches and handed over separately to the waste collectors on daily basis. Upon collection of sanitary waste, it should be preferably disposed in biomedical or MSW incinerators, as applicable to local context or as directed by State Pollution Control Board.

Audit observed that there was no separate system for segregation and disposal of sanitary waste in any of the 18-test checked ULBs. Sanitary waste found its way like other solid waste, mixed, unsegregated and unprocessed to the dumpsites.

DULB in its reply stated (October 2024) that audit observations are based on data from 2017-22 and after that significant improvements had been made in waste collection, transportation and processing. DULB has issued directions to closely monitor collection and segregation activities and impose penalties for non-compliance. However, no document in support of the reply was furnished to audit.

2.7.3 Segregation of Domestic Hazardous Waste

Section 7.1 of MSWM Manual, 2016 provides that domestic hazardous waste required special handling and disposal because of its harmful physical and chemical characteristics, or biological properties. Further, as per Rule 15 (i) of SWM Rules, 2016, ULBs were required to establish waste deposit centers for domestic hazardous waste and direct waste generators to deposit domestic hazardous wastes at these centers for its safe disposal.

Audit observed that none of the 18-test checked ULBs publicised the list of items classified as domestic hazardous waste to be segregated at source. Further, 18 test checked ULBs had neither established such waste deposit centers for safe disposal of domestic hazardous waste nor ensured safe storage and transportation of domestic hazardous waste to the appropriate waste disposal facility centers except MC Gurugram which partially stores and transports domestic hazardous waste separately at deposition centre Pali (Faridabad).

Thus, non-segregation of domestic hazardous waste led to improper disposal of domestic hazardous waste with individuals resorting to discarding these hazardous materials along with regular household waste or inappropriately dumping them in open areas, drains, or water bodies.

The Department in its reply stated (October 2024) that it has issued directions to monitor collection, segregation activities and impose penalties for non-compliance.

2.7.4 Segregation and Disposal of Horticulture Waste

Rule 15 (k) of SWM Rules, 2016 provides that ULB shall direct street sweepers not to burn tree leaves collected from street sweeping but to store them separately and hand it over to waste collectors or agency authorised by local body. Further, Rule 15 (p) of SWM Rules, 2016 provides that ULBs shall collect horticulture, parks and garden waste separately and process it in parks and gardens, as far as possible.

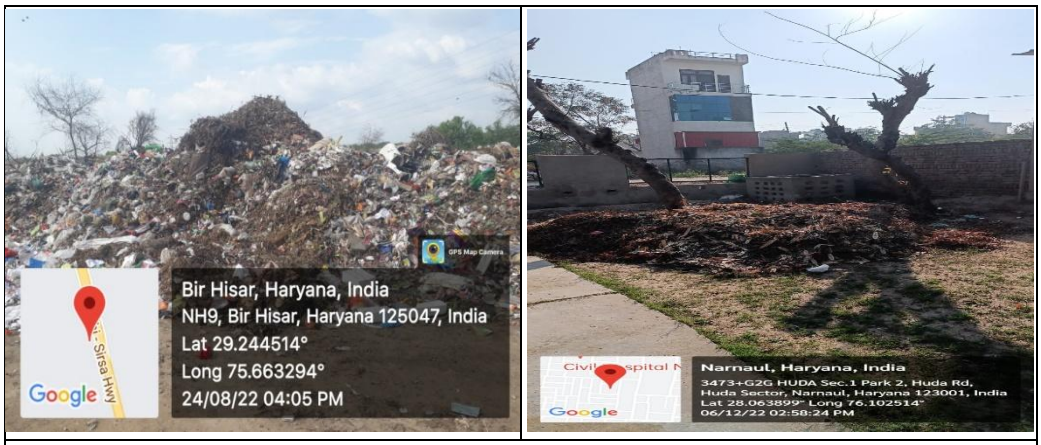
In nine[18] test checked ULBs, Audit observed that there were shortage of constructed pits ranging between two to 574 pits in parks as on March 2022 for

[18] Bahadurgarh: 35; Gurugram 574; Haily Mandi: 2; Hisar: 50; Kalka:2; Kaithal: 44; Narnual: 20; Panchkula: 60; and Uklana: 2.

collection and processing horticulture waste. Criteria/procedure adopted by ULBs for working out number of required pits was not provided to Audit. In absence of the same, Audit could not verify the authenticity of data regarding shortage of pits provided by the test checked ULBs.

In the absence of adequate number of pits, horticulture waste was dumped at open space in parks and other open spaces. Further, during joint physical verification of 16 dumpsites, it was observed that predominantly, horticulture waste was found dumped in 13 dumping sites, mixed with the other waste.

DULB in its reply stated (October 2024) that as on September 2024, a total of 1,552 park pits had been set up across Haryana for processing horticulture waste.



Horticulture waste being dumped at dumpsite

2.7.5 Collection of Municipal Solid Waste

Rule 15 (b) of SWM Rules, 2016 stipulates that ULBs are required to arrange for door-to-door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other non-residential premises. Status of waste generated and collected in all the ULBs of the State is depicted in ***Table 2.6***.

Table 2.6: Status of waste generated and collected in all the ULBs of the State

Period	Generated (TPD)	Collected (TPD)	Percentage Collected
2017-18	4,394.40	4,125.36	93.88
2018-19	4,635.79	4,430.25	95.57
2019-20	5,231.90	4,808.80	91.91
2020-21	5,352.12	5,291.41	98.87
2021-22	8,766.00	6,691.13	76.33
Total	**28,380.21**	**25,346.95**	**93.88**

Source: Annual reports submitted by HSPCB to CPCB.

As can be seen in ***Table 2.6***, percentage of collection of waste ranged between 76 and 99 *per cent* during 2017-22. Test checked ULB wise position regarding collection of waste during 2017-22 is indicated in ***Appendix 2.7.*** Out of 16 test

check ULBs[19], 11 ULBs achieved door-to-door collection ranging between 91 and 100 *per cent*, in four[20] ULBs the same ranged between 51 and 90 *per cent* and in remaining one ULB (MC Punhana) the same was 46 *per cent* during 2021-22.

DULB in its reply stated (October 2024) that all ULBs have been directed to closely monitor door-to-door waste collection, segregation, transportation, and processing. Penalties will be imposed for non-compliance and appropriate action will be taken against delinquents.

2.7.6 Secondary Storage of Municipal Solid Waste

"Secondary storage" under SWM Rules, 2016 means the temporary containment of solid waste after collection at secondary waste storage depots or material recovery facilities[21] (MRFs) or bins for onward transportation of the waste to the processing or disposal facility. Rule 15 (h) of SWM Rules, 2016 requires the local authorities to set up MRFs or secondary storage facilities for sorting of recyclable materials. The status of MRFs in the 18 test-checked ULBs during 2017-22 is given ***Appendix 2.8***.

Audit observed that against the requirement of 70 MRFs in 18 test checked ULBs, only 33 MRFs existed as on March 2022. There was a shortage of 38 MRFs in seven[22] test checked ULBs as on March 2022. Criteria/ procedure adopted by ULBs for working out the number of required MRFs was not provided to Audit. In absence of the same, Audit could not verify the authenticity of data regarding shortage of MRFs provided by the test checked ULBs.

Shortage of MRFs led to the unprocessed waste being dumped at dumpsites. Failure to segregate also contributed to failure in recovery of the recyclables, thereby leading to dumping these resources in landfills. It was also a sub-optimal use of precious landfill space.

DULB in its reply stated (October 2024) that 86 MRFs are available in 58 ULBs. The reply of the Department confirms that there was a shortage of MRFs.

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19 Information not provided by Gurugram and Panchkula.

20 1. Haily Mandi, 2. Hisar, 3. Palwal and 4. Uklana.

21 Means a facility where non-compostable solid waste can be temporarily stored by the local body or any other entity or any person or agency authorised by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorised informal sector of waste pickers, informal recyclers or any other work force engaged by the local body or entity for the purpose before the waste is delivered or taken up for its processing or disposal.

22 Gurugram: 30, Hisar: 3, Kalka: 1, Kaithal: 1, Narnaul: 1, Punhana: 1, Uklana: 1. There is one excess MRF in Palwal.

2.7.7 Manpower for Street Sweepings

Street cleaning is one of the primary services rendered by municipal authorities to ensure clean and hygienic urban conditions. Section 2.4.2 of MSWM Manual, 2016 emphasises on having a well-planned, time-bound daily system for street sweeping including adequate staffing for street sweeping. Further, as per the norm adopted by DULB there should be one sweeping staff for every 400 people residing in a city for cleaning streets/roads of the city area on a daily basis. Status of requirement of sweepers and actual position of sweepers engaged against the requirement in the 18-test checked ULBs is shown in ***Table 2.7.***

Table 2.7: Detail showing the status of Sweepers in test checked ULBs during 2017-22

(Figures in number)

Period	Sweepers required	Sweepers engaged	Shortage of sweepers (*Per cent*)
2017-18	13,346	6,453	6,893 (52)
2018-19	13,872	6,666	7,206 (52)
2019-20	14,859	6,901	7,958 (54)
2020-21	16,522	13,248	3,274 (20)
2021-22	18,309	13,232	5,077 (28)

Source: Information provided by the test checked ULBs.

It is evident from ***Table 2.7*** that there was shortage of sweepers ranging from 20 to 54 *per cent* during 2017-22. Though there was an improvement in engagement of sweepers during 2020-22, however, there was still shortage of 5,077 sweepers (28 *per cent*) as of March 2022. ULB wise position of sweepers is indicated in ***Appendix 2.9***. Audit observed that there was a shortage of 4,946 sweepers in five[23] test checked ULBs whereas in two[24] ULBs, there was excess deployment of 593 sweepers.

