

Chapter IV

Performance Audit on Solid Waste Management in Urban Local Bodies

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URBAN DEVELOPMENT & MUNICIPAL AFFAIRS DEPARTMENT

4. Performance Audit on Solid Waste Management in Urban Local Bodies

Executive Summary

With growing urbanization, waste generation and its appropriate disposal have become a challenge for the State. The 74th Constitutional Amendment Act, 1992, entrusted Urban Local Bodies (ULBs) with the management of solid waste, and made scientific processing and disposal of waste an obligatory duty of the ULBs.

In West Bengal, the Department of Urban Development & Municipal Affairs (the Department) is the nodal Department for the governance of all ULBs. There are 125 Urban Local Bodies (Seven Municipal Corporations, 115 Municipalities and three Notified Area Authorities) in West Bengal, which are involved in Solid Waste Management, in their respective jurisdictions.

A performance audit was carried out on ‘Solid Waste Management in Urban Local Bodies’, for the period 2017-18 to 2021-22, to assess the status of management of municipal solid waste (MSW) in the State, covering 26 selected ULBs.

The Performance audit showed that the State Level Advisory Body (SLAB), constituted in November 2016, had not been functioning since 2017. The Department had not notified its policy for Construction and Demolition (C&D) waste management (as of December 2022). There were delays in the preparation of Solid Waste Management Plans/ DPRs for ULBs and the same had not been placed before the elected body of ULBs for approval. Prescribed procedures had not been followed for assessment of solid waste generated in the ULBs.

In West Bengal, 13,709 metric tons (MT) of solid waste had been generated per day, during 2021-22, in 125 ULBs. Of this, 13,687 tons per day (TPD) (99.84 *per cent*) of waste had been collected. Only 3,047 TPD (*i.e.* 22.26 *per cent* of the collected waste) had been treated and the remaining 10,640 TPD of waste had been unscientifically disposed of. There were only two Sanitary Landfills, in the State. However, there were 123 dumpsites, with legacy waste of 123.87 lakh MT. Bio-mining and bio-remediation of the legacy waste was substantially low. The extent of segregation, recovery of MSW, scientific disposal and cost recovery of MSW, were significantly low, as opposed to the Service Level Benchmark targets set in the Handbook of Service Level Benchmarking of the Ministry of Urban Development, Government of India.

The budgetary provisions of the Department for Solid Waste Management were inadequate *vis-a-vis* the approved project cost for SWM. Further, the expenditure on SWM was not commensurate with the funds available, resulting in accumulation of balance in the bank account of State Urban Development Agency (SUDA). None of the test-checked ULBs had made specific provisions

for 'solid waste management' in their budgets and were dependent on Government grants to defray their SWM schemes. Only the Kolkata Municipal Corporation (KMC) and the New Town Kolkata Development Authority (NKDA) had framed by-laws, while the remaining 24 test-checked ULBs had not framed by-laws, incorporating the provisions of the SWM Rules, 2016.

Door-to-door collection of waste had not commenced in 85 per cent of the test-checked ULBs. More than 50 per cent of the bins purchased for disbursement were lying idle with the test-checked Municipalities. Domestic hazardous waste was getting mixed with other solid waste and reaching the landfills. In all the test-checked ULBs, the open vat system was still operational, for temporary storage of municipal solid waste, involving biodegradable and non-biodegradable waste.

In 10 out of the 26 test-checked ULBs, it was noticed that 29 SWM vehicles, costing ₹ 5.45 crore, purchased between March 2016 and July 2021, had been lying idle for one to four years, exposing them to the risk of being rendered unusable in future.

Of the 123 dumpsites in the State, with an aggregated legacy waste of 123.87 lakh MT, on 838.09 acres of land, bio-remediation work had been taken up for 90 dumpsites, in 78 ULBs. Though the statutory time limit for completing bio-remediation of all legacy waste dumpsites had ended in April 2021, only six dumpsites had been cleared, as of September 2022. Joint Physical Verification of 31 dumpsites revealed that 29 dumpsites had continued to receive fresh waste, which had, in turn, hampered the process of bio-mining of legacy waste.

Only 38 ULBs had sufficient land for setting up of solid waste processing and disposal facilities, while the remaining 87 ULBs either had no land or insufficient land. There were only two Sanitary Landfills in the State.

Owing to acute shortage of waste processing facilities and sanitary landfills in the State, the untreated solid waste was either being dumped in the dumping grounds, or strewn at the road side, in water bodies, drains, canals *etc.* Traces of burning of mixed waste had been noticed in dumpsites.

Observing the slow progress in implementation of the SWM Rules, 2016, NGT imposed environmental compensation of ₹ 32.91 crore, for the period July 2020 to May 2021, out of which ₹ 25.62 crore was paid from the interest accrued from SBM fund. The remaining environmental compensation of ₹ 6.49 crore had not been paid, as of October 2022.

Recommendations:

- 1. The Department should design the capacity of SWM based on sufficient and relevant data for the quantity of the waste to be processed.***
- 2. The Government should notify its policy for scientific management of C&D Waste.***
- 3. The Department should provide budget for SWM commensurate with the approved SWM action plans and ensure its proper usage.***
- 4. The Government should levy, collect sanitation and conservancy charges, as provided in the State Policy on SWM.***

5. *The Government should assess the quantity of solid waste generated as per MSWM Manual, 2016 for effective management of waste. ULBs should strictly ensure maximisation of the segregation of waste at source.*
6. *The Government should incentivise segregation of waste at source and effective system should be put in place for collection, transportation and disposal of the segregated waste.*
7. *Procurement of SWM vehicles should be done only after realistic assessment of the requirement and utility. The vehicles already procured should be gainfully deployed.*
8. *The Department should set up required infrastructure for Solid waste processing including early completion of bio-mining and bio-remediation of legacy waste.*
9. *The Department should provide sufficient and suitable land for setting up of waste processing and disposal facilities in ULBs on priority to minimize adverse impact of untreated waste on public health and environment.*
10. *The Department should ensure that burning of solid waste, in landfills/ dumping sites, is stopped and the violators, if any, are mandatorily and swiftly penalised.*
11. *The Department should draw up a time-bound plan for ULBs, for achieving the Service Level Benchmark targets.*
12. *WBPCB should ensure strict monitoring of SWM facilities through regular inspections and ensure that its Annual Report on SWM should reflect the actual position.*

4.1 Introduction

4.1.1 Solid Waste

Waste is 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 its nature. It is also classified as biodegradable, non-biodegradable, combustible, dry and inert, based on its characteristics.

As per the Solid Waste Management Rules, 2016, 'Solid Waste' includes solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste, other non-residential waste, street sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture and dairy waste, treated bio-medical waste (excluding industrial waste, bio-medical waste, e-waste, battery waste, radio-active waste) etc.

Municipal Solid Waste Management in urban areas, has emerged as a major challenge and the situation has been further aggravated by rapid urbanisation. Inadequate management of waste has significant negative externalities, in terms of public health and environmental outcomes, in addition to its having an adverse impact on the aesthetic appearance of the surroundings. Therefore, solid waste management is a major environmental concern that need to be addressed effectively.

As per the Central Pollution Control Board (CPCB), Annual Report 2020-21, the total quantity of solid waste generated in the country is 1,60,038.90 tons per

day (TPD), of which 1,52,749.50 TPD of waste is collected, with a collection efficiency of 95.40 *per cent*. 79,956.30 TPD (50 *per cent*) of waste is treated and 29,427.20 TPD (18.40 *per cent*) is landfilled. 50,655.40 TPD of waste, which is 31.60 *per cent* of the total waste generated, remains unaccounted for.

4.1.2 Solid Waste Management and the Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a collection of 17 global goals with 169 associated targets, set by the United Nations, to be achieved by 2030, SDGs related to waste management are:

- **SDG 3: Good Health and Well-Being:-** Target 3.9 of SDG 3 aims to reduce substantially the number of deaths and illnesses from hazardous chemicals; air, water and soil pollution; as also contamination by 2030.
- **SDG 6: Clean Water and sanitation:-** Target 6.3 of SDG 6 aims to improve water quality, by reducing pollution; eliminating dumping; minimising release of hazardous chemicals and materials; halving the proportion of untreated wastewater; and substantially increasing recycling as well as safe reuse, globally.
- **SDG 11: Sustainable Cities and Community:-** Target 11.6 of SDG 11, aims to reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.
- **SDG 12: Responsible Consumption and Production:-** SDG 12 includes targets focused on environmentally sound management of all wastes, through prevention, reduction, recycling and reuse (targets 12.4 and 12.5) and reduction of food waste and food losses (target 12.3).

4.1.3 Regulatory framework governing management of solid waste

The Central Government has the power to take necessary measures, for protecting and improving the quality of the environment, subject to the provisions of the Environment (Protection) Act, 1986. Judicial interventions had also a significant impact on Solid Waste Management in the country. The Ministry of Environment, Forests and Climate Change (MoEF&CC) notified (April 2016) the Solid Waste Management Rules, 2016 (SWM Rules, 2016). The SWM Rules, 2016 provide a legal framework for disposal and management of solid waste (except industrial waste, hazardous chemicals, bio-medical waste, e-waste, lead acid batteries and radioactive waste) in all Urban Local Bodies. Industrial waste, hazardous chemicals, bio-medical waste, e-waste, lead acid batteries and radio-active waste are covered under separate rules, framed under the Environment (Protection) Act, 1986.

4.1.4 Entities involved in Solid Waste Management

With growing urbanization and changing lifestyle, generation of waste and its appropriate disposal has become a challenge for the State. The 74th Constitutional Amendment Act, 1992, made provisions for the establishment of ULBs as the third tier of governance, with the objective of empowering the ULBs to perform functions and implement schemes in relation to the 18 subjects specified in

the 12th Schedule of the Constitution of India, which *inter alia* included urban planning, regulation of land use, public health, sanitation, conservancy and solid waste management. Scientific processing and disposal of waste is an obligatory duty of the ULBs. There are 125 Urban Local Bodies (7 Municipal Corporations, 115 Municipalities and 3 Notified Area Authorities) in West Bengal, which are involved in Solid Waste Management, in their respective jurisdictions.

The Department of Urban Development & Municipal Affairs, headed by the Principal Secretary is the nodal Department for the governance of all ULBs, in West Bengal. The Municipal Commissioner is the administrative head of a Municipal Corporation and the Executive Officer is the administrative head of each Municipality/ Notified Area Authority.

The roles of various authorities, in the planning, execution and monitoring of municipal solid waste management in the State, are depicted in **Table 4.1**.

Table 4.1: Roles of various authorities in the planning, execution and monitoring of municipal solid waste management

State	Urban Development & Municipal Affairs Department	Nodal Department, formulation of State Policy on SWM, approval of Plans/DPR, watch over compliance of SWM Rules, Capacity building of ULBs <i>etc.</i>
	State Urban Development Agency	Nodal Agency for SWM in the State and provides funds to the ULBs.
	State Advisory Committee	A Committee, chaired by Additional Chief Secretary, UD Department and represented by the WB Finance Dept, WB Environment Dept, WBPCB, CPCB, MoEF&CC, Ministry of Urban Development, <i>et al.</i> , for implementation of the SWM Rules, 2016.
	State Level Advisory Body for the SWM Rules, 2016	A body, chaired by the Principal Secretary of the Department, for reviewing implementation of SWM Rules, State Policy & Strategy on SWM and rendering advice to the State Government.
	State High Powered Committee under Swachh Bharat Mission (Urban)	A Committee, chaired by the Chief Secretary of the State, for preparation, approval and publishing of the Sanitation Strategy, empanelment of consultants for preparation of DPRs, sanction of SWM Projects, conducting independent review and monitoring <i>etc.</i>
	State Level Task Force	Headed by the Director, SUDA for evaluation of DPRs, finalisation of tender documents, selection of bidders, monitoring and supervision of cluster and standalone SWM projects.
	West Bengal Pollution Control Board	Local authorities are required to obtain Authorisation from the WBPCB for MSW management. Operators selected by municipal authorities to carry out MSW management are also required to obtain authorisation. The local bodies are also required to submit Annual Report in Form-IV to WBPCB on or before the 30th day of June every year. The WBPCB has also been entrusted with the duty of monitoring the compliance of MSW management facilities w.r.t. groundwater, ambient air, leachate quality and compost quality including incineration standards as specified in the Rules.

District	Regional Pollution Control Board Offices	Monitoring & Evaluation.
	District Magistrate/ District Collector/ Deputy Commissioner	Identification and allocation of suitable land to ULBs for setting up Solid Waste processing and disposal facilities and review performance of ULBs.
Urban Local Bodies	Municipal Corporation/ Municipalities/ Notified Area Authorities	Implementation.

As per census-2011, the population of West Bengal was 9.13 crore (including 2.91 crore urban population). In West Bengal 13,709 metric ton of solid waste was generated per day during 2021-22, in 125 ULBs. Of this, 13,687 TPD (99.84 per cent) of waste was collected. Only 3,047 TPD (i.e. 22.26 per cent of the collected waste) was treated and the remaining 10,640 TPD of waste was unscientifically disposed. There were only two Sanitary Landfills in the State. However, there were 123 dumpsites, with legacy waste³²³ of 123.87 lakh MT. Bio-mining and bio-remediation³²⁴ of the legacy waste was substantially low, even after the lapse of prescribed³²⁵ time limit of five years in the SWM Rules, 2016. The extent of segregation³²⁶, extent of recovery³²⁷ of MSW, extent of scientific disposal³²⁸ and extent of cost recovery³²⁹ of MSW, were significantly low, as opposed to the Service Level Benchmark targets set in the Handbook of Service Level Benchmarking of the Ministry of Urban Development, GoI. During 2021-22, only 5,916 TPD of waste could be segregated in the State. The Performance Audit attempted to obtain assurance on the performance of the State Government and ULBs, regarding solid waste management and compliance of the SWM Rules, 2016, and National Green Tribunal (NGT) orders.

4.2 Audit Objectives

The objectives of the Performance Audit were to ascertain whether the:

- Strategy and planning of solid waste management in the ULBs was commensurate with the types and quantum of waste generated and was concurrent with the prevailing legal framework.

³²³ The waste that has been collected and kept for years at some barren land or a place dedicated for Landfill.

³²⁴ Bio-mining and bio-remediation refer to excavation of old dumped wastes and make windrow of legacy waste, thereafter stabilisation of wastes through exposure of wastes to air along with use of composting bio-culture.

³²⁵ Rule 22 Sl. No. 11 of SWM Rules, 2016, stipulates time period of five years for bio-remediation.

³²⁶ Percentage of waste from households and establishments that is segregated.

³²⁷ This is an indication of the quantum of waste collected, which is either recycled or processed. This is expressed in terms of percentage of waste collected.

³²⁸ The amount of waste that is disposed in landfills that have been designed, built, operated and maintained as per standards.

³²⁹ This indicator denotes the extent to which the ULB is able to recover all operating expenses relating to SWM services from operating revenues of sources related exclusively to SWM.

- municipal tasks associated with solid waste management, including collection, segregation, storage, transportation, disposal and social inclusion of informal waste workers, were effective, efficient and economical.
- planning, construction, commissioning, operation and maintenance of solid waste management projects in ULBs, was effective, efficient and financially sustainable.
- Monitoring and evaluation of the solid waste management system, including adequacy of awareness creation, citizen engagement for effecting behavioral change, complaint redressal mechanism for citizens, assessment of environmental impact and implementation of the internal control and monitoring mechanism, was adequate and effective.

4.3 Audit Criteria

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

- The Environment (Protection) Act and Rules, 1986
- The Solid Waste Management Rules, 2016
- Manual of Municipal Solid Waste Management, 2016, issued by GoI
- The West Bengal Municipal Act, 1993
- State Policy and Strategy on Solid Waste Management in Urban Areas, Government of West Bengal
- Construction and Demolition Waste Management Rules, 2016
- Performance parameters set out in the Service Level Benchmarking (SLB) guidelines
- Instructions, guidelines, policies, issued by the Central Pollution Control Board, West Bengal Pollution Control Board and Government of India/ State Government, on solid waste management
- Detailed Project Reports and/or Solid Waste Management Plans, prepared by the State Government/ULBs.

4.4 Audit Scope and Methodology

The Performance Audit on ‘Solid Waste Management in Urban Local Bodies’, was conducted during July to November 2022. The Performance Audit covered the management of Municipal Solid Waste during the FYs 2017-18 to 2021-22. The audit methodology involved scrutiny of records of the Department of Urban Development & Municipal Affairs (Department); State Urban Development Agency (SUDA); Kolkata Metropolitan Development Authority (KMDA); Chief Engineer, Municipal Engineering Directorate; West Bengal Pollution Control Board (WBPCB); and 26 selected Urban Local Bodies/ Development Authorities. Joint Physical Verifications (JPVs) of municipal waste disposal facilities, including treatment plants, composting plants, biogas plants, landfills sites, dumpsites *etc.*, (both completed and under construction), in the selected ULBs, along with the officials of ULBs and collection of photographic evidence, to assess the level of services provided in those ULBs, were also used carried out.

Out of the 125 ULBs in the State, 25 ULBs (**Appendix-27**) were selected, through stratified random sampling, using IDEA application software. Further, the NKDA, was also selected for test-check, as it was providing municipal services, including SWM, in New Town Kolkata area. The coverage of population of the sampled units was 29.28 *per cent* (85.17 lakh) of the entire urban population (290.93 lakh).

An Entry Conference, with the Department and the representatives of WBPCB, was held on 2 August 2022, in which the audit objectives, criteria, scope and methodology, were discussed. The draft Report was issued to the Department on 28 December 2022. The Exit Conference with the Department and other representatives was held on 27 January 2023, to discuss the Audit findings and recommendations and the responses furnished therein were considered while finalising the Performance Audit Report. The revised draft report was issued (December 2023) to the Department for their reply. The Department accepted (January 2024) the audit observations.

Audit acknowledges the cooperation and assistance extended by the State Government in the Urban Development & Municipal Affairs Department, State Urban Development Agency, Kolkata Metropolitan Development Authority, all the test-checked ULBs and the West Bengal Pollution Control Board, in the conduct of the Performance Audit.

Audit Findings

The audit findings emerging from the Performance Audit, are discussed in the succeeding paragraphs.

4.5 Planning

4.5.1 Constitution of Committees

Rule 23(1) of the SWM Rules, 2016, stated that a State Level Advisory Body (SLAB) was to be constituted within six months from the date of notification (April 2016) of the Rules. The Body was required to meet at least once in every six months, to review matters related to the implementation of these rules, State policy and strategy on solid waste management and to give advice to the State Government for taking necessary measures for expeditious and appropriate implementation of these Rules. The copies of the review report were to be forwarded to the State Pollution Control Board or Pollution Control Committee, for necessary action.

Accordingly, a SLAB was constituted in November 2016, in the State, including one representative each from IIT, Kharagpur; NGO/civil society working for waste pickers or informal recycler on solid waste management; the Indian Chamber of Commerce; the waste recycling industry; and two subject experts.

Scrutiny of records, revealed that a meeting of the SLAB had been scheduled on 17 May 2017. However, the agenda notes and minutes of the said meeting were not available on record. Further, no information was available regarding, total number of meetings of the SLAB held till November 2022, to review the implementation of the SWM Rules, 2016. Thus, the efficacy of functioning of the stipulated mechanism, to review matters related to implementation of the

SWM Rules and the State Policy and Strategy on solid waste management, could not be ascertained in audit.

In reply, the Department remained silent on the issue of conducting regular SLAB meeting.

As per section 11.2.1 of the Guidelines for the Swachh Bharat Mission-Urban (SBM-U), 2014, a State High Powered Committee (SHPC), under the chairmanship of the Chief Secretary, GoWB, and with members drawn from concerned departments was to be constituted. Accordingly, SHPC was constituted (April 2016) for management of the SBM-U. The functions of SHPC included preparation and approval of the State Sanitation Strategy as well as approval of the City Sanitation Plans for all the cities covered under the SBM-U. The committee held three meetings on 5 January 2017, 28 March 2018 and 23 July 2021, to discuss the concept, plans and process of the proposed SWM projects and to review the projects. However, the fact remains that the monitoring mechanism as prescribed under Rule 23(1) of the SWM Rule, 2016 was not being adhered to.

4.5.2 State Policy and Strategy on Solid Waste Management for Urban Areas

In terms of clause (a) of sub rule (1) of Rule 11 of the SWM Rules, 2016, the State, was to prepare a State Policy and Solid Waste Management Strategy, for the State, in consultation with stakeholders, including representatives of waste pickers, self-help groups and similar groups working in the field of waste management, within a period of one year from the date of notification (April 2016) of the SWM Rules, 2016. The policy should be consistent with the SWM Rules, 2016, National Policy on Solid Waste Management and National Urban Sanitation Policy of the Ministry of Urban Development.

Audit observed that a Drafting Committee, for preparation of the Policy and Strategy Plan had been constituted³³⁰ in the first meeting (November 2016) of the State Advisory Committee and it had been resolved that the Plan to SLAB within three months. Further, the State Policy and Strategy on Solid Waste Management, for the Urban Areas of West Bengal, was taken up (May 2017) for approval by SLAB. The Department, GoWB, notified (January 2018) the State Policy and Strategy on Solid Waste Management for the Urban Areas of West Bengal (State Policy on SWM), after the expiry of the stipulated period of one year.

Audit observed that, prior to finalisation of the State Policy, surveys had not been conducted for estimating the solid waste generation and its composition in the State. In the absence of comprehensive data on the emanation of solid waste, reliance was placed on national averages for population growth and on Central Public Health & Environmental Engineering Organisation (CPHEEO) guidelines, 1996, for waste generation.

Thus, the State Policy and Strategy on SWM, which provided a framework for the management of solid waste, is based on time-lagged data and sparse information. This led to a number of SWM projects being put on hold, in

³³⁰ Members are Director SUDA, Special Secretary, Chief Engineer, Municipal Engineering Directorate etc.

the absence of proper information. As per minutes of 3rd SHPC (July 2021), 13 SWM projects of 13 ULBs³³¹ costing ₹ 316.46 crore put on hold as the projects had not been designed in conformity with the SWM Rules, 2016 and their design capacity was less than the quantity of municipal solid waste to be processed.