DULB in its reply stated (October 2024) that sweeping is currently being done both mechanically and manually through outsourcing contracts.

2.7.8 Personal Protective Equipment

As per Rule 15 (zd) of SWM Rules, 2016, ULBs are required to ensure that the operator of a facility provides personal protective equipment (PPE) including uniform, fluorescent jacket, hand gloves, raincoats, appropriate foot-wear and masks to all workers handling solid waste and the same are used by workforce.

[23] Bahadurgarh: 511, Faridabad: 1,720, Palwal: 306, Panipat: 2,000 and Sonipat: 409.

[24] Gurugram: 553 and Kaithal: 40.

During joint physical verification in 18 test checked ULBs, Audit observed that in eight[25] test checked ULBs, the workers involved in manual handling of waste were not wearing protective equipment particularly gloves and boots despite the condition in contract regarding use of PPE.

Non-utilisation of protective equipment is fraught with serious health hazards to persons engaged in handling of waste.

DULB in its reply stated (October 2024) that efforts are being made by ULBs to ensure contractors provide appropriate PPEs to all workers.

2.7.9 Availability of Vehicles for Solid Waste Management Activities

Transportation plays a vital role in managing SWM activities. Depending on the local conditions and location of landfill sites, ULBs use different types of vehicles such as push-carts, auto tippers, tractors, tipper trucks and compactors for collection and transportation of the waste. Status of vehicles in the 14[26] test checked ULBs during 2017-22 is given in ***Table 2.8***.

Table 2.8: Status of vehicles in 14 test checked ULBs

Period	Total no. of vehicles required	Number of vehicles available	Shortage *(Per cent)*
2017-18	294	215	79 (27)
2018-19	332	236	96 (29)
2019-20	376	299	77 (20)
2020-21	494	360	134 (27)
2021-22	515	405	110 (21)

Source: Information provided by the test checked ULBs.

Test checked ULB wise position is indicated in ***Appendix 2.10***. Four[27] test checked ULBs reported shortage of 110 vehicles as on March 2022. The maximum shortage (50 *per cent*) was reported by MC, Hisar. Criteria/ procedure adopted by ULBs for working out number of required vehicles was not provided to Audit. In absence of the same, Audit could not verify the authenticity of data regarding shortage of vehicles provided by the test checked ULBs.

During exit conference (January 2024), the Department stated that the issue is being pursued to enhance the availability of vehicles.

[25] Faridabad, Gurugram, Hisar, Kalka, Nilokheri, Palwal, Panipat and Sonipat.

[26] Excluding four ULBs (Gurugram, Faridabad, Sonipat and Panipat) where ISWM have been awarded to private concessionaires.

[27] Hisar: 96, Kalka: 7, Punhana: 4 and Uklana: 3.

2.7.9.1 Utilisation of Tractors/trolleys received under Corporate Social Responsibility

Indian Oil Corporation Limited donated (March 2022) 25 small tractors along with trolleys costing ₹ 81.22 lakh to MC Faridabad (MCF) under Corporate Social Responsibility (CSR) as per requirement of the Companies Act, 2013.

Audit observed that MCF had outsourced SWM activities relating to collection, transportation and processing of MSW to a private agency. MCF handed over these tractors to the agency in March 2022. These tractors/ trolleys were returned to MCF in December 2022 as the agency refused to pay the cost of tractors/trolleys to MCF. Since then, these are lying with MCF. Thus, these tractors/ trolleys could not be utilised in MCF, however, MCF did not take up the matter with DULB for their utilisation in other ULBs.

Thus, MCF had failed to leverage a critical statutory provision for SWM activities. This has resulted in non-utilisation of vehicles worth ₹ 81.22 lakh in the solid waste activities.

DULB in its reply stated (October 2024) that MCF was in the process of tendering the work to an agency that will provide drivers, fuel, and maintenance services to ensure efficient use of the vehicles for transporting sweeping waste to designated secondary collection points.

2.7.10 Processing of Municipal Solid Waste

Rule 15 (v) of SWM Rules, 2016, provides that the local authorities shall facilitate construction, operation and maintenance of solid waste processing facilities and associated infrastructure on their own or with private sector participation or through any agency for optimum utilisation of various components of solid waste adopting suitable technology. As per SWM Rules, 2016, DULB is responsible for ensuring the implementation of provisions of these Rules by all local authorities (ULBs).

Details of solid waste generated, processed and dumped by all the ULBs in Haryana during 2017-22 are given in ***Table 2.9***.

Table 2.9: Status of solid waste generated, processed and dumped in all ULBs

Year	Total waste generated (TPD)	Total waste processed (TPD)	Total waste unprocessed (TPD)	Total waste generated in the State in a year$ (lakh ton)	Unprocessed waste dumped at dumpsite in a year$ (lakh ton)
2017-18	4,394	750	3,644(83)	16.04	13.30
2018-19	4,636	816	3,820(82)	16.92	13.94
2019-20	5,232	1,621	3,611(69)	19.10	13.18
2020-21	5,352	3,124	2,228(42)	19.53	8.13
2021-22	8,766	4,297	4,469(51)	31.99	16.31
Total				**103.58**	**64.86**

Source: Information provided by HSPCB.

$ Figures have been calculated by multiplying waste generated per day by 365

Figure in brackets denotes percentage.

It is evident from ***Table 2.9*** that during 2017-22, the total waste generated was 103.58 lakh tons, against which 64.86 lakh tons waste i.e., 63 *per cent* was dumped at dumpsites without any processing. Though the *percentage* of unprocessed waste decreased over the years, the efforts were not commensurate with the increasing quantum of dumped unprocessed waste.

Out of 18-test checked ULBs, 11 ULBs[28] had fully outsourced the processing of daily MSW and three ULBs[29] had partially[30]outsourced the processing of daily collected MSW. Remaining four ULBs[31] had no facility of processing of MSW. Details of solid waste generated, processed and dumped by the test checked ULBs during 2017-22 are given in ***Table 2.10***.

Table 2.10: Detail of solid waste generated, processed and dumped in 18-test checked ULBs

Year	Total waste generated (TPD)	Total waste processed (TPD)	Total waste unprocessed/ dumped (TPD)	Total waste generation in one year$ (lakh ton)	Unprocessed Waste Dumped at dump sites in whole year$ (lakh ton)
2017-18	2,537	132	2,405 (95)	9.26	8.77
2018-19	2,965	217	2,748 (93)	10.82	10.03
2019-20	3,237	669	2,568 (79)	11.82	9.37
2020-21	3,140	1,020	2,120 (68)	11.46	7.73
2021-22	3,209	1,832	1,377 (43)	11.71	5.03
Total				**55.07**	**40.95**

Source: Information provided by ULBs.

$ Figures have been calculated by multiplying waste generated per day by 365

Figures in brackets denotes percentage.

Unprocessed waste of 40.95 lakh tons, in the test checked ULBs, was dumped during the last five years, even after the notification of SWM Rules (8 April 2016). Audit further observed that only three ULBs[32] were processing 100 *per cent* of their waste whereas three ULBs[33] were dumping more than 80 *per cent* of their waste without processing and the remaining 12 ULBs[34] were dumping unprocessed waste ranging from six to 79 *per cent* during 2021-22.

Low rate of processing in the test-checked ULBs was due to insufficient infrastructure for solid waste management. The existing infrastructure was inadequate in terms of capacity as well as functionality and was unable to handle the increasing volume of waste generated. This was also reflected in the form

28 1. Bahadurgarh, 2. Beri, 3. Faridabad, 4. Gurugram, 5. Kaithal, 6. Nilokheri, 7. Palwal, 8. Panipat, 9. Shahabad, 10. Sonipat and 11. Tohana.

29 1. Hisar, 2. Kalka and 3. Panchkula.

30 Either activities are not outsourced for all the wards or all activities are not outsourced.

31 1. Hailey Mandi, 2. Punhana, 3. Narnaul and 4. Uklana.

32 1. Kaithal, 2. Nilokheri and 3. Sonipat.

33 1. Hailey Mandi: 100 *per cent*, 2. Panipat: 86 *per cent* and *3.* Punhana: 80 *per cent.*

34 1. Bahadurgarh: 55 *per cent*, 2. Beri: 44 *per cent*, 3. Faridabad: 8 *per cent*, 4. Gurugram: 66 *per cent*, 5. Hisar: 47 *per cent*, 6. Kalka: 10 *per cent*, 7. Narnaul: 79 *per cent*, 8. Palwal: 20 *per cent*, 9. Panchkula: 24 *per cent*, 10. Shahabad: 6 *per cent*, 11. Tohana: 71 *per cent* and 12. Uklana: 67 *per cent.*

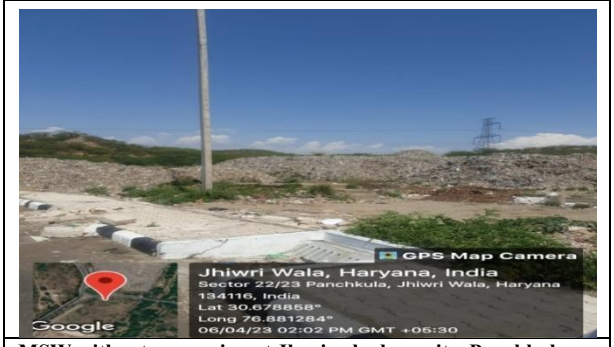
of fines imposed on ULBs in Haryana by the National Green Tribunal (NGT) as discussed in ***Paragraph 2.7.11*** and ***2.8.3.1***.