4.5.3 Policy for Construction and Demolition Waste Management

The Ministry of Environment, Forest & Climate Change, Govt. of India, notified (March 2016) the Construction and Demolition (C&D) Waste Management Rules, 2016. The rules apply to all waste generated from construction, remodeling, repair and demolition of any civil structure.

Clause 1 of Rule 9 of the C&D Waste Management Rules, 2016, required that the Secretary in-charge of development in the State Government or Union territory administration, prepare policy documents in regard to the 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.

Even though the statutory timeline for preparation of policy documents, in regard to management of C&D waste, had lapsed in March 2017, the Department, GoWB, had not notified its policy for C&D waste management (as of December 2022). The State policy on C&D waste was to be notified and made public, in absence of which the mechanism for collection, processing and disposal of C&D waste was not standardised.

The Department in Exit Conference (January 2023) stated that the State Policy on C&D waste was notified in October 2022, however, could not provide a copy of the same.

4.5.4 State Policy and strategy on Plastic waste management

The Plastic Waste Management Rules, 2016, were notified by MoEF&CC in March 2016. The State Policy and Strategy on Plastic Waste Management, in the Urban areas of West Bengal, was notified in January 2018, which stipulates establishment of plastic waste management system in all the 125 ULBs by March 2030.

As per the Annual Report of WBPCB on the Plastic Waste Management Rules, 2016, for 2020-21 the State generated 2,08,880 MT of plastic waste during 2020-21, and there were 128 plastic recycling units and 11 manufacturing units of plastic sachets, pouches *etc.* registered in the State. Of the 125 ULBs in the State, only two ULBs (Uttarpara-Kotrung Municipality and Konnagar Municipality) had been disposing plastic waste by engaging a private agency for processing.

However, the status of utilization of plastic waste, such as the quantity of plastic waste recycled/used for road construction or cement manufacturing/production *etc.*, was not available. Data was also not available for the number of unregistered plastic manufacturing/recycling units, in the State. Therefore, the unregistered plastic manufacturing/recycling units could not be brought under the legal framework.

³³¹ Arambagh, Asansol MC (Ph-II), Bankura, Baruipur, Bardhaman, Coochbehar, Durgapur MC, Garulia, Kanchrapara, Kharagpur, Panihati, Purulia and Raghunathpur.

The Department stated (February 2023) that 425 manufacturing/recycling units have been identified and the list of such units was sent to WBPCB to check their registration status. After establishing the registration status, the details of the units would be shared with ULBs so that ULBs could engage them for disposal of plastic waste.

4.5.5 Preparation of cluster based plans for SWM

Municipal Solid Waste Management (MSWM) is essentially a municipal function, and it is mandatory for all the municipal authorities to provide this service efficiently, to keep the cities and towns clean, process the waste, and dispose of the residual MSW, in an environmentally acceptable manner.

The MSWM Manual, 2016 (Section 1.4.5 and 1.4.6) emphasised the need for ULBs, to prepare a detailed SWM plan, with short term (5 years) and long-term (20-25 years) actions. The short-term plans were to lead to the achievement of the long-term plans. Each short-term plan was to be reviewed in every 2-3 years, to ensure higher chances of success in implementing all the planned activities. Further, the short-term plans were to cover aspects of institutional strengthening, community mobilisation, waste minimisation initiatives, waste collection and transportation, treatment and disposal and financial outlay.

Clause (a) of Rule 15 of the SWM Rules, 2016, required every local authority to prepare a Solid Waste Management Plan, as per State policy and strategy on solid waste management, within six months from the date of notification of State policy and strategy, and submit a copy to the respective department of the State Government or Union Territory Administration or agency authorised by the State Government or Union Territory Administration.

Further, the Government of India launched its flagship scheme of 'Swachh Bharat Mission-Urban' (SBM-U) in October 2014 with SWM as one of its six components. As per Paragraph 7.2 of the SBM-U Guidelines, ULBs were to prepare Detailed Project Reports (DPRs) for SWM of their city, in consultation with the State Government. The SBM-U Guidelines also stipulated that the State Government may handhold ULBs, in quickly preparing DPRs for SWM, by shortlisting/identifying private or government agencies.

As per Para 2.3 of the MSWM Manual, 2016 (Part-I), preparation of a Municipal Solid Waste Management Plan should follow a seven-step³³² approach.

Audit observed, that during 2017-18 to 2021-22, none of the 25 test-checked ULBs, as also the NKDA, had prepared either short-term or long-term plans. However, the State Urban Development Agency (SUDA), the nodal agency for SWM in the State, had engaged Transaction Advisors/Micro Planning organisations³³³, for preparation of the SWM Plans of 124 ULBs (except for KMC) for 10 years.

³³² Step 1: Policies, Programmes & Legal Framework, Step 2: Assessment of Current Situation and Gap Analysis, Step 3: Stakeholder Consultation for MSWM Planning, Step 4: Preparation of Draft MSWM Plan, Step 5: Schedule for Implementation, Step 6: Stakeholder Consultation for MSWM Plan Validation and Step 7: Municipal Council Approval for MSWM Plan & Plan Implementation, including PPP.

³³³ Private consultants referred to as Transaction Advisors and Micro Planning Organisations engaged for preparation of DPRs/ SWM Plans.

SUDA engaged (February 2019 and August 2019) three Transaction Advisors, to assist the State Government in planning for scientific Solid Waste Management³³⁴, through the cluster approach and management of the bidding process for selection of developers and operators, for ten clusters of 39 ULBs/ Development Authorities, as shown in **Appendix-28**. The engagement was, however, made after one year of notification of State Policy and Strategy on SWM against the timeline of six months.

As per the work orders (issued in February 2019 and August 2019), the broad responsibilities of the Transaction Advisors, *inter alia*, included preparation of DPRs for Integrated SWM, for the clusters of ULBs involved in the project, drafting of Request of proposal, facilitate in bid process, drafting of agreements *etc.* related to selection of agency for SWM. Audit observed that the work was stopped midway. Out of the total contract cost of ₹ 2.89 crore, payment amounting to ₹ 75.12 lakh had been made (till November 2022) to the Transaction Advisors. The percentage of payment made to the Transaction Advisors in regard to seven clusters³³⁵, was 11.80 *per cent* while, for the remaining three clusters³³⁶, was 59 *per cent*. Reasons for non-preparation of DPRs were not provided by SUDA, though called for. The expenditure ₹ 75.12 lakh incurred on preparation of DPRs on cluster based approach become infructuous due to subsequent adoption of city based approach for preparation of DPRs as discussed in the following paragraph.

4.5.6 Preparation of City-wise Concept cum Actions Plans for SWM

The Department in March 2019 decided to develop city-wise Concept-cum-Action Plans, in place of cluster based approach, for proper management and scientific disposal of solid waste in ULBs. SUDA engaged six³³⁷ Micro Planning Organisations (Micro Planners) for 124 ULBs (except KMC), in two phases, between September and December 2019 for this purpose. The Micro Planners had to prepare DPRs (SWM Plans) for the ULBs assigned to them within 75 days of the issue of work orders.

Scrutiny revealed that two Micro Planners³³⁸ left (June 2021) the assignment, without submitting the final DPR for the 34 ULBs allotted to them. As a result, the pending work was subsequently (July 2021) assigned amongst other three³³⁹ micro planners. Audit further observed that the final DPRs (*i.e.* SWM Plans) of all 124 ULBs were approved (May-December 2021) in three³⁴⁰ meetings of the State Level Task Force on Solid Waste Management.

³³⁴ Is a systematic process that comprises of waste segregation and storage at source, primary collection, secondary storage, transportation, secondary segregation, resource recovery, processing, treatment, and final disposal of solid waste in a scientific manner.

³³⁵ Cluster-II, Cluster-V, Cluster-VI, Cluster-VII, Cluster-VIII, Cluster-IX and Cluster-X.

³³⁶ Cluster-I, Cluster-III and Cluster-IV.

³³⁷ BITAN, SIGMA Foundation, Digambarpur Angikar, PwC, We the People and Stesalit System Limited.

³³⁸ We the People and Stesalit System Limited.

³³⁹ BITAN, SIGMA Foundation, Digambarpur Angikar.

³⁴⁰ 23rd meeting dated 12 May 2021, 25th meeting dated 4 June 2021 and 36th meeting dated 31 December 2021.

Thus, there were delays, ranging from 2 years 10 months to 3 years 5 months, in the preparation of DPRs (SWM Plans), as the plans were supposed to have been prepared within six months (*i.e.*, by July 2018) of the notification (January 2018) for the State Policy and Strategy on SWM.

Preparation of the Master Plan for Solid Waste Management (SWM) in Kolkata was first initiated in 2005, under the Kolkata Environment Improvement Project³⁴¹. However, the Master Plan had not been published in the final shape. Subsequent to the notification of the SWM Rules, 2016, KMC prepared a Master Plan for SWM in Kolkata and published in September 2019. Thus, there was a delay of one year and two months in preparation of the SWM Plan for Kolkata, following expiry of the stipulated six months after the date of notification of the State Policy on SWM, in January 2018.

As a result, the whole process of management and scientific disposal of solid waste in ULBs could not be completed within the timeline prescribed in the SWM Rule, 2016.

The SUDA stated (January 2023) that collection of both primary and secondary data together with multiple round of consultations from grassroots level to State level did take substantial time. It was added that subsequent validation and approval by the SLTF also took time.

The work orders of the Micro Planning organisations had provided a total of 75 days for submission of final DPRs (15 days for submission of the Inception Report, with plan of action; 45 days for submission of draft DPRs and 15 days for submission of final DPRs, from the date of approval of the draft DPRs) considering all the exercises to be performed and, therefore, the reasons furnished for delay in finalisation of DPRs, were not tenable.

4.5.7 Deficiencies in DPRs/Master Plan for SWM

Review of the final DPRs/Master Plans, of 25 test-checked ULBs (except NKDA) for which no DPR had been prepared (as of November 2022) revealed the following deficiencies:

- Section 1.4.4 of the MSWM Manual, 2016 (Part-II), provides for constitution of a core team or advisory team (internal stakeholders), involving all the departments concerned with SWM services, for developing MSWM Plan and involvement of community (external stakeholders, comprising households, informal sector, Non-Government Organisations (NGOs), Community Based Organisations (CBOs), Self Help Groups (SHGs), women's groups *etc.*), in MSWM planning and implementation.
- It was, however, observed that core teams/advisory teams (internal stakeholders), involving all the departments concerned with SWM services had not been constituted in any of the test-checked ULBs. Thus, internal stakeholders were not involved in the MSWM planning and implementation process as envisaged in the Manual.

³⁴¹ *An important environmental improvement programme of the Kolkata Municipal Corporation jointly funded by the Asian Development Bank, the Government of India and the Government of West Bengal.*

In reply, the SUDA stated (January 2023) that SWM task force has been constituted in 20 ULBs. However, the fact remains that the task force were yet to be formed in the remaining 105 ULBs.

- As per the MSWM Manual 2016, the development of a MSWM plan, follows a seven-step process and the seventh step involves approval of the MSWM Plan. The final MSWM plan is to be presented to the elected body of the local authority for approval and official formalization of the plan. Audit, however, found that the DPRs (Solid Waste Management Plan) of 24 out of 26 test-checked ULBs (*i.e.* except for KMC and NKDA), prepared by the Micro planners, had not been approved by the Boards of Councillors (BoCs)³⁴² of the concerned ULBs. The BoCs needed to be made aware of the short and long-term actions to be taken up, to enable them to consider and approve the financial and institutional strengthening plans for the implementation of these short/long-term actions. Similarly, the private operators, engaged by the ULBs, needed to be made aware of the MSWM plans of the ULBs. Non-involvement of internal stakeholders, in the preparation of the DPRs, as also the non-approval of the DPRs by the concerned BoCs, cast doubts over successful and sustainable project implementation of SWM plans. In reply, the SUDA stated (January 2023) that all ULBs have been advised to place the DPRs at the next meeting of the BoCs for approval.
- Different Micro Planning Organisations (*i.e.* Micro Planners) submitted DPRs (SWM Plans) under different names *e.g.*, ‘Micro Plan’, ‘Scientific Plan’ and ‘Final DPR’, and in different formats, as no common format had been issued to them by the SUDA. In reply, the SUDA accepted (January 2023) that no common format was shared by the Department.
- Clause 5.4 of the MSWM Manual, 2016 (Part-II), stipulated that ULBs have to prepare contingency plans, for appropriate storage of waste, to tide over situations of non-performance of processing/treatment/disposal facilities. Audit, however, observed that requirement of such contingency plans was not addressed in the DPRs of selected ULBs. However, the stipulated contingency plans were not in existence in any of the 25 test-checked ULBs. As a result, the ULBs were not prepared to tackle unforeseen situations that could result in piling up of waste on streets, instances of fire at landfill sites *etc.* The SUDA stated (January 2023) stated that though there are no contingency plans, all unforeseen and contingent situations are addressed promptly. However, the fact remains that there was no documented contingency plan as per provision of MSWM Manual.
- Clause 2.3.3.1 of the MSWM Manual, 2016 (Part-II), stipulates that, in hilly areas, many of the houses are accessible only by footpaths or steps, thus, restricting the use of handcarts and tricycles. Accordingly, segregated waste, from households in hilly areas, is to be collected by using backpacks, having small leak-proof containers, upto 50 L capacity, or by using local traditional load-bearing methods, such as pack animals, shoulder poles, headbands, wheeler bags *etc.* Further, the waste collectors have to ideally collect wet waste from each household, with a bag or basket on their back,

³⁴² *Body formed among the elected councillors of the ULBs.*

and with another bag for dry waste. They are also to be well equipped with personal protective equipment (PPE)³⁴³ and be provided with whistles, to announce their arrival for waste collection. Audit, however, observed that, in two of the test-checked hilly ULBs (Mirik and Kurseong), that for the purpose of primary waste collection, provision of Pedal Tri-cycles (PTCs) had been made in their DPRs, instead of making provisions on the lines of the MSWM Manual, 2016. Owing to non-suitability of PTCs in the hilly areas, the PTCs had not been supplied to both the ULBs. Audit observed that in the Mirik Municipality there was no leakage proof DOKO³⁴⁴ for collection of dry and wet waste against the requirement of 600. In absence of such specialised equipment for use in hilly areas the solid wastes are being collected in sacks. Thus, due to lack of suitable provision in the DPRs, strengthening of the existing primary waste collection system, both in these hilly ULBs, had remained unaddressed. The SUDA accepted (January 2023) the audit observation

4.5.8 Formulation of by-laws

Rule 15(e) of the SWM Rules, 2016, states that local authorities have to (i) frame by-laws, incorporating the provisions of the State Policy and Strategy on SWM, within one year from the date of notification of the strategy and (ii) ensure its timely implementation of the SWM Rules, 2016. Further, Rule 15(f) of the SWM Rules 2016, states that local authorities have to prescribe user fee, from time-to-time, as deemed appropriate and collect such fee from the waste generators, either on its own, or through an authorised agency. Moreover, Rule 15(ze) states that local authorities have to ensure that the provisions for setting up of centres for collection, segregation and storage of segregated waste, are duly incorporated in the building plans, while granting approval of building plans of group housing societies or market complexes. Rule 15(zf) states that local authorities have to frame by-laws and prescribe criteria for levying of spot fines for persons who litter or fail to comply with the provisions of this strategy.

Audit, however, noted that only KMC and NKDA had framed by-laws and the remaining 24 test-checked ULBs had not framed by-laws, incorporating the above mentioned provisions of the SWM Rules, 2016, till November 2022. Further user fee, to be collected from the waste generators, had also not been prescribed in any of the 26 test-checked ULBs. In reply the SUDA stated (January 2023) that SUDA along with the Department is following up with all the ULBs to finalise the by-laws in conformity with the SWM Rules, 2016.

Recommendations:

1. *The Department should design the capacity of SWM based on sufficient and relevant data for the quantity of the waste to be processed.*
2. *The Government should notify its policy for scientific management of C&D waste.*

³⁴³ Gumboots, Hand gloves, face masks, Aprons etc.

³⁴⁴ Backpack made of bamboo to carry goods in tea gardens.

4.6 Financial management

4.6.1 Budget Provisions *vis-a-vis* expenditure, on Solid Waste Management

The Department made budget provision (Demand No-72) of ₹ 730.00 crore, under the head 'Swachh Bharat Mission-Urban' (SBM-U) and ₹ 498.80 crore, under 'Solid Waste Mission' (SW Mission), during FYs 2017-18 to 2021-22, for management of solid waste in urban areas of the State, as shown in **Table 4.2**.

Table 4.2: Budget Provisions *vis-à-vis* expenditure incurred

(₹ in crore)

Purpose	Financial Year	Head of Account	Budget provisions	Revised Budget Provisions	Net Allotment	Actual Expenditure
SBM-U	2017-18	2215-02-789-003-00-35-00-V (State share)	80.00	184.49	184.49	184.49
		2215-02-789-002-00-35-00-V (Central share)	100.00	154.21	154.21	154.21
		Total	180.00	338.70	338.70	338.70
	2018-19	2215-02-789-003-00-35-00-V (State share)	130.00	160.00	150.06	150.06
		2215-02-789-002-00-35-00-V (Central share)	180.00	120.00	111.82	111.82
		Total	310.00	280.00	261.88	261.88
	2019-20	2215-02-789-003-00-35-00-V (State share)	90.00	1.00	9.46	9.46
		2215-02-789-002-00-35-00-V (Central share)	130.00	3.00	0	0
		Total	220.00	4.00	9.46	9.46
	2020-21	2215-02-789-003-00-35-00-V (State share)	5.00	0	0	0
		2215-02-789-002-00-35-00-V (Central share)	5.00	1.00	0	0
		Total	10.00	1.00	0	0
	2021-22	2215-02-789-00-003-35-00-V (State share)	5.00	200.00	200.00	200.00
		2215-02-789-00-002-35-00-V (Central share)	5.00	215.82	215.82	215.82
		Total	10.00	415.82	415.82	415.82
	SBM Total (A)		730.00	1,039.52	1,025.86	1,025.86
SW Mission	2017-18	2217-03-191-003-00-31-02-V	0.25	0.10	0	0
		2217-03-192-002-00-31-02-V	0.25	0.10	0	0
		Total	0.50	0.20	0	0
	2018-19	2217-03-191-003-00-31-02-V	0.50	0.05	0	0
		2217-03-192-002-00-31-02-V	0.50	0.05	0	0
		Total	1.00	0.10	0	0

Purpose	Financial Year	Head of Account	Budget provisions	Revised Budget Provisions	Net Allotment	Actual Expenditure
	2019-20	2217-03-191-003-00-31-02-V	0.15	20.00	0	0
		2217-03-192-002-00-31-02-V	0.15	30.00	0	0
		Total	0.30	50.00	0	0
	2020-21	2217-03-191-003-00-31-02-V	80.00	40.00	0	0
		2217-03-192-002-00-31-02-V	120.00	50.00	0	1.36
		Total	200.00	90.00	0	1.36
	2021-22	2217-03-191-00-003-31-02-V	120.00	30.00	0	0
		2217-03-192-00-002-31-02-V	177.00	45.00	6.66	6.66
		Total	297.00	75.00	6.66	6.66
	SW Mission Total (B)		498.80	215.30	6.66	8.02
Grand total (A + B)			1,228.80	1,254.82	1,032.52	1,033.88

(Source: Budget Publication Nos. 3 and 24)

From the above table, it may be seen that expenditure of ₹ 1,025.86 crore and ₹ 8.02 crore, was booked under the heads SBM-U and SW Mission, respectively. Thus, ₹ 1,033.88 crore was spent against the total revised budget provision of ₹ 1,254.82 crore, during the FYs 2017-18 to 2021-22.

The SUDA stated (January 2023) that the Department would initiate a proposal to the Finance Department for providing sufficient budget provision and it would ensure utilisation of the budget provision.

4.6.2 Budget Provisions *vis-à-vis* Requirement

As per the approved SWM Action Plans of 125 ULBs, one time aggregate capital expenditure of ₹ 5,763.01 crore, and aggregate operational expenditure of ₹ 19,641.42 crore, for 10 years was required for SWM.

Audit observed from the above table that an average annual budget provision of ₹ 250.96 crore had been made by the Department, during FYs 2017-18 to 2021-22, against which annual expenditure of ₹ 206.78 crore had been incurred. It was further observed that budget provision of ₹ 312.00 crore only had been made under the head 'Solid Waste Mission', for FY 2022-23. No budget provision under 'SBM-U' was made for the FY 2022-23. Thus, the average annual budget provisions of ₹ 250.96 crore was inadequate, in view of the estimated capital expenditure of ₹ 5,763.01 crore and annual operational expenditure of ₹ 19,641.42 crore for SWM processes in the State, as outlined in the approved action plans of the ULBs.

4.6.3 Utilisation of funds by SUDA

The State Urban Development Agency (SUDA) is the nodal agency for management of solid waste in the State. Audit observed that SUDA had received a total ₹ 998 crore, from the Department, during the period from FY 2015-16 to FY 2021-22 for the purpose of management of solid waste in urban areas and had incurred an expenditure of ₹ 497.19 crore, for procurement of SWM vehicles, bins, engagement of Micro Planners/Transaction Advisors and for funding

Municipal Corporations/Municipalities/KMDA, for operation and maintenance of vehicles, implementation of Integrated Solid Waste Management Projects etc.

Audit noted that, as on 31 March 2022, there was an unspent balance of ₹ 500.83 crore in the Bank account of SUDA. The main reasons for non-utilisation of funds were mid-way stoppage of three works and non-initiation of 13 works under integrated solid waste management projects, under the SBM-U, approved in the first (January 2017) and second (March 2018) meetings of the State Level High Powered Committee.

4.6.4 Assessment of requirement of funds for Solid Waste Management-ULBs

As per Rule 15(x) of the SWM Rules, 2016, is the duty and responsibility of ULBs to make adequate provision of funds for capital investments, as well as for operation and maintenance of SWM services, in the annual budgets.