DULB in its reply stated (October 2024) that audit observations are based on data from 2017-22 and after that significant improvements had been made and 90 *per cent* of fresh waste is now being processed. The reply is not tenable as the Department has not submitted any documentary evidence in support of their reply. Further, as per annual report of HSPCB for the year 2023-24, ULBs of the State had treated only 65.15 *per cent* of the generated waste.

2.7.11 Setting up of Sanitary Landfills Site

Rule 15 (w) of SWM Rules, 2016 provides that ULBs shall undertake on their own or through any other agency, construction, operation and maintenance of sanitary landfill and associated infrastructure within three years from the date of notification of the Rules.

Audit observed that out of 18-test checked ULBs, only two ULBs[35] had operational sanitary landfill site and remaining 16 ULBs were not having landfill sites and were dumping mixed MSW at various dumpsites.



MSW without processing at Jhuriwala dumpsite, Panchkula

Audit further observed that two test checked ULBs (MC Panchkula and MC Kalka) were dumping MSW without processing at Jhuriwala site which is situated in a natural forest with rich biodiversity adjacent to a wildlife sanctuary.

NGT vide its order dated 15 November 2022 imposed environmental compensation of ₹ nine crore and ₹ one crore on MC Panchkula and MC Kalka respectively for contamination of water due to leachate coming out of site and mixing with storm water of natural drain which subsequently outfalls in river Ghaggar coupled with violation of Forest and Wildlife laws. The ULBs deposited the environmental compensation in December 2022.

DULB in its reply stated (October 2024) that the Jhuriwala dumping site has been reclaimed and waste is not processed there anymore. Presently, the site is being used as a transfer station only and waste is cleared every day from the station. Waste from Panchkula and Kalka is sent to the processing site at Patvi, Ambala and Yamuna Nagar respectively. However, the fact remained that the ULBs selected

[35] Panipat and Sonipat.

inappropriate dumpsite situated in a natural forest and had to pay ₹ 10 crore as environment compensation for violation of Forest and Wildlife laws.

2.7.11.1 Basic Facilities on Landfill/dumpsites

Schedule I (B) of SWM Rules, 2016 specifies that certain facilities should be available at landfill sites. Audit conducted joint physical verification of landfills/dumpsites with staff of test checked ULBs. The status of non-availability of basic facilities at the landfills/dumpsites at 13 test checked ULBs[36] is as detailed in ***Table 2.11***.

Table 2.11: Status of facilities at the landfills/dumpsites at 13 test checked ULBs

Sl. No.	Name of facility require at landfills/dump sites	Facility not available (No. of ULBs)
1	Drinking water	8
2	Toilet facility	8
3	Lighting facility	8
4	Fire protection equipment	9
5	Weigh bridge	9
6	Shelter for equipment and machinery	11
7	Watchman shed	6
8	Office facility	8
9	Waste inspection facility	9
10	Vegetative covering/plantation	11
11	Storm water drains	10
12	Internal roads	9
13	Approach roads	5
14	Compound wall and Gate	6
15	Windrow platforms	11

Source: Joint physical verification reports

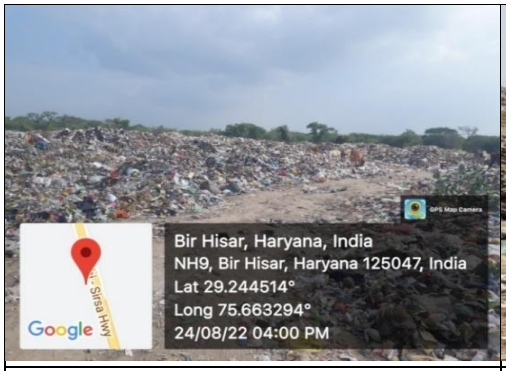
It can be seen from ***Table 2.11*** that basic facilities were not available at the dumpsites. Test checked ULB wise status of the above facilities at the landfills/dumpsites is indicated in ***Appendix 2.11.*** Firefighting protection equipment was not available at nine[37] dumpsites, weighbridge at nine[38] dumpsites, and lighting facility at eight[39] dumpsites.

[36] There is no dedicated dumpsite at Kalka, Faridabad and Punhana. Dumpsites at Palwal and Haily Mandi were cleared.

[37] 1. Beri, 2. Hisar, 3. Kaithal, 4. Narnaul, 5. Panipat, 6. Panchkula, 7. Shahabad, 8. Tohana, 9. Uklana.

[38] 1.Beri, 2. Hisar, 3. Kaithal, 4. Nilokheri, 5. Panipat, 6. Panchkula, 7. Shahabad, 8. Tohana, 9. Uklana.

[39] 1. Hisar, 2. Kaithal, 3. Panipat, 4. Panchkula, 5. Nilokheri, 6. Shahabad, 7. Tohana, 8. Uklana.



Dumpsite at Hisar

Dumpsite at Kaithal

DULB in its reply stated (October 2024) that instructions to provide basic facilities at landfills and dumpsites as part of the land reclamation work will be circulated soon after approval from the competent authority.

2.7.11.2 Authorisation by State Pollution Control Board

Rule 15 (y) of SWM Rules, 2016 provides that the municipal authority or an operator of a facility is required to obtain authorisation from the State Pollution Control Board (SPCB) for setting up of waste processing, treatment or disposal facility, if the volume of waste is exceeding five metric tons per day including sanitary landfills. The number of dumpsites and authorisation granted by HSPCB during the period 2017-22 is given in ***Table 2.12***.

Table 2.12: Status of dumpsites and authorisation granted by HSPCB of all the ULBs in the State during 2017-22

Year	ULBs generating waste above five TPD (Number)	Numbers of dumpsites	Authorisations granted by HSPCB (Number)
2017-18	80	65	Nil
2018-19	84	65	Nil
2019-20	86	69	Nil
2020-21	88	76	Nil
2021-22	89	77	Nil

Source: Annual Reports submitted by HSPCB to CPCB.

Audit observed that during 2021-22 there were 77 dumpsites where ULBs were dumping waste without authorization from HSPCB. However, no action was taken by HSPCB against the concerned ULBs for disposal of waste without authorization. When the issue was pointed out (April 2023) by Audit, HSPCB issued (April 2023) show cause notices to 74 ULBs for non-obtaining the authorisation for processing, treatment or disposal of waste generated.

During exit conference (January 2024), the HSPCB stated that corrective action will be initiated for non-compliance of SWM Rules.

2.7.11.3 Environmental Compensation

HSPCB issued (December 2021) revised[40] procedure/guidelines for examining,

[40] Original procedure/guideline for calculation of EC was issued by HSPCB vide its order dated 29 April 2019.

assessing and imposing Environmental Compensation (EC) on the basis of "polluter pays principle" on industrial units and other Authorities for violation of the provisions of various Act and Rules, who caused damage to the environment of the State of Haryana. The procedure/guidelines *inter-alia* include formula[41] involving three components[42] for working out the amount of EC to be levied on concerned individual/Authority for improper SWM. The formula works out the amount of EC based on gap between waste generated and waste disposed as per the Rules. As depicted in ***Table 2.9***, there were consistent gaps between waste generated and waste disposed during 2017-22, however, upto March 2023, HSPCB had not examined/assessed EC for persistent violation of SWM Rules by the ULBs in the State.

Audit also observed that there were 50 ULBs in the State which had gap between waste generated and waste disposed as on March 2022. However, HSPCB had not conducted any study/evaluation to assess impact on environment due to improper waste management to assess and levy EC. The amount of EC as per the prescribed formula worked out to ₹ 44.26 lakh per day[43] on account of O&M cost (₹ 41.98 lakh) and environmental externalities (₹ 2.28 lakh) and ₹ 50.38 crore as fixed cost on account of capital cost for 50 ULBs for non-disposal of waste as per SWM Rules. ULB wise detail is given in ***Appendix 2.12***. Thus, HSPCB did not fulfil its responsibilities assigned under SWM Rule, 2016 by not initiating action against dumping of unprocessed waste.

HSPCB in its reply stated (30 January 2024) that necessary action is being taken by the Board from time to time against the violations noticed as per the revised procedure/guidelines (December 2021). Reply of the Board is not acceptable as the Board has not levied any EC against ULBs for dumping unprocessed waste. Further, HSPCB had not conducted any study to assess impact on environment due to improper waste management.

2.7.12 Biomining and Bioremediation of Legacy Waste

Rule 15(zj) of SWM Rules, 2016 provides that the local authorities are required to investigate and analyse all old open dumpsites and existing operational dumpsites for their potential of biomining and bioremediation[44] and wherever feasible, take necessary action to biomine or bioremediate the sites. Further,

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41 Environment Compensation (₹ lakh) = 2.4 (Waste Generation - Waste disposed as per the Rules) + 0.02 (Waste Generation - Waste disposed as per the Rules) x N + Marginal Cost of Environmental Externality x (Waste Generation - Waste disposed as per the Rules) x N. Here "N" is number of days from the date of directions of HSPCB till the required capacity systems are provided by the concerned authority.

42 1. Capital cost: fixed 2. O&M cost: variable and 3. Environmental Externalities: variable.

43 As per the formula, exact amount of EC can be worked out based on the number of days from date of direction of HSPCB till required capacity system are provided by the concerned authority.

44 Bioremediation is a process of removing or utilising the pollutants from an area.

Rule 15(zk) provides that in the absence of potential of biomining and bioremediation of dumpsite, it is to be scientifically capped as per landfill capping norms to prevent further damage to environment. Moreover, Rule 22 of SWM Rules, 2016 prescribes a five years' time limit for implementation of the bioremediation or capping of old and abandoned dump sites from the date of notification of Rules (8 April 2016). Non-remediation of legacy waste has serious implications on the environment and public health.

Audit observed that ULBs did not ensure a scientific assessment of quantity of legacy waste and resource mobilisation to adhere to the time limit set in SWM Rules, 2016. DULB belatedly directed (22 April 2020) all the ULBs to invite tenders for bioremediation of legacy waste present at the existing dumpsites after obtaining necessary approvals in their respective municipalities. The status of bioremediation of legacy waste by all the ULBs in the State and test checked ULBs is shown in ***Tables 2.13 and 2.14*** respectively.

Table 2.13: Status of bioremediation of legacy waste in ULBs of Haryana as on April 2023

No. of dumpsites	Quantity of waste (in lakh MT)	Work allocated on dumpsites (in number)	Work completed on dumpsites (in numbers)	Quantity of waste processed (in lakh MT)
76	101.39	46	17	52.62

Source: Information furnished by DULB

It is evident from ***Table 2.13*** that even after lapse of two years from April 2021 (i.e., time limit for clearing of legacy waste as per SWM Rules, 2016) work in respect of 29 dumpsites[45] was not even awarded and 48.77 lakh MT (48 *per cent*) of legacy waste was lying unprocessed (April 2023). Action taken or proposed to be taken by DULB for bioremediation of remaining legacy waste was not furnished to Audit.

Table 2.14: Status of bioremediation of legacy waste in 18-test checked ULBs as on April 2023

Sl. No.	Particular	
1.	No. of dumpsites of legacy waste	16[46]
2.	Total quantity of legacy waste estimated (in lakh MT)	49.29
3.	Revised quantity of legacy waste (in lakh MT)	62.44
4.	No. of ULBs where work order for processing placed	11
5.	Quantity of legacy waste processed till April 2023 (in lakh MT)	29.29
6.	Quantity of unprocessed legacy waste as on April 2023 (in lakh MT)	33.15
7.	No. of ULBs where work completed	3[47]

Source: Information furnished by test checked ULBs and DULB

45 In case of Hailey Mandi dumpsite legacy waste was transferred to Pataudi dumpsite 1. Badli, 2. Barara, 3. Barwala, 4. Bawani Khera, 5. Bhuna, 6. Ferozepur Jhirka 7. Hansi, 8. Hodal, 9. Jakhal Mandi, 10. Julana, 11. Kanina 12. Ladwa, 13. Mahendergarh 14. Narnaund, 15. Narwana, 16. Nuh, 17. Pehowa, 18. Pundari, 19. Punhana, 20. Rajond, 21. Ratia, 22. Shahbad, 23. Siwan, 24. Sonipat, 25. Taoru, 26. Thanesar, 27. Tohana, 28. Uchana, 29. Uklana.

46 Out of 18-test checked ULBs Faridabad and Gurugram have common site. Similarly, Kalka and Panchkula have common legacy waste site.

47 Palwal, Haily Mandi and Nilokheri.

It is evident from ***Table 2.14*** that test checked ULBs initially assessed 49.29 lakh MT of legacy waste at 16 dumpsites. However, on subsequent estimation of quantity of legacy waste, this quantity was further revised to 62.44 lakh MT. The upward revision was mainly on two counts. Firstly, none of the ULBs ensured that the fresh waste being dumped at dumpsite was separately kept from the legacy waste. This added to the existing legacy waste. The second reason was lack of adoption of scientific assessment of quantity of legacy waste. Audit did not come across any scientific approach adopted by DULB to arrive at estimated quantity of legacy waste.

Out of 16 dumpsites, work for only 11 dumpsites was allocated during May 2020 to March 2021 and legacy waste of 29.29 lakh MT could be processed upto April 2023. Thus, even after lapse of two years from April 2021 (i.e., time limit for clearing of legacy waste as per SWM Rules, 2016), work for five dumpsites was yet to be awarded and legacy waste of 33.15 lakh MT (53 *per cent*) was lying unprocessed. The status in case of test checked ULB is indicated in ***Appendix 2.13***.

DULB in its reply (October 2024) stated that the status of legacy waste in the State had tremendously improved over the years and as on 1 August 2024, legacy waste of more than 25 lakh MT out of 62.44 lakh MT is yet to be processed. Reply is not acceptable as the ULBs of the State failed to process the legacy waste despite lapse of more than three years from the time limit prescribed under SWM Rules, 2016.

2.7.13 Bulk Waste Generators

As per SWM Rules, 2016, Bulk Waste Generators[48] (BWGs) are responsible for managing their own waste. MoHUA, GoI issued (November 2017) guidelines for ULBs on BWGs for compliance of SWM Rules, 2016. These guidelines provide that ULBs will carry out identification/ verification of BWGs through field survey /individual notice/ public notice/ self-declaration and shall issue public notices informing public that provisions of the SWM Rules, 2016 for BWGs, are mandated to be complied within one year. Further, ULBs are required to extend all necessary technical support and handholding, except financial assistance, to BWGs in setting up of decentralized waste management

[48] As per SWM Rules 2016, "Bulk waste Generator" includes buildings occupied by the Central Government Departments or Undertakings, State Government Departments or Undertakings, Local Bodies, Public Sector Undertakings or Private Companies, Hospitals, Nursing Homes, Schools, Colleges, Universities, Other Educational Institutions, Hostels, Hotels, Commercial establishments, markets, places of worship, stadia and sports complexes etc. having an average waste generation rate exceeding 100 kg per day (of all waste streams out together). As per SWM byelaws, 2018, ULBs can further categorize Bulk Waste Generators to those who exceed the limit of 50 kg/ day or 25 kg/day to encourage the in situ waste processing.

facility. SWM byelaws empower ULBs to levy fine on the basis of waste generated by the bulk generators for non-compliance of SWM Rules.

No record was provided to audit from which it could be ascertained whether any survey/ public notice was conducted to accurately identify BWGs as required under SWM Rules, 2016. The details of total number of BWGs and number of BWGs having facility of managing their own waste (wet waste) in 18-test checked ULBs[49] is given in ***Table 2.15***.

Table 2.15: Status of Bulk Waste Generators in 18-test checked ULBs

Period	Total No. of BWGs	No. of BWGs having in-house waste processing facility	No. of BWGs without in-house processing facility
2017-18	352	37	315
2018-19	525	37	488
2019-20	773	200	573
2020-21	1,168	293	875
2021-22	1,293	338	955

Source: Information provided by the 18-test checked ULBs

It is evident from ***Table 2.15*** that 955 (74 *per cent*) BWGs were not having in-house wet waste processing facility during 2021-22. Audit observed that ULBs had issued notices to these BWGs for non-compliance of SWM Rules, however, only four[50] ULBs had recovered penalty of ₹ 8.90 lakh during 2017-22. Remaining, 14 ULBs did not recover any penalty as per penal provisions of their respective SWM byelaws.

The details regarding total number of BWGs on whom penalty was imposed and rate of penalty was not provided to Audit. Audit further observed that 15 test checked ULBs had issued byelaws during June 2019 to December 2021 and as per provision of byelaws of respective ULBs, a penalty of ₹ 2.31 crore[51] was leviable but was not imposed on BWGs for non-compliance of SWM Rules during 2020-22.

The Department in its reply stated (October 2024) that ULBs have made efforts to provide technical support to individuals and BWGs across the State. However, the fact remained that large number of BWGs were not having in-house processing facilities as per provisions of SWM Rules.

2.7.14 Regulation of Inter-state Movement of Waste

As per Rule 16 (6) of SWM Rules, 2016, the State Pollution Control Board was responsible for regulating the inter-state movement of waste. However, HSPCB had not issued any instructions to regulate inter-state movement of solid waste.

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49 Except MC Beri.

50 MC Faridabad, MC Gurugram, MC Sonipat and MC Bahadurgarh.

51 Rate of penalty ranging from ₹ 300 to ₹ 10,000 per month/one time as per provisions of byelaws of respective ULBs. Penalty amount has been worked out from the next financial year from notification of byelaws by the respective ULBs.

HSPCB in its reply stated (30 January 2024) that guidelines have not been received from CPCB regarding interstate movement of solid waste. The reply is not acceptable as HSPCB should have issued directions to regulate the inter-state movement of waste as required under Rule 16(6) of the SWM Rules, 2016 itself.

2.7.15 Manpower Constraints Relating to SWM Activities

Section 1.4.5.4 of MSWM Manual, 2016 stipulates that ULBs should have an SWM cell or SWM department having staff with technical and managerial skills specific to SWM like public health officer, sanitary officer, junior engineer, sanitary sub inspector, environmental engineer for SWM and sanitation activities.

Audit observed that there was shortage of technical and managerial manpower specific to SWM activities in ULBs of the State. Status of men in position against the post sanctioned for sanitary inspector, sanitary sub-inspector and sanitary supervisor as well as manpower required as per MSWM Manual, 2016 in all the ULBs of the State is shown in ***Table 2.16***.

Table 2.16: Status of Manpower in the ULBs of the State as on 31 March 2022

Designation	Manpower required as per MSWM Manual, 2016	Sanctioned post	Men in Position	Shortage as per MSWM Manual, 2016	Shortage against Sanctioned post
	A	B	C	D=A-C	E=B-C
Sanitary Inspector	216	76	39	177 (82)	37 (49)
Sanitary Sub-Inspector	378	38	11	367 (97)	27 (29)
Sanitary Supervisor	741	141	20	721 (97)	121 (14)
Total	**1,335**	**255**	**70**	**1,265 (95)**	**185 (25)**

Source: Information furnished by the DULB

Figures in brackets denotes percentage.