Out of the 26 test-checked ULBs, two³⁴⁵ ULBs had not prepared their budgets during FYs 2017-18 to 2021-22. Scrutiny of the approved budgets of 24 ULBs, revealed that specific provision for 'solid waste management' had not been made in the budgets of 13 ULBs³⁴⁶. However, in all these 13 ULBs, budget estimates for garbage expenses/conservancy³⁴⁷ had been made during the years 2017-22. The budget estimates of only two³⁴⁸ ULBs had estimated the likely receipt from user charges. In absence of such provision, the gap in requirement of fund for SWM could not be assessed by the ULBs.

As per information furnished by the 26 test-checked ULBs, for FYs 2017-18 to 2021-22, in 15 ULBs³⁴⁹, more than 50 per cent of the expenditure on SWM works had been incurred from Government Grants which indicated that the ULBs had been unable to finance their obligatory functions³⁵⁰ of SWM. In only four³⁵¹ ULBs, more than 50 per cent of the expenditure on SWM works had been met from the own resources of these ULBs. Seven³⁵² ULBs had not furnished information on source of their expenditure on SWM.

Thus, in absence of provision of funds for SWM in the budget of the ULBs, majority of the expenditure was incurred from Government grants.

³⁴⁵ Kurseong Municipality and Mirik NAA.

³⁴⁶ Asansol MC, Baidyabati, Balurghat, Baranagar, Budge Budge, Egra, Haldia, Haringhata, Kamarhati, Kandi, Panskura, Rampurhat and Titagarh.

³⁴⁷ Services in connection with removal of solid waste.

³⁴⁸ Balurghat Municipality and Budge Budge Municipality.

³⁴⁹ Asansol MC, Baidyabati, Balurghat, Baranagar, Bardhaman, Budge-Budge, Egra, Haringhata, Jangipur, Kamarhati, Kandi, Kurseong, Mirik, Rampurhat and Titagarh.

³⁵⁰ Sphere of public works (roads, sewerage and drainage etc.), Public Health & Sanitation, Town Planning and Development and Administration.

³⁵¹ Haldia Municipality, Siliguri MC, Panskura Municipality and NKDA.

³⁵² Kolkata MC and the Arambag, Old Malda, Jhargram, Chandrakona, Bongaon and Birnagar Municipalities.

4.6.5 Levy and collection of different charges for management of solid waste

Section 95B of the W.B. Municipal Act, 1993, stipulates that the BoC may levy a special conservancy charge³⁵³, for providing municipal services in connection with the removal of solid waste. Further, as per Clause 15(f) of the SWM Rules, 2016, the local authorities are to prescribe the user fee, as deemed appropriate, from time-to-time, and collect the fee from the waste generators, either on their own or through an authorised agency.

As per the proposed financial action plan, incorporated in the State Policy on SWM, municipalities may factor in an addition of sanitation charges³⁵⁴, in the prevailing property tax rates, and may place the collected sanitation charges into a municipal sanitation fund. The action plan also proposed levy of conservancy service charges, at ₹ 0.50 per capita per day, by the municipalities.

Scrutiny of records of the 26 test-checked ULBs revealed that sanitation charges had not been levied and collected after introduction of the State Policy on SWM in January 2018 till March 2022, in any of the ULBs. Conservancy service charges had also not been levied and collected, resulting in loss of opportunity to earn additional revenue, amounting to ₹ 699.06 crore, during FYs 2018-19 to 2021-22³⁵⁵, as shown in **Appendix-29**.

As such, the test-checked ULBs had implemented the proposed action plans of levying fees for solid waste handling. Thus, at the implementation level, the proposed action plans, for financing the SWM plans, were not adhered to. This resulted in dependency on Government grants for execution of SWM works, as discussed in the preceding paragraph.

The SUDA stated (January 2023) that the Department in consultation with the Finance Department would try to ensure implementation of financial action plan as incorporated in the State policy on SWM.

4.6.6 Funds of Swachh Bharat Mission-Urban

Ten Integrated Solid Waste Management Projects (ISWMPs), of 14 ULBs³⁵⁶, with an overall estimated cost of ₹ 421.69 crore, were approved (January 2017) by the State Level High Powered Committee, in its first meeting (January 2017) under SBM-U. The scope of work in the DPRs *inter-alia* included, primary (door-to-door) collection of waste, secondary operation, segregation and sorting, construction of bio-methanation/compost plants, development of Land fill sites *etc.*

Out of 10 ISWMPs taken up, funds were lying unspent only in respect of three ISWMPs (consisting of four ULBs). Audit observed that SUDA released

³⁵³ Fee for the conservancy services termed as special conservancy charge.

³⁵⁴ Charges for sanitation services like desludging of septic tanks, treatment of collected sludge cleaning of drains *etc.*

³⁵⁵ The State Policy on SWM was notified in January 2018, as such, the calculation had been made for the last four complete years, from 2018-19 to 2021-22.

³⁵⁶ 1 Cluster Mode: a) Dum Dum, North Dum Dum, South Dum Dum and Baranagar Municipalities and b) Ashoknagar-Kalyangar & Habra Municipality. 2 Standalone Mode: a) Jalpaiguri Municipality, b) Krishnagar Municipality, c) Santipur Municipality, d) Nabdwip Municipality, e) Bhatpara Municipality, f) Naihati Municipality, g) Kolkata Municipal Corporation and h) Asansol Municipal Corporation.

(July 2017) 10 per cent of the project cost, amounting to ₹ 6.88 crore, to three implementing authorities, for execution of three projects costing ₹ 68.84 crore. The status of release of funds and expenditure incurred on these projects, is shown in Table 4.3.

Table 4.3: Status of release of funds and expenditure incurred on three ISWMP

Sl. No.	Project	Name of the implementing authority	Project Cost	Funds released	Expenditure incurred	Refund	Balance
(₹ in Crore)							
1	Integrated SWM Project in Ashoknagar-Kalyangarh and Habra Municipalities (cluster)	EE, North 24 Pgs. (MED) Division,	32.32	3.23	2.19 ³⁵⁹	Nil	1.04
2	Integrated SWM Project in Krishnanagar Municipality	Krishnanagar Municipality	18.33	1.83	0.93 ³⁶⁰	Nil	0.90
3	Integrated SWM Project in Santipur Municipality	Santipur Municipality	18.19	1.82	0	Nil	1.82
Total			68.84	6.88	3.12	Nil	3.76

(Source: Information furnished by SUDA and the Chief Engineer, Municipal Engineering Directorate)

Audit observed that, all the three projects remained incomplete (October 2022). The projects were put on hold mainly due to shift in policy (in December 2018) from execution of standalone mode³⁵⁹ to cluster mode³⁶⁰. The policy was changed because construction of processing and disposal facility for each municipal body might not be technically and commercially viable. Formation of clusters of municipal bodies with common processing facilities would ensure a certain volume of solid waste, so Waste Processing Agencies would find such processing facilities viable to run. Expenditure of ₹ 3.12 crore had been incurred (as of November 2022) on these three projects, while the balance amount of ₹ 3.76 crore was lying with the implementing agencies/ULBs. The entire fund of ₹ 1.82 crore, given to the Santipur Municipality, had remained idle, since its release in July 2017 in the bank account of this municipality. The projects could not be restarted even after four years. The SUDA admitted (January 2023) the audit observation.

Recommendations:

3. **The Department should provide budget for SWM commensurate with the approved SWM action plans and ensure its proper usage.**
4. **The Government should levy, collect sanitation and conservancy charges, as provided in the State Policy on SWM.**

³⁵⁷ Procurement of bins and battery operated tippers.

³⁵⁸ On geotechnical investigation, construction of boundary walls and procurement of bins.

³⁵⁹ For each ULB there will be a solid waste processing and disposal facility.

³⁶⁰ Common solid waste processing and disposal facility for group of ULBs.

4.7 Generation and Segregation of Waste

The quantum of MSW, generated by all ULBs in the State, for the period 2017-22, is given in **Table 4.4**.

Table 4.4: Quantity of solid waste generated in the State (125 ULBs)

Years	2017-18	2018-19	2019-20	2020-21	2021-22
Ton per Day (TPD)	14,000	14,613.30	13,980	13,709	13,709

(Source: Annual Reports of WBPCB on the SWM Rules, 2016)

4.7.1 Quantification of waste

Clause 1.4.3.3.1 of the MSWM Manual, 2016 (Part-II) stipulates that, for the purpose of long-term planning, the average amount of waste disposed by a specific class of generators, can be estimated only by averaging data from several samples collected continuously for seven days, at multiple representative locations, within the ULB's jurisdiction, in each of the three main seasons (*i.e.* the summer, winter and rainy seasons). The waste quantities are to be aggregated over the seven-day period, weighed, and averaged. These quantities can then be extrapolated to the entire urban local body (ULB) and the per capita generation assessed.

Para 1.4.3.3 of the MSWM Manual, 2016 (Part-II) states that: (i) per capita waste generation increases by about 1.3 *per cent* per year and (ii) with an urban growth rate of 3 to 3.5 *per cent* per year. Thus, the annual increase in quantity of waste may be considered at 5 *per cent* per year.

Scrutiny of the DPRs/Master Plans of the SWMs 25 of the test-checked ULBs (except NKDA³⁶¹), revealed that the above mentioned methodology had not been adhered to, while assessing the quantity of solid waste generation, as detailed below:

- In the DPRs of 24 ULBs (except Haldia, where the projected rate was 5.12 *per cent*), the annual increase of waste generation quantity had been estimated as being in the range of 1.17 to 4.29 *per cent* (as shown in **Appendix-30**), while the MSWM Manual, 2016, provided for five *per cent* annual growth. Thus, estimation for waste generation, in the DPRs/SWM Plans, was not in consonance with the provisions of the MSWM Manual, 2016.
- In the SWM Master Plan for Kolkata (September 2019), the per capita residential solid waste generation of Kolkata, for the year 2018, had been assessed as 492 gram per day and the same had been extrapolated to project waste generation till the year 2048. A sample field survey had been conducted in the city, in March 2018 (*i.e.* only one season), to assess the source-wise waste generation, depending on the household income levels. Samples for only two days had been weighted and averaged, to arrive at the per capita waste generation of a particular class, based on the income level. Moreover, samples in respect of high income groups were taken only from one location *i.e.* Gariahat HIC Housing. Thus, the per capita waste

³⁶¹ NKDA had not prepared DPR/SWM Plan (as of November 2022).

generation, for the baseline year 2018, as calculated in the Master Plan, was not a true representative figure for the residential waste generation of Kolkata.

- The SWM Master Plan of Kolkata, had considered a population growth rate of 1.3 *per cent* annually, as per the Manual, while arriving at the projected per capita residential waste generation till the year 2048. Further, the floating population of Kolkata was considered to be 60 lakh, throughout the plan period (2018 to 2048). The per capita waste generation by this floating population was calculated at one-third of the per capita residential waste generation. The waste generation of the floating population, was kept constant (*i.e.* one-third of 492 gram per capita per day) throughout the plan period, without considering growth in the floating population. As a result, the total projected waste generation of Kolkata was understated throughout the plan period.
- In 12³⁶² of the test-checked ULBs, no surveys had been conducted, in order to assess the waste generation and, in nine³⁶³ ULBs, surveys had been conducted for only two-three days, against the prescribed period of seven days, in each of the three main seasons. The days of survey had not been specified for the remaining five³⁶⁴ ULBs.
- The SWM Master Plan for Kolkata and the Short Term Plans for FYs 2020-21 to 2025-26, did not take into account the seasonal variation in waste generation during Durga Puja, in arriving at the per capita waste generation (projected) till the year 2048.

The Department stated (January 2023) in the Exit Conference that assessment of waste generation was being made afresh through household surveys, and DPRs would be revised accordingly. The Department further added that KMC would be requested to factor in seasonal variations while estimating waste generation.

4.7.2 Segregation of Waste

As per Rule 3 of the SWM Rules, 2016, ‘segregation’ means sorting and separate storage of various components of solid waste, namely: (i) biodegradable waste, including agriculture and dairy waste; (ii) non-biodegradable waste, including recyclable waste; (iii) non-recyclable combustible waste; (iv) sanitary waste; (v) non-recyclable inert waste; (vi) domestic hazardous waste and (vii) construction and demolition waste. The State Policy on SWM (2018) set a time line of two years to implement segregation of waste at source, in line with Rule 22 of the SWM Rules, 2016.

The status of segregation of MSW, in the State, for the period 2017-22, is given in **Table 4.5**.

³⁶² Asansol MC, Balurghat, Baranagar, Bongaon, Burdwan, Chandrakona, Egra, Haldia, Jhargram, NKDA, Pasnkura and Siliguri MC.

³⁶³ Arambag, Budge Budge, Jangipur, Kandi, KMC, Kurseong, Mirik, Old Malda and Rampurhat.

³⁶⁴ Baidyabati, Birnagar, Haringhata, Kamarhati and Titagarh.

Table 4.5: MSW generated by all ULBs in the State

Years	2017-18	2018-19	2019-20	2020-21	2021-22
MSW generated (in TPD)	14,000	14,613.30	13,980	13,709	13,709
MSW segregated and transported (in TPD)	No information	No information	No information	No information	5,916
Percentage	-	-	-	-	43

(Source: Annual Reports of WBPCB on the SWM Rules, 2016)

From the above table, it is evident that, as of March 2022, only 43 *per cent* of the waste had been segregated and transported in the State. However, the figure of segregated waste in the WBPCB's Annual Report (2021-22) on the SWM Rules, 2016 appears to inflated as discussed in the subsequent paragraphs.

4.7.3 Segregation of waste at source/household level

Section 2.2.1 of the MSWM Manual, 2016 (Part-II), stipulates that ULBs must accord highest priority for segregation of waste at source. Audit observed that, in the 26 test-checked ULBs, out of 761 wards, the door-to-door collection of segregated solid waste had not been started in 647 wards (85.02 *per cent*).

Out of the three test-checked Municipal Corporations, door-to-door collection of segregated waste had not been started in any of 106 wards of the Asansol Municipal Corporation till October 2022. In the Siliguri and Kolkata Municipal Corporations, door-to-door collection of segregated waste ranged between 11 *per cent* and 19 *per cent*. In three³⁶⁵ of the test-checked Municipalities, door-to-door collection of segregated waste had not been started till October 2022. This was attributed to shortage of vehicles, manpower *etc.*

The Department stated (January 2023) in the Exit Conference that non-availability of site for dumping/disposal of solid waste was one of the main reason for non-collection of the segregated waste in Haringhata. The Department added that in Asansol MC, collection of segregated waste has been started in few wards in January 2023.

4.7.4 Issue of bins for promoting segregation at source

SUDA/KMDA procured (in between September 2017 and June 2021) 89.75 lakh pair of bins, at a cost of ₹ 77.96 crore and supplied to all the ULBs, except KMC, for ultimate distribution to households and the community, to encourage segregation of waste at source. KMC separately procured 15.44 lakh pairs of bins, at a cost of ₹ 41.74 core, for distribution within its area.

Audit observed that in the 26 test-checked ULBs, against the requirement of 27.20 lakh pairs of bins, of 10 litre capacity each, 25.47 lakh pairs of bins were available, of which 12.67 lakh pairs of bins had been distributed to households (till November 2022). The remaining 12.80 lakh pairs of bins had been lying

³⁶⁵ Haringhata (17 wards), Mirik NAA (9 Wards) and Haldia (29 wards).

with 14 ULBs³⁶⁶. Reasons for non-distribution of bins were not available on records.

During Joint Physical Verifications (JPVs), conducted (July 2022 to November 2022) along with the officials of the concerned ULBs, Audit found that segregation of waste had not been adopted in the Haringhata Municipality and Mirik NAA, despite the availability of 17,072 pairs of bins with them. In the Haldia Municipality and Asansol Municipal Corporation, segregation of waste at source, had not been started despite distribution of 2,75,287 pairs of bins having taken place. In remaining 22 ULBs, segregation of waste was collected in only selected/model wards. The JPV also showed that mixed waste was being handed over to waste collectors, by households, in these four ULBs, despite audio announcements regarding the importance of segregation into wet and dry waste. The SUDA stated (January 2023) that collection of segregated waste is now being ramped up.

4.7.5 Segregation of domestic hazardous waste and sanitary waste

As per clause 7.1 of the MSWM Manual, 2016 (Part-II), special waste³⁶⁷, including domestic hazardous waste, comprises of any solid waste, or a combination of solid wastes, that requires special handling and disposal, because of its quantity, concentration, physical and chemical characteristics, or biological properties, in order to protect human health, as well as the environment, and to exploit its potential for recycling. Further, Rule 15 of the SWM Rules, 2016, specifies the roles and responsibilities of ULBs in regard to domestic hazardous waste.

As per clause (j) of the Rule 15 of the SWM Rules, 2016, ULBs are to ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility. Further, clause (i) of the Rule 15 of the SWM Rules, 2016 stipulates establishment of waste deposition centres for domestic hazardous waste and to give direction for waste generators to deposit domestic hazardous wastes at this centre for its safe disposal and notify the timings of receiving domestic hazardous waste at such centres.

Audit observed that none of the 26 test-checked ULBs had notified the timings of receiving domestic hazardous waste³⁶⁸, at the deposition centres. Consequently, domestic hazardous waste was getting mixed with other solid waste and reaching the landfills.

Further, as per clause 4 under Section 2.2.1 of the MSWM Manual, 2016, sanitary waste, generated by households, was to be wrapped in old newspapers/pouches provided by the manufacturers and handed over to the waste collectors separately. Audit, however, observed that none of the test-checked ULBs had emphasised segregation and disposal of sanitary waste, as required.

The SUDA stated (January 2023) that a central notification for domestic hazardous waste had been issued. However, the fact remains that ULBs had not streamlined the collection process for domestic hazardous waste.

³⁶⁶ Asansol MC, Balurghat, Bongaon, Egra, Haringhata, Jhargram, Kamarhati, Kandi, Kolkata MC, Mirik, Old Malda, Panskura, Rampurhat and Titagarh.

³⁶⁷ Examples-Plastic waste, Bio-medical waste, Slaughterhouse waste, Electric and electronic waste (e-waste), Waste tyres, Battery waste etc.

³⁶⁸ Examples- Paint and insecticides container; used CFLs, tube lights, chemical, batteries etc.

4.7.6 Agreement for collection of mixed waste

Rule 15(b) of the SWM Rules, 2016, states that ULBs have to make arrangement for door-to-door collection of segregated solid waste, from all households, including slums and informal settlements, commercial, institutional and other non-residential premises.

Of the 26 test-checked ULBs, only the Haldia Municipality had engaged (September 2007) a private operator³⁶⁹, for the development, operation and maintenance of an Integrated MSWM Project facility. The private operator had been entrusted with the management of household solid waste in the Haldia Municipality and the agreement with the said operator was valid for 30 years.

The private operator was conducting daily door-to-door collection of municipal solid waste, in all the 29 wards of the municipality without segregation. The unsegregated municipal waste, was then being transported to the processing plant.

Though the SWM Rules, 2016 came into force from April 2016, making segregation of solid waste imperative, the Haldia Municipality did not revise the existing agreement made with the private operator and continued with the unrevised agreement of collection of mixed waste and paid ₹ 20.22 crore, to the private operator, during 2017-2022, for its services.

The SUDA stated (January 2023) that the matter would be taken up with the private operator.

4.7.7 Open VAT system for temporary deposit of municipal solid waste

Rule 15(o) of the SWM Rules, 2016, states that the local authorities are to set up covered secondary storage facilities, for temporary storage of street sweepings and silt removed from surface drains, in cases where direct collection of such waste into transport vehicles is not convenient. Waste so collected is to be disposed, of at regular intervals.

During Joint Physical Verification, in all the 26 selected ULBs, it was, however, noticed that the open vat system was still operational, for temporary storage of municipal solid waste, involving biodegradable and non-biodegradable waste. Almost all such open vats were handling mixed solid waste, on a daily basis.

The SUDA stated (January 2023) that the ULBs had been advised regarding the requirement of open VAT free city as per the SWM Rule, 2016.

³⁶⁹ West Bengal Waste Management Ltd. (WBWML), a subsidiary of Ramky Enviro Engineers Ltd, Hyderabad.