As evident from ***Table 2.16***, that not only sanctioned strength of the above posts in the ULBs in the State was not in consonance with MSWM Manual, 2016 but there was also shortage in availability of manpower even with respect to the sanctioned posts. This shortage has adverse impact resulting in non-compliance of SWM Rules, unauthorised dumping, and improper waste disposal practices going unchecked.

During exit conference (January 2024), the Department stated that in future the matter would be looked into.

2.7.16 Management of Special Waste

Audit findings relating to management of Plastic waste, Slaughterhouse waste and Construction & Demolition (C&D) Waste are discussed in the succeeding paragraphs:

2.7.16.1 Prohibition of Use of Plastic

Ministry of Environment, Forest and Climate Change, GoI notified (February 2011) the Plastic Waste Management (Management and Handling) Rules, 2011 (PWM Rules, 2011) which was replaced by the Plastic Waste Management Rules, 2016 (PWM Rules, 2016) notified by GoI. These Rules apply to every waste generator, local body, manufacturer, importers and producer.

The State Government imposed (20 August 2013) prohibitions on manufacturing, sale, distribution, stocking, transportation and use of virgin and recycled plastic carry bags and recycled plastic containers under Section 3-A of the Haryana Non-Bio-degradable Garbage (Control) Act, 1998 (the Act). The State Government also authorised ULBs to levy and recover penalty for non-compliance of provisions of the Act.

Audit observed that during 2017-22, 18 test checked ULBs issued challans under Section 11(1) of the Act for selling/ use/ littering/ burning of prohibited plastic products. Year wise position of challans issued, penalty imposed, amount of penalty recovered by these 16 test-checked ULBs except two ULBs[52] is shown in the ***Table 2.17***.

Table 2.17: Details of challans issued, penalty imposed, amount of penalty recovered in test checked ULBs

Year	No. of challans issued (Number)	Penalty imposed (₹ in lakh)	Penalty recovered (₹ in lakh)	Percentage of recovery
2017-18	308	3.09	1.29	42
2018-19	557	5.53	2.73	49
2019-20	1,928	19.49	8.94	46
2020-21	1,329	10.93	4.22	39
2021-22	5,725	63.46	14.06	22
Total	**9,847**	**102.50**	**31.24**	**30**

Source: Information furnished by test checked ULBs

As is evident from ***Table 2.17***, the percentage recovery was very low i.e., 30 *per cent* during 2017-22 despite most of these penalties being on the spot penalties, thereby defeating the deterrence effect of imposition of penalty. Test checked ULB wise detail is indicated in ***Appendix 2.14***. It was further observed that 79 *per cent* of challans were issued by only two ULBs (MC Gurugram: 3,642 and MC Faridabad: 4,145).

During exit conference (January 2024), the Department stated prohibition of use of plastic requires cooperation from the public. Further, efforts are being made to control use of plastic and alternate use of plastic.

2.7.16.2 Using Plastic for Construction of Roads/ Energy Recovery

Rule 5(b) of PWM Rules, 2016 stipulates that the municipal authorities/local

[52] Information with regard to penalty recovered was not available in respect of MC Tohana and MC Hailey Mandi.

bodies shall encourage use of plastic waste (preferably the plastic waste which cannot be further recycled) for road construction as per Indian Roads Congress guidelines or energy recovery or waste to oil, *etc*. Audit observed that out of 18 test checked ULBs, only MC Gurugram had constructed (2020-21) 27 KM road by using plastic waste. Thus, all the test checked ULBs (except MC Gurugram) had not adopted the use of plastic waste into better use.

DULB in its reply stated (October 2024) that the opportunity to put plastic waste to better use is still pending and assured that work on plastic waste management will be expedited soon.

2.7.16.3 Intake of Plastic Waste by Stray Cattle Leading to Their Death

As per MSWM Manual, 2016, storage facilities are to be maintained in such a way that stray animals do not have access to the waste. Poor segregation at source and deficiency in door-to-door collection resulted in kitchen waste/discarded food packed in plastic bags being improperly disposed on roadsides, vacant lands and at secondary collection points. Disposal of such waste attracts cattle (stray and domestic) which consume leftover food including plastic.

Stray animals scattering/consuming food waste

During physical verification conducted in 18-test checked ULBs, heaps of waste mixed with plastic waste at different locations as well as at dumping grounds were found in all test checked ULBs with easy access for stray animals to the waste. Stray animals were seen pulling out or scattering/consuming food waste packed in plastic bags at heap of waste spread around.

As per post-mortem report of dead animals conducted (August 2019 to January 2020) by Government Veterinary Hospital, Hisar, it was observed that 60 kg plastic (one to 15 kg), bundle of ropes, etc. were found inside 18 dead stray animals. This shows that improper management of generated plastic waste was creating health hazard for stray animals.

DULB in its reply stated (October 2024) that new RFP for solid waste collection, transportation, processing, and road sweeping includes provisions for covering legacy sites, material recovery facilities with boundary walls and the regular collection, processing and disposal of waste at all GVPs and secondary collection centres. The reply of the Department is generic in nature and does not specifically address the audit observation relating to intake of plastic waste by stray cattle leading to their death.

2.7.16.4 Slaughterhouse Waste

Section 7.6 of MSWM Manual, 2016 provides that waste material produced in slaughterhouses if not handled and managed properly poses a hazard to health and environment. Further, Rule 3(1) of Prevention of Cruelty to Animals (Slaughterhouse) Rules, 2001 stipulates that no person shall slaughter any animal within a Municipal area except in a slaughterhouse recognised or licensed by the concerned authority.

Audit observed that only six [53] test checked ULBs had constructed slaughterhouse in the area under their jurisdiction, however, none of them was in operation. Resultantly, specified procedure for collection and disposal of slaughterhouse waste could not be ensured. Moreover, it was observed that solid waste generated at mutton/chicken/fish shops or carcasses, mixed with other waste and liquid waste generated in these shops, flowed into the drains which was in contravention to the prescribed procedure for management of such waste.

During exit conference (January 2024), the Department stated that necessary instructions would be issued to ULBs to solve the issue.

2.7.16.5 Construction and Demolition Waste

GoI formulated (March 2016) Construction and Demolition Waste [54] Management (C&DWM) Rules, 2016 defining roles and responsibilities of different stakeholders. The roles and responsibilities of stakeholders involved in process of C&D Waste Management are given in ***Table 2.18*.**

[53] Hisar, Kaithal, Kalka, Palwal, Sonipat and Tohana.

[54] Construction and Demolition (C&D) include the waste comprising of building material, debris and rubble resulting from constructions, re-modelling, repair and demolition of any civil structure.

Table 2.18: Detail of responsibilities of stakeholders involved in process of C&D waste management

Sr. No.	Authority	Duties
1	Duties of State Government and DULB	• To prepare the policy with respect to management of C&D waste • To provide suitable sites for setting up of the storage, processing and recycling facilities for construction and demolition waste. • To incorporate the site in the approved land use plan • To make mandatory for procurement of materials made from C&D waste in municipal and Government contracts.
2	Duties of local authority	• To manage C&D waste • To make arrangements and place appropriate containers for collection of waste • To get the collected waste transported to appropriate sites for processing and disposal • To make provision for giving incentives for use of material made out of construction and demolition waste.
3	Duties of State Pollution Control Board	• To monitor the implementation of these Rules • To submit the Annual Report to the Central Pollution Control Board and grant authorization to C&D waste processing

Source: C&DWM Rules, 2016

Rule 9 (1) of the C&DWM Rules, 2016 provides that the State Government shall prepare its policy document with respect to management of C&D waste in accordance with the provisions of these Rules within one year from the date of final notification of these Rules.

The State Government approved the policy for management of C&D waste on 23 November 2020 with a delay of 43 months. The policy stipulates that ULBs shall identify suitable land for designated C&D waste storage in ULBs with population under five lakhs and C&D waste processing units for ULBs with population above five lakhs. Accordingly, three ULBs (Gurugram, Faridabad and Panipat) were required to establish waste processing facility for C&D waste and remaining ULBs of the State were required to identify land for storage of C&D waste.

Audit observed that MC Gurugram and Faridabad had established processing facility of 1000 and 300 TPD of C&D waste respectively under PPP mode. Accordingly, MC Gurugram had started processing of C&D waste from September 2019. However, MC Faridabad could not start processing of C&D waste as the agency to whom work was awarded, did not come forward for execution of the work. Audit observed that in MC Panipat, no waste processing facility was established for C&D waste. Review of internal documents revealed that ostensible reason given was low generation of waste (i.e. less than 50 TPD) due to which establishment of C&D waste management plant was not found viable. However, this is not in consonance with the policy for management of C&D waste approved by the State Government. Audit further observed that

seven[55] ULBs did not identify site for storage of C&D waste as stipulated in the policy.

DULB in its reply stated (October 2024) that the delay in operationalizing the C&D waste facility in MCF was due to the Concessionaire's non-compliance. MCF is now exploring legal options to either enforce the contract or terminate it for non-performance.

2.8 Planning, Construction and Operation of SWM Projects

Whether planning, construction, commissioning, operation and maintenance of solid waste management projects in ULBs was effective and efficient.

In this regard, audit findings are detailed below:

2.8.1 Planning for Intergraded Solid Waste Management Projects

The State policy and strategy on SWM prescribes State Level Integrated Solid Waste Management (ISWM) action plans on cluster based approach under Public Private Partnership (PPP) mode. DULB appointed (July 2014) M/s Ernst & Young LLP (Firm) as Transaction Advisor for providing support on technical, regulatory and institutional aspects for designing and implementing an appropriate model for ISWM for ULBs in the State. DULB on the recommendations (March 2016) of Cabinet Sub-Committee on Infrastructure, prepared plan for management of municipal solid waste by categorising ULBs of the State into 15 clusters.