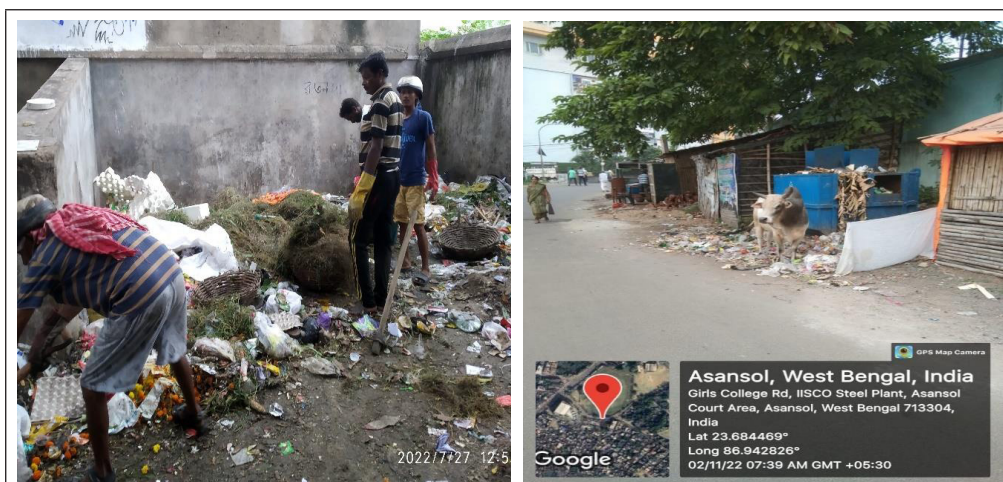


Fig 4.1 & 4.2: Open VAT system for solid waste in Asansol Municipal Corporation

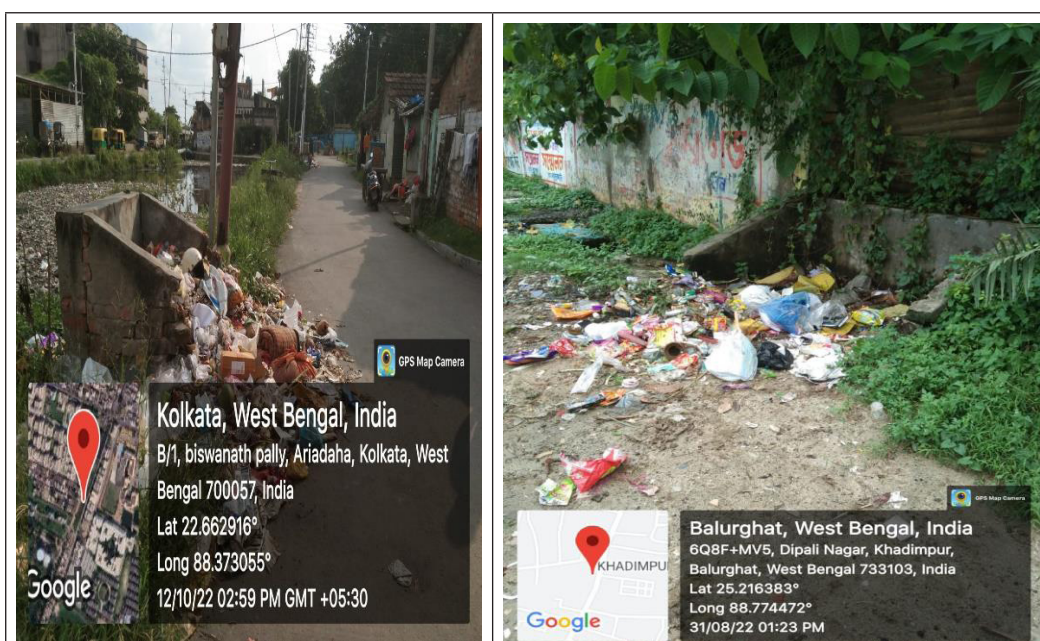


Fig 4.3: Open Vat in Kolkata Municipal Corporation

Fig 4.4: Open Vat in Balurghat Municipality

Recommendation 5:

The Government should assess the quantity of solid waste generated as per MSWM Manual, 2016 for effective management of waste. ULBs should strictly ensure maximisation of the segregation of waste at source.

4.8 Collection and Transportation of waste

4.8.1 Collection and transportation of solid waste

Rule 15(b) of the SWM Rules, 2016, regarding the duties and responsibilities of local authorities, stipulates that local authorities have to arrange for door-to-door collection of segregated solid waste, from all households, including slums and informal settlements, as well as commercial, institutional and other non-residential premises. In so far as multi-storey buildings, large commercial complexes, malls, housing complexes *etc.* are concerned, the segregated solid

waste, is to be collected from the entry gate, or from any other designated location.

The quantum of waste generated and collected in the State, during FYs 2017-18 to 2021-22, is shown in **Table 4.6**.

Table 4.6: Gap in waste generation and collection

Financial Year	Generated	Collected	Gap (%)
	(in TPD)		
2017-18	14,000	11,900	2,100 (15%)
2018-19	14,613	13,065	1,548.67 (10.60%)
2019-20	13,980	12,062	1,918 (13.72%)
2020-21	13,709	13,356	353 (2.57%)
2021-22	13,709	13,687	22 (0.16%)

(Source: Annual Reports of WBPCB on the SWM Rules, 2016)

It can be seen that the gap in generation and collection of MSW, reduced from 15 per cent in FY 2017-18, to 0.16 per cent in FY 2021-22. As per the information furnished by the 26 test-checked ULBs, out of 761 wards, door-to-door collection of solid waste was totally absent in 116 wards (15.24 per cent), as of March 2022. In Haringhata Municipality, door-to-door collection was not being done in any of its 17 wards. Further, there was shortage of 71.33 per cent of tricycle vans for door-to-door collection of solid waste from households, in 12 ULBs³⁷⁰, indicating inefficiencies in the waste collection system.

During Joint Physical Verification in all the 26 test-checked ULBs, municipal solid waste was found dumped at roadsides, canal banks, drains etc. which indicated inefficient waste collection. Thus, the claim of collection of approximately 100 per cent of MSW generated in the State, was not based on proper evidence.



Fig 4.5: Solid waste dumped on the roadside, in the Old Malda Municipality



Fig 4.6: Solid waste dumping in a water body, in the Egra Municipality

³⁷⁰ Asansol MC, Baidyabati, Balurghat, Budge Budge, Egra, Haringhata, Kamarhati, Kandi, Kolkata MC, Panskura, Rampurhat and Titagarh.



Fig 4.7: Arambag Dumping Ground near Dwarekeswar River

4.8.2 Compactors for transportation of mixed solid waste

Compactors squeeze and compress the volume of waste, so that more waste can be carried per trip and transportation costs can, thereby, be reduced. Unsegregated MSW which include domestic hazardous waste when compressed in the compactors, chances of contamination of MSW by toxic waste such as batteries, glass pieces *etc.* is significant. Therefore, handling of such waste would not only be risky but quality of by-product would be adversely affected. The uses of compactors also go against the principle of aerobic composting³⁷¹, as mentioned in Clause 3.2.2 of the MSWM Manual, 2016 (Part-II).

Despite the above demerit, 218 movable compactors were procured by SUDA, KMDA and Jalpaiguri Municipality, between January 2016 to September 2018, at a cost of ₹ 94.76 crore. Further 23 stationary compactors were procured by SUDA and KMDA, at a cost of ₹ 13.16 crore (December 2015-March 2018). All the procured compactors were delivered to different ULBs.

Deficiencies in the segregation of waste at source, and the use of these compactors for compression and transportation of mixed waste to the dumping grounds, was not conducive to aerobic composting of organic waste as direct access to air is significantly reduced.

The matter was referred (December 2023) to the Department, however, reply has not been received (January 2024).

4.8.3 Utilisation of SWM vehicles

In 10³⁷² out of the 26 test-checked ULBs, it was noticed that 29 SWM vehicles³⁷³, costing ₹ 5.45 crore, purchased between March 2016 and July 2021, had not

³⁷¹ A biological process of stabilising the solid waste in presence of air.

³⁷² Birnagar, Chandrakona, Haldia, Haringhata, Jangipur, Kamarhati, Kurseong, Old Malda, Panskura and Titagarh.

³⁷³ Movable Compactor; Dumper; Tipper *etc.*

been used for different reasons, such as: (i) non-starting of SWM activities due to absence of dumping grounds, (ii) absence of JCBs for loading the waste into dumpers, (iii) absence of scope of utilization due to hilly area and (iv) topographical limitations *etc.* Joint Physical Verification corroborated the fact that these vehicles had either not been put to use at all, or they had rarely been used after their initial commissioning, and had been lying idle, for periods ranging from one year to four years, exposing them to the risk of being rendered unusable in future. Municipal Solid Waste was found dumped at roadsides, canal banks, drains *etc.* in all the test-checked ULBs, indicating inefficient waste collection.



Fig 4.8: Movable compactor lying idle in the Titagarh Municipality



Fig 4.9: Hydraulic Tipper lying idle in the Kurseong Municipality

The SUDA stated (January 2023) that after analysing the requirement, the vehicles will be re-distributed to different ULBs to ensure its proper utilisation.

Recommendations:

- 6. The Government should incentivise segregation of waste at source and effective system should be put in place for collection, transportation and disposal of the segregated waste.**
- 7. Procurement of SWM vehicles should be done only after realistic assessment of the requirement and utility. The vehicles already procured should be gainfully deployed.**

4.9 Processing of Municipal Solid waste

In accordance with Section 4.1 of the MSWM Manual, 2016 (Part-I), the selection and adoption of MSW processing technologies are to be based on defined selection criteria and they should also be subject to a detailed due diligence study, which ascertains the appropriateness of the technology, to the prevailing conditions of the respective ULBs. Treatment and processing of segregated waste streams not only reduces operational costs, but also increases the efficiency of the process. The waste processing technologies, available for ULBs, are composting³⁷⁴, waste-to-energy³⁷⁵,

³⁷⁴ Composting is an aerobic process in which organic materials present in wastes are broken down by microorganisms, generally bacteria and fungi.

³⁷⁵ Waste-to-energy is the process of generating energy in the form of electricity and/or heat from the treatment of waste.

bio-methanation³⁷⁶ etc. The objectives of segregation of MSW can be achieved when there are facilities available for treatment/processing of segregated waste.

4.9.1 Status of waste processing in West Bengal

The status of waste collected and processed, in the 125 ULBs, in the State, during the FYs from 2017-18 to 2021-22, is given in **Table 4.7**.

Table 4.7: Status of waste processed, at the State level

(In TPD)

Financial Year	2017-18	2018-19	2019-20	2020-21	2021-22
MSW collected	11,900	13,064.63	12,062	13,356	13,687
Processed	830	916	916	667.60	3,047
Percentage	6.97	7.01	7.59	5.00	22.26

(Source: Annual Reports of WBPCB on the SWM Rules, 2016)

It can be seen from the table that, on an average, 6.61 *per cent* of the waste collected, was processed in the State, during the period 2017-21 in five ULBs. In the remaining 120 ULBs there were no waste treatment facilities and the untreated waste was being dumped in the dumping sites. The figures increased to 22.26 *per cent* in the financial year 2021-22, due to initiation of interim processing units³⁷⁷ and the augmentation of the existing waste processing facilities.

In the 20 test-checked ULBs/Development Authorities, the average quantity of 1,253.189 MT of solid waste collected per day was being dumped at various dumpsites during FYs 2017-18 to 2021-22, without treatment/ processing. In the remaining six³⁷⁸ ULBs, only 13.76 *per cent* of the average waste collected was processed. The low rate of processing, in the test-checked ULBs, was due to inadequate infrastructure, as explained in the subsequent paragraphs.

The SUDA admitted (January 2023) the fact about low percentage of processing of solid waste in the State and assured that steps would be taken up to improve the situation.

Case study: Kolkata Municipality Corporation (KMC)

During FYs 2017-18 to 2021-22, approximately, 4,500 TPD of solid waste³⁷⁹ had been collected from KMC area, as against the generation of 4,590 TPD. The solid waste, so collected, consisted of bio-degradable wet waste (2,500 TPD), dry waste (1,200 TPD) and C&D waste (800 TPD). It was noticed that 500 TPD of the wet waste collected, had been processed in a compost plant at Dhapa (operational since 2010). In addition, 0.90 TPD waste had been processed in five organic waste composters, five TPD waste had been processed in a

³⁷⁶ Biomethanation is a process by which organic material is microbiologically converted under anaerobic conditions to biogas.

³⁷⁷ Interim Processing Units are temporary structures, set up in the existing dumping grounds for processing of wet waste at low cost.

³⁷⁸ Baidyabati, Haldia, Bongaon, Arambag, Siliguri MC and Kolkata MC.