It was decided (August 2017) to develop three clusters *viz,* Faridabad, Sonipat and Rohtak on waste to energy basis and remaining 12 clusters on waste to compost technology under PPP mode. DULB revised the composition of cluster by merging Ambala and Karnal clusters which were initially proposed under waste to compost model with the revised proposal to develop them on waste to energy basis.

DULB awarded (August and September 2017) the contract for implementation of ISWM in two clusters namely Gurugram-Faridabad and Sonipat-Panipat under PPP mode. Sonipat-Panipat cluster was commissioned in August 2021 and Gurugram-Faridabad cluster could not be commissioned so far (October 2024).

DULB again submitted (July 2020) a revised proposal to develop the remaining clusters on open technology[56] basis along with revision of composition of clusters and reduced the remaining number of clusters from 12 to 11 clusters. The ULB wise composition of cluster is given in ***Appendix 2.15***. Further, three

[55] 1. Ismailabad, 2. Kaithal, 3. Kalawali, 4. Manesar, 5. Sadhura, 6. Sirsa and 7. Siwan.

[56] Means bidder can adopt any technology i.e. waste to energy or waste to compost, etc. for scientific disposal of municipal waste.

clusters[57] were awarded under waste to compost mode in November/ December 2022 with the scheduled date of commissioning in April/June 2024. The remaining eight clusters[58] could not be awarded due to lack of adequate response from the private bidders.

Thus, even after lapse of more than seven years since notification of SWM Rules, 2016, DULB could award only five clusters for ISWM, out of which only one cluster could be operationalised till March 2023. Consequently, the MSW generated across ULBs was disposed in landfill sites without processing by the ULBs. Further, the ISWM projects could also not be implemented in time. Audit observations with regard to implementation of ISWM project of Sonepat-Panipat and Faridabad-Gurugram cluster are discussed in ***Paragraph 2.8.2*** and ***2.8.3*** respectively.

DULB in its reply stated (October 2024) that it made multiple attempts to bid out tenders and followed required procedures for approvals which took considerable time. Additionally, in 2022-23, the remaining eight clusters were merged into six due to the unavailability of land in Panchkula and Farukhnagar.

2.8.2 Implementation of Integrated Solid Waste Management Project: Sonipat-Panipat Cluster

A concession agreement was signed (September 2017) among DULB, four participating ULBs[59] and M/s JBM Environment Management Pvt. Ltd. (Concessionaire) for development of ISWM project for a period of 22 years after competitive bidding. As per concession agreement, scope of service on the part of the Concessionaire *inter-alia* included primary collection (daily door-to-door collection) of MSW generated within the Project Area, secondary storage, transportation of MSW to processing facility, setting up and operation of processing facility at its cost at the earmarked site including setting up waste to energy power plant of at least five MW capacity and developing sanitary landfill site for final disposal of processed waste. MC Sonipat was nominated as designated ULB to act on behalf of the participating ULBs. As per the agreement, the Concessionaire was required to complete the processing facilities including waste to energy plant and achieve Commercial Operation Date (COD) within 24 months from the date of signing of concessionaire agreement i.e., upto 25 September 2019. Further, terms and conditions of the agreement *inter-alia* required:

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57 1. Bhiwani, 2. Karnal-Kaithal-Kurukshetra and 3. Sirsa.

58 1. Ambala-Yamunanagar, 2. Farukhnagar, 3. Hisar-Fatehabad, 4. Jind, 5. Mansesar-Rewari, 6. Palwal-Punhana, 7. Panchkula and 8. Rohtak-Bahadurgarh-Jhajjar.

59 i.e., 1. MC Gannaur, 2. MC Panipat, 3. MC Samalkha and 4. MC Sonipat.

- DULB to procure execution of Power Purchase Agreement (PPA) between the Concessionaire and DISCOM within 180 days.
- the Concessionaire to obtain applicable approvals as required by or under applicable law.
- Participating ULBs to facilitate the Concessionaire in terms of support and participation to obtain all applicable approvals.

Additionally, the Concessionaire was to be paid tipping/transportation charges of ₹ 1,000 per tons of MSW collected during the pre-COD period or until period of two years, whichever is earlier provided that the delay beyond the period of two years caused due to event of default by participating ULBs or due to any *force majeure* event, then, tipping charges of ₹ 1,000 per tons was to be paid even in the extended period. Post-COD, the tipping/transportation charges of ₹ 333 per tons of MSW collected was to be paid.

Audit observed that the site at Sonipat for power plant and waste processing was handed over (November 2017) to the Concessionaire immediately after signing of the agreement. However, the Concessionaire could achieve COD on 13 August 2021 after a delay of 23 months owing to delays in finalization of PPA (September 2018), obtaining environment clearances (May 2019) and *force majeure* event (during Covid-19 at later stages). The Concessionaire obtained environment clearances after 20 months and the same was the major reason for overall delay of 23 months. Resultantly, the participating ULBs had to pay the tipping/transportation charges at higher rates of ₹ 1,000 per tons instead of ₹ 333 per tons to the Concessionaire for MSW collected during October 2019 to August 2021. Resultantly, two test checked ULBs (MC Panipat and MC Sonipat) had to bear an extra financial burden of ₹ 28.81 crore during the same period. Obtaining environment clearances and finalisation of PPA required a coherent approach on the part of DULB and designated ULB. Evidently that was missing, leading to delays, resulting in a drain on the financial resources of ULBs which in turn were dependent on financial assistance from the State Government.

DULB in its reply stated (October 2024) that the delay in commissioning of the project was due to procedural delays in obtaining environmental clearance from MoEFCC. The reply is not acceptable, as MC Sonipat ought to facilitate the Concessionaire in obtaining clearance in a timely manner as per the terms and conditions of the concession agreement.

2.8.2.1 Processing of Solid Waste Accumulated by the Concessionaire

The Concessionaire started (22 February 2018) the work of collection and transportation of MSW and started to dump the collected waste at Nimbri dumpsite, Panipat. The Concessionaire dumped six lakh MT of the waste

collected from the jurisdiction of MC Panipat during February 2018 to August 2021 at Nimbri dumpsite. Similarly, the Concessionaire started (26 March 2018) the work of collection and transportation of MSW in MC Sonipat and dumped the collected MSW of two lakh MT from March 2018 to August 2021 at dumpsite at Sonipat. Audit observed that, even after achieving COD (August 2021) of waste to energy plant, the MSW collected during March 2018 to August 2021 was lying unprocessed (March 2023) at both dumpsites despite the fact that the Concessionaire was also required to process the same.

The unprocessed waste of eight lakh MT[60] dumped by the Concessionaire had not been addressed till the period of audit (March 2023). Further, eight lakh MT waste dumped by the Concessionaire was lying in an open space at the dumpsites which is also harmful for the environment. However, MC Sonipat did not invoke risk and cost clause of the concession agreement to clear the unprocessed waste.

DULB in its reply stated (October 2024) that waste dumped in MC Sonipat area before COD has been processed by the Concessionaire. However, the reply is silent with regard to six lakh MT unprocessed waste dumped by the Concessionaire before COD in MC Panipat area.

2.8.2.2 Payment of Output Based Incentive to the Concessionaire

As per terms and conditions of the agreement, designated ULB (MC Sonipat) was required to pay difference between Haryana Electricity Regulatory Commission notified tariff (₹ 6.84 per kwh) and Output Based Incentive (OBI) quoted by the Concessionaire (₹ 10.60 per kwh) for power exported to DISCOM during the concession period which worked out to ₹ 3.76 per unit.

Audit observed that the Concessionaire had used 3.64 lakh MT MSW as input in the waste to energy plant during August 2021 to December 2022. The Concessionaire generated 845.31 lakh unit of electricity during the same period. Audit further observed that only 2.78 lakh MT of MSW was collected from the project area whereas remaining 0.86 lakh MT (3.64 lakh MT- 2.78 lakh MT) MSW was collected from sources outside the project area. MC Sonipat during inspection (October and December 2021) of this plant too had found that the Concessionaire was accepting MSW from outside the project area without the permission of DULB. Thus, the Concessionaire generated extra electricity of 199.71 lakh units[61] which resulted in financial loss of ₹ 7.51 crore[62] during August 2021 to December 2022 to MC Sonipat.

DULB in its reply stated (October 2024) that after taking cognizance of use of

60 Panipat: six lakh MT and Sonipat: two lakh MT

61 Electricity generated = 0.86 lakh MT / 3.64 lakh MT * 845.31 lakh units =199.71 lakh units.

62 199.67 lakh units * ₹ 3.76 Per unit = ₹ 750.76 lakh.

MSW outside the project area, details have been sought from the Concessionaire and a consolidated report is being prepared to address the issue.

2.8.3 Integrated Solid Waste Management Project: Faridabad-Gurugram Cluster

A concession agreement was signed (August 2017) among DULB, two participating ULBs (i.e., MC Faridabad and MC Gurugram) and M/s Ecogreen Energy Private Limited (Concessionaire) for development of ISWM project for a period of 22 years after competitive bidding. As per concession agreement, scope of service on the part of the Concessionaire *inter-alia* includes primary collection (daily door-to-door collection) of MSW generated within the project area, secondary storage, transportation of MSW to the processing facility, setting up of processing facility at its cost at earmarked site including setting up waste to energy plant of at least 10 MW capacity and developing of sanitary landfill site for final disposal of processed waste. MC Gurugram was nominated as designated ULB to act on behalf of the participating ULBs. Terms and conditions of the concession agreement *inter-alia* provide that:

i. Designated ULB was required to co-ordinate with the participating ULBs and ensure handing over of land to the Concessionaire within 30 days from the signing of agreement under their respective jurisdiction for transfer stations, processing facility, landfill site on as-is-where-is basis free from encumbrance, for the purpose of implementing the project.

ii. The Concessionaire was required to employ suitable technology/ processes to manage the waste piled up at the existing site for reclaiming the land to the maximum extent possible and not limiting to the land required for setting up the processing and disposal plant.

iii. The Concessionaire was required to obtain applicable approvals as required by or under applicable law.

iv. The Concessionaire was required to complete the processing facilities including waste to energy plant and achieve Commercial Operation Date (COD) within 24 months from the date of signing of concession agreement i.e., upto 13 August 2019. In the event, the Concessionaire is unable to achieve COD of the power plant within the period of 24 months, the Concessionaire shall be granted an additional mutually agreed period without levy of any damages. In case of any further delay to achieve COD from the mutually agreed additional period, liquidated damages at the rate of 0.1 *per cent* of the Performance Security (₹ 33.05 crore) per day of delay shall be levied by the designated ULB on the Concessionaire.

v. The Concessionaire was to be paid tipping/transportation charges of ₹ 1,000 per tons of MSW collected during the pre-COD period or until period of two years, whichever is earlier provided that the delay beyond the period of two years is caused due to event of default by the participating ULBs or due to any *force majeure* event, then, tipping charges of ₹ 1,000 per tons was to be paid even in the extended period. Post COD period, the tipping/transportation charges of ₹ 333 per tons of MSW collected was to be paid.

MC Gurugram (MCG) handed over (September 2017) Bandhwari landfill site to the Concessionaire for establishment of Waste-to-Energy Plant and for management and treatment of the legacy waste at landfill site as per schedule. However, the Concessionaire failed to achieve COD as per the prescribed schedule due to delay in obtaining environmental clearance for enhanced capacity of waste to energy plant from 10 MW to 15 MW. The Concessionaire requested (July 2020) for extension of COD upto 30 December 2022. DULB extended COD upto 01 November 2021 without levying liquidated damages as per terms and conditions of the agreement. The Concessionaire failed to achieve COD even in the extended period and again requested (September 2021) for extension of COD upto 30 December 2024 specifying reasons i.e., non-availability of land at designated site and pending environmental clearance for expanded capacity of waste to energy plant from 15 MW to 25 MW. DULB extended (October 2021) the COD upto 31 October 2023 without levying of liquidated damages.

Audit observed that the reason i.e., non-availability of land at designated site given by the Concessionaire for extension in COD was not justified as the Concessionaire was required to clear/manage the waste piled up at Bandhwari landfill site to reclaim the land for setting up waste to energy plant as per the condition (sl. No. ii mentioned above) of the concession agreement. Further, as per terms and conditions of the agreement, obtaining environmental clearance was the responsibility of the Concessionaire. Audit further observed that even after obtaining the environmental clearance for 15 MW in November 2019, the Concessionaire did not clear the waste piled up at Bandhwari landfill site. It was also observed that the Concessionaire maintained that management of waste piled up at Bandhwari landfill site was not under the scope. DULB referred the matter to Advocate General (AG) for seeking legal opinion. AG opined (October 2019) that the Concessionaire was responsible for processing and management of the whole legacy waste and leachate at the site. In view of the failure on the part of Concessionaire to manage the waste piled up at the existing site, the State Government decided (October 2019) to start the work relating to treatment of legacy as well as fresh waste at MCG level at the risk and cost of

the Concessionaire. Despite this, DULB/ MCG extended COD without levying penalty while granting second extension in October 2021.

As per the terms and conditions of the agreement, liquidated damages for delay in achieving COD from 02 November 2021 to 31 March 2022 worked out to ₹ 4.92 crore[63]. Additionally, participating ULBs had to bear an extra financial burden of ₹ 108.93 crore [64] on account of payment of higher tipping/ transportation charges during September 2019 to March 2022 as per schedule. Thus, the Concessionaire was being unduly benefited by making an extra payment since scheduled COD. MCG paid ₹ 173.45 crore to various agencies for work done on risk and cost basis on behalf of the Concessionaire upto 14 June 2024.

DULB in its reply stated (October 2024) that the Concessionaire took no action to begin construction of the waste-to-energy plant. No drawings were prepared, no approvals were obtained and no technical manpower/ resources were deployed. During the second COD extension till 31 October 2023, as performance of the Concessionaire fell short of benchmarks prescribed in the concession agreement, the tipping fee was reduced to ₹ 333 per MT from 01 November 2022. The Concessionaire even after repeated reminders/notices did not carry out construction of waste-to-energy plant. Consequently, bank guarantee of ₹ 33.05 crore was invoked on 03 January 2024 by MCG and the concession agreement has been terminated on 14 June 2024. The reply of the Department confirms the contention of Audit that extension granted to the Concessionaire was not justified.

2.8.3.1 Legacy Waste of Gurugram-Faridabad Cluster

Legacy waste site of Gurugram-Faridabad cluster was located at Bandhwari village which is 5.98 km from Gurugram city. NGT constituted[65] an Expert Committee of Central Pollution Control Board (CPCB), Indian Institute of Technology, Delhi and National Environment Engineering Research Institute to determine the extent of damage to the environment in monetary terms and cost of restoration, due to unscientific disposal of MSW at Bhandwari site causing leachate contamination of ground water and pollution of surface water. CPCB assessed (February 2020) damage of ₹ 148.46 crore considering air pollution, water pollution, soil pollution, climate and aesthetics by landfill emissions. NGT also constituted (July 2021) a three-member Committee[66] to ascertain factual position of legacy waste in view of the serious lapses and continuing

63 ₹ 33.05 crore * 149 days * 0.1 *per cent.*

64 MSW of 16331.43 lakh MT * ₹ 667 (₹ 1,000 - ₹ 333).

65 In reference to Original Application dated 16 September 2015.

66 CPCB, HSPCB and District Magistrate, Gurugram.

failure on the part of authorities and State Government in performing constitutional obligation of providing a clean environment. The Committee submitted (March and August 2022) its status report which *inter-alia* highlighted that accumulation of legacy waste had increased to 33 lakh MT with height of 38 meters as about 2,000 TPD of fresh waste was added daily. Further, against the requirement of 15,000 TPD of remediation capacity, only 5,100 TPD of capacity was available at site.

Considering the above, NGT imposed (September 2022) a penalty of ₹ 100 crore for quantum of unremediated legacy waste towards environment compensation for continuous damage to the environment and public health and directed MCG to deposit the amount with the HSPCB. Accordingly, MCG deposited (October 2022) ₹ 100 crore to HSPCB.

Audit observed that DULB/ MCG failed to get the legacy waste cleared at Bandhwari landfill site from the Concessionaire despite enabling clause in the concessionaire agreement, even after a lapse of more than five years since signing of concession agreement due to grant of unjustified second extension and non-initiation of timely penal action against the Concessionaire despite its poor performance as discussed in ***Paragraph 2.8.3***.

DULB in its reply stated (October 2024) that MCG had no option but to start the work on their own at the risk and cost of the Concessionaire. Consequently, MCG proceeded with the processing of the legacy and fresh waste through various agencies at the Concessionaire's risk and cost.

Resultantly, MCG and MCF not only had to bear an additional financial burden of ₹ 382.38 crore[67] but the aim of converting solid waste to energy remained unfulfilled and consequently, solid waste continued to be disposed of through conventional method with its attendant environmental impact.

2.8.4 Utilisation of 'Bio-methanation' Plant

As per Rule 15 (m) of SWM Rules 2016, it is the duty of local authority to collect waste from vegetable, fruit, flower, meat, poultry and fish market on day-to-day basis and promote setting up of decentralised compost plant or Bio-methanation plant at suitable locations in the markets or in the vicinity of markets, ensuring hygienic conditions.

An agreement was signed (April 2018) among Indian Oil Corporation (IOCL), MC Faridabad (MCF) and M/s Ecogreen Energy Private Limited (M/s Ecogreen) for setting up of a bio-methanation plant at Faridabad with capacity

[67] Higher tipping/ transportation charges: ₹ 108.93 crore, work done on risk and cost basis: ₹ 173.45 crore as discussed in Paragraph 2.8.3 and penalty imposed by NGT: ₹ 100 crore for non-bio-remediation of the legacy waste at Bandhwari site.

of five TPD for converting food/ kitchen waste into biogas as a step towards supporting Government of India's initiative on Swachh Bharat Abhiyan. As per the agreement

- IOCL was responsible for the capital expenditure, procurement of Bio-methanation plant and monitoring of regular operation & maintenance (O&M) of plant for an initial period of three years. IOCL was required to hand over the ownership of the plant after three years of operation to MCF for further continued O&M of the plant by MCF.
- M/s Ecogreen was responsible for regular supply of five MT segregated organic waste to the plant on daily basis.
- MCF was responsible for providing the land for the plant and monitoring of M/s Ecogreen for regular supply of segregated organic waste in adequate quantity.

The gas generated from this plant was to be supplied to the ISKON Center, Faridabad. IOCL installed plant at Sector 13, Faridabad and incurred expenditure of ₹ 2.72 crore through its CSR funds during 2019-21. The Bio-methanation plant was operationalised on 15 September 2019.

Audit observed (February 2023) that there was no incentive or penal clause in the agreement to enable MCF for ensuring regular supply of the organic waste by M/s Ecogreen to the plant. During physical verification of the plant (February 2023), it was noticed that plant was not running at its optimum capacity due to less supply of organic/wet waste by M/s Ecogreen. M/s Ecogreen supplied average quantity of 0.218 MT per day against agreed quantity of five MT per day during October 2022 to 15 February 2023. The details of supply of waste prior to October 2022 were not made available to audit.

Audit further observed that the agreement had an inherent flaw as M/s Ecogreen was also Concessionaire for integrated solid waste management for Gurugram-Faridabad cluster. For the Bio-methanation plant, M/s Ecogreen was required to supply the organic waste at no cost to IOCL whereas for the collection, transportation and processing of solid waste in the cluster, the same Concessionaire was being paid ₹ 1,000 per tons. This arrangement encouraged M/s Ecogreen to maximize its revenue by diverting the organic waste collected from market to the solid waste dumpsite at the Bandhwari landfill. The short supply of organic waste not only led to less processing of waste/generation of biogas/compost from waste but also had a harmful impact on the environment. Despite being aware of the situation, MCF neither made any effort to ensure performance of M/s Ecogreen nor worked out any solution to ensure sustainable working of the plant.

DULB in its reply stated (October 2024) that the concession agreement with the

Concessionaire was terminated due to non-performance on 14 June 2024. However, the fact remains that the agreement had an inherent flaw as it did not contain any incentive or penal clause for ensuring regular supply of collected organic waste by M/s Ecogreen which resulted in non-utilisation of Bio-methanation plant at its optimum capacity.

2.9 Monitoring of Municipal Solid Waste Management

Whether monitoring of solid waste management system including assessment of environmental impacts was adequate and effective.

In this regard, audit findings are detailed below:

2.9.1 State Level Advisory Body

As per Rule 23 of SWM Rules, 2016, every department in-charge of local bodies of the concerned State Government is required to constitute a State Level Advisory Body (SLAB) comprising members representing various departments of Government of India (GoI), State Government, representatives from Local Bodies, Non-Governmental Organisations (NGOs)/Civil Society working for the waste pickers or informal recycler or solid waste management, a member from body representing industries of the State or Central level, a member from waste recycling industry, and two subject experts within six months from the date of notification of these Rules.

SLAB is required to meet at least once in every six months to review the matters related to implementation of SWM Rules, State policy and strategy on SWM and give advice to the State Government for taking measures that are necessary for expeditious and appropriate implementation of these Rules.

Audit observed that the State Government constituted SLAB in February 2018 with a delay of 16 months. Further, no member from NGO/ Civil Society, industry, recycling industry and two subject experts was nominated in SLAB. It was further observed that against the requirement of 10 meetings, SLAB held only one meeting (April 2018) till March 2023.

Due to not organising SLAB meetings as per prescribed schedule and lack of representation of various stakeholders and subject experts, the State Government was deprived of suggestions and expert advice on necessary measures for implementation of SWM Rules. Thus, creation of SLAB in Haryana was largely an exercise in formality and excluded the members/ representatives which could have ensured better implementation of SWM activities.

During exit conference (January 2024), the department stated that necessary instructions would be issued for appointment of other member representatives of SLAB as per SWM Rules.

2.9.2 Reporting on Waste Management

Rule 24 (3) of SWM Rules, 2016, provides that the State Pollution Control Board (SPCB) shall prepare and submit a consolidated Annual Report to Central Pollution Control Board (CPCB) and Ministry of Housing and Urban Affairs on implementation of these Rules and action against non-complying local body by 31 July each year.

Consolidated Annual Report for four years i.e., 2017-18, 2019-20, 2020-21 and 2021-22 were submitted to CPCB with delays ranging between one and nine months. It was further observed that HSPCB reported following non-compliance of SWM Rules, 2016 by ULBs.

- For non-obtaining of authorizations for processing and disposal of solid waste by ULBs;
- Non-segregation of domestic solid waste in 2017-18 and low percentage of segregation in remaining four years;
- Non-availability of required processing facility in ULBs; and
- Non-monitoring of ambient air, ground water (except two ULBs[68]), leachate quality and compost quality nearby dumpsite.

However, no action was initiated by HSPCB, thereby, ignoring its own mandate to ensure a clean and green environment.

During exit conference (January 2024), the HSPCB stated that efforts would be made for timely submission of annual reports to CPCB.

2.9.3 Monitoring of Environmental Standards

Audit observed that out of 17 parameters[69] for ground water testing as prescribed in SWM Rules 2016, HSPCB/ ULBs conducted ground water testing only on five parameters[70] at four dumpsites [Gurugram (every year during 2018-22), Panchkula (every year during 2018-21), Karnal (2018-19 and 2021-22) and Yamunanagar (2018-19)] against existing 65 to 77 dumpsites in the State during 2017-22. Sample testing of ambient air, soil, leachate quality

[68] MC Gurugram and MC Karnal.

[69] Arsenic, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Nitrate, Ph, Iron, Total Hardness, Chlorides, Dissolved solids, Phenolic compounds, Zinc and Sulphate.

[70] Ph, Iron, Total Hardness, Chlorides and Dissolved solids.

and compost was not being carried out except sample testing of leachate quality in 2019-21 by MCG.

Scrutiny of Annual Reports under SWM Rules, 2016 submitted by HSPCB to CPCB revealed that the ULBs did not submit monitoring data in respect of groundwater, ambient air, leachate, compost quality to the HSPCB. Neither the ULBs nor HSPCB conducted any study/evaluation to assess impact on environment and health caused by improper waste management.

Thus, due to non-monitoring of required sample testing to check harmful effects of SWM practices being followed by the ULBs on environment, HSPCB did not fulfil its responsibilities/duties assigned under SWM Rules, 2016.

HSPCB in its reply stated (30 January 2024) that the Board is in the process of upgrading its laboratories and purchase of sample testing equipments as per parameters prescribed in the SWM Rules, 2016.

2.10 Conclusion

The State Government approved SWM policy and strategy with a delay of 15 months and that too without consulting various stakeholders. Moreover, none of the 18-test checked ULBs had prepared any short-term or long-term plan. In the absence of these plans, planning and selection of infrastructure projects in ULBs was not based on needs analysis.

It was noticed in audit that three test checked ULBs (Gurugram, Sonipat, and Shahabad) had not notified the SWM byelaws containing penal provisions for non-compliance of SWM Rules, 2016. The remaining 15-test checked ULBs notified byelaws with delays. The percentage of collection of user charges ranged between 0.37 and 3.38 *per cent* against the recurring expenditure incurred on SWM activities in 14 test checked ULBs during 2017-22. Moreover, none of the test checked ULBs revised the user charges in order to make the SWM function a self-sustaining activity.

Segregation of waste at source and collection of all the ULBs in the State was reported as 70 *per cent* and 98 *per cent* respectively during 2021-22, however, Audit noticed in test checked ULBs that they did not maintain day/month wise data of waste collected. Audit could not verify the authenticity of data provided by the test checked ULBs as criteria/ procedure adopted for arriving at the reported figures was not provided to Audit. During 2017-22, the total waste generated was stated to be 103.58 lakh tons, against which 64.86 lakh tons waste (63 *per cent*) was dumped at dumpsites without any processing.

During 2021-22, there were 77 dumpsites where ULBs were dumping waste without authorisation from HSPCB. Moreover, work of bioremediation in

respect of 29 dumpsites was not awarded and 48.77 lakh MT (48 *per cent*) of legacy waste was lying unprocessed at dumpsite (April 2023).

Even after lapse of more than seven years since notification of SWM Rules, 2016, Integrated Solid Waste Management Project could be operationalised only in one cluster (Sonipat-Panipat) so far (March 2023). Audit further observed that the waste to energy plant of Faridabad-Gurugram cluster could not be completed so far (October 2024) due to failure of the Concessionaire to clear/manage the waste piled up at Bandhwari landfill sites. DULB/ MC Gurugram had not imposed liquidated damages of ₹ 4.92 crore for delay in implementation of project from November 2021 to March 2022. Further, MC Gurugram and MC Faridabad had to bear an extra financial burden of ₹ 108.93 crore on account of payment of higher tipping/transportation charges due to non-implementation of the project as per schedule. NGT also imposed a penalty of ₹ 100 crore on MC Gurugram for non-bio-remediation of the legacy waste at Bandhwari site.

2.11 Recommendations

1. The State Government may direct the ULBs to take proactive steps for the formation of Self-Help Groups of waste pickers and encourage their involvement in Solid Waste Management.
2. The State Government and ULBs may devise suitable mechanism for collection of SWM user fees to bridge resource gaps and strive for self-sustenance of SWM activities.
3. The State Government may ensure greater emphasis on source segregation through awareness campaigns.
4. The State Government may in a time-bound manner create adequate infrastructure for processing of 100 *per cent* waste.
5. The State Government may direct ULBs for setting up of adequate numbers of sanitary landfill sites and bioremediation of remaining legacy waste in a time bound manner.
6. HSPCB may take action against ULBs for disposal of waste without authorization.
7. The State Government may expedite implementation of Integrated Solid Waste Management projects in the remaining clusters and may ensure operationalisation of processing plants as per prescribed schedule of concession agreement.

8. The State Government may strengthen State Level Advisory Body (SLAB) by nominating members from NGO/Civil Society, industry, recycling industry, subject experts etc. and ensure periodical meetings of SLAB.

9. The State Government may direct HSPCB/ULBs to conduct study/evaluation to assess impact on environment due to improper waste management.