³⁷⁹ Consisted of bio-degradable wet waste (2,500 TPD), dry waste (1,200 TPD) and C&D waste (800 TPD).

Bio CNG plant at Dhapa (inaugurated in September 2022) and two TPD waste had been processed at Plastic Processing facility at Dhapa. Further, 17 TPD dry waste had been segregated and channelized in the recovery chain³⁸⁰ at Dhapa. Thus, a total of 524.90 TPD waste had been processed at Dhapa. The remaining 3,975.10 TPD waste had been dumped at the Dhapa and Gardenreach Dumpsites. The service level benchmark for the 'Extent of recovery'³⁸¹ of Municipal Solid waste collected had been prescribed as 80 *per cent* of the total waste collected. KMC could, however, achieve only 11.66 *per cent*, which was significantly below the benchmark.

4.9.2 Fresh waste processing facility and material recovery facility

Rule 22 (Sl. No. 8) of the SWM Rules, 2016 stipulates for setting up solid waste facilities by local bodies within three years from the date of notification (April 2016) of the Rules.

SUDA awarded (March 2022) 46 works (*shown in Appendix-31*) of “*Design, build, finance, operate and transfer of Municipal Wet waste processing facility based on composting and/or bio-methanation technology, setting up Semi-Automatic Material Recovery Facility for Dry Waste and construction of Sanitary landfill (as per required size) along with operation & maintenance for 10 years (renewable) under Swachh Bharat Mission-Urban for 46 Municipalities in West Bengal*”, to five Agencies³⁸², for completion between six months and one year. All the 46 works were in progress, as of November 2022. The work of construction of solid waste processing facilities was taken up after nearly six years of the notification of the SWM Rules.

Audit observed that the processing units were to be constructed on the land reclaimed through bio-mining and bio-remediation³⁸³ of the legacy waste dumpsites. However, due to non-completion of bio-mining and bio-remediation of the legacy dumpsites, (as mentioned in **Paragraph 4.9.5**), the work of construction of processing units, for fresh waste, got delayed and could not be completed (till November 2022) within the stipulated time period of three years.

Thus, due to delay in setting up of fresh waste processing facilities, the untreated waste gets dumped at landfills or road side/bank of rivers which have the potential of causing damage to the environment.

4.9.3 Setting up of Interim Central Processing Units (CPU)

SUDA requested all ULBs (August/September 2021) to start segregation of waste at source, along with its collection and transportation, in a segregated manner, in at least two wards in each ULB, and to dispose of the same in the

³⁸⁰ *Informal system of rag-pickers, waste recyclers etc. who collect useful materials from waste for recycling.*

³⁸¹ *This is an indication of the quantum of waste collected, which is either recycled or processed. This is expressed in terms of percentage of waste collected.*

³⁸² *Easter Organic Fertiliser Pvt. Ltd, National Fabrication of Farmers' Procurement Processing and Retailing Co-operatives of India Ltd., Parasmani Organic and Agri Products Pvt. Ltd, Simco telecommunications Ltd. and Tide Technocrates Pvt. Ltd.*

³⁸³ *Bio-mining and bio-remediation of legacy waste means-excavation of old dumped wastes and make windrow of legacy waste, thereafter stabilisation of wastes through exposure of wastes to air along with use of composting bio-culture.*

existing dumping grounds, by: (i) preparing a temporary arrangement of two separate chambers, (ii) processing the wet waste in a low cost method and (iii) selling out the dry waste to the respective vendors within a specific date.

Further, the Department launched (April 2022), a special drive for the ULBs, in regard to scientific municipal solid waste management, to ensure: (a) segregation of waste at source, (b) collection and transportation of the segregated waste and (c) scientific processing of fresh waste, in a segregated manner, phase-wise, within June 2022.

During Joint Physical Verification of 31 dumping grounds, in 22³⁸⁴ of the test-checked ULBs, it was seen that the work of construction of temporary arrangements, for processing of MSW, through interim CPUs, by constructing segregation platforms and separate chambers, had been taken up in the dumping grounds of only eight³⁸⁵ ULBs. Out of these eight ULBs, only six³⁸⁶ interim CPUs had been completed and only four³⁸⁷ interim CPUs had been made functional (as of November 2022).

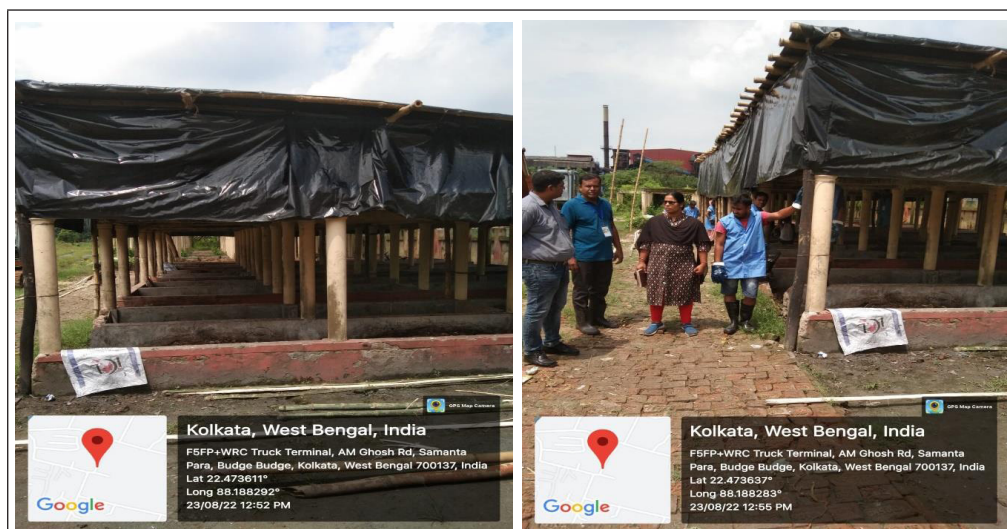


Fig 4.10 & 4.11: Functional Interim CPU at the Budge Budge Municipality

4.9.4 Construction of Compost Plant for Naihati Municipality

KMDA awarded (October 2017) the work of design and construction of a compost plant and allied works, at the Naihati Municipality, under SBM-U, to an agency³⁸⁸, at a tendered cost of ₹ 10.00 crore, for completion within 12 months.

Scrutiny of records revealed that the Compost Plant was being constructed on a part of the marshy land on which Sanitary Land Fill (SLF)³⁸⁹ was proposed to be constructed. As the land was not suitable for the construction of a Compost

³⁸⁴ Except Baidyabati Municipality and Haldia Municipality where Sanitary Land fill existed; Haringhata Municipality and NKDA do not have any dump site.

³⁸⁵ Arambag Municipality, Budge Budge Municipality, Balurghat Municipality, Bongaon Municipality, Kamarhati Municipality, Rampurhat Municipality, Siliguri MC and Titagarh Municipality.

³⁸⁶ Except Rampurhat Municipality and Titagarh Municipality.

³⁸⁷ Arambag Municipality, Bongaon Municipality, Budge Budge Municipality and Siliguri MC.

³⁸⁸ M/s S. G. Construction.

³⁸⁹ Is a site, for final and safe disposal of residual solid waste and inert waste, designed with protective measures against pollution.

Plant, another agency³⁹⁰ had to be engaged in May 2018 for land development at a tendered cost of ₹ 1.33 crore for completion within four months, due to which the construction work could not be completed within the scheduled date (October 2018). Neither the Naihati Municipality nor KMDA had assessed the suitability of the land before commencement of the project.

In December 2018, the Department emphasised that SWM projects be taken up on a cluster basis, in place of standalone facilities, and put on hold the construction of all the standalone bio-gas plants and compost plants in the State. KMDA, accordingly requested (January 2019) the agency to put on hold the on-going work of the compost plant, till further instructions.

In April 2019, after receiving the consent of the Department, KMDA requested the agency to resume the work of the compost plant. The Agency restarted the work, which continued till February 2020. The work was, however, not executed thereafter, due to lockdown on account of covid pandemic. The contractor had been paid ₹ 2.60 crore (as of September 2021), against physical progress of 26 *per cent* only. Further, additional expenditure of ₹ 1.61 crore had also been incurred on land development and construction of a boundary wall. KMDA finally closed (February 2021), the work and a fresh NIT was issued³⁹¹ (February 2021) for a new Municipal wet waste processing facility (design, build, finance, operate and transfer, along with operation and maintenance of the same for 10 years), for the Naihati Municipality. In the new NIT (February 2021), nothing was mentioned regarding use of the work already completed at a cost of ₹ 4.21 crore.

Thus, despite investment of ₹ 4.21 crore, the compost plant for the Naihati Municipality could not be completed, due to unsuitability of the land for the project, slow progress of work by the contractor, the lockdown due to covid pandemic *etc.*

The SUDA stated (January 2023) that the matter of retrofitting of the partly constructed infrastructure of the compost plant would be checked.

4.9.5 Bio-remediation of Legacy Waste

As per Rule 22 of the SWM Rules, 2016, the work of bio-remediation or capping of old and abandoned dumpsites, had to be completed within five years of enforcement (April 2016) of the SWM Rules, 2016. In OA No.519/2019, the Hon'ble NGT directed (July 2019) all Chief Secretaries of States/Union Territories is to ensure commencement of remediation of legacy waste dumpsites from 01.11.2019 and completion of remediation work preferably within six months and in no case beyond one year (*i.e.* by October 2020).

There were 123 dumpsites, in 112 ULBs in the State, with an aggregated legacy waste³⁹² of 123.87 lakh MT, on 838.09 acres of land. Bio-remediation work had been taken up for 90 dumpsites, in 78 ULBs, of which legacy waste of 20.74 lakh MT (16.74 *per cent* of total legacy waste) was reported to have been

³⁹⁰ The same agency M/s S. G. Construction got selected through tender process.

³⁹¹ Simoco Telecommunication (South Asia) Ltd and M/s Environ Solution.

³⁹² The wastes collected and kept for years on any barren land or dedicated Landfill is called legacy waste.

processed, till September 2022, though the statutory time limit, for completing bio-remediation, had ended in April 2021. As per SUDA, six³⁹³ dumpsites, in six ULBs, had been fully bio-mined³⁹⁴, by processing legacy waste of 1.05 lakh MT and 28.82 acres of land had been reclaimed. Audit observed that delays, in the processing of legacy waste and reclaiming of land, had hampered the progress of setting-up of fresh waste processing facilities, as discussed in **Paragraph 4.9.2**.

In January 2021, CPCB directed WBPCB to ensure that no fresh waste is disposed at the legacy waste dumpsites. CPCB also directed local authorities to make proper arrangements for fresh solid waste. During the Joint Physical Verification of 31 dumpsites, in 22³⁹⁵ test-checked ULBs, Audit found that 29 dumpsites had continued to receive fresh waste. The unrestricted addition of fresh waste over legacy waste hampered the process of bio-mining of legacy waste and led to delays in creation of waste processing facilities for fresh waste, as discussed in **Paragraph 4.9.2**. WBPCB, however, did not initiate action against concerned ULBs for non-compliance with CPCB directions.

The SUDA admitted (January 2023) the fact of delay in bio-remediation of legacy waste and continued dumping of fresh waste over legacy waste.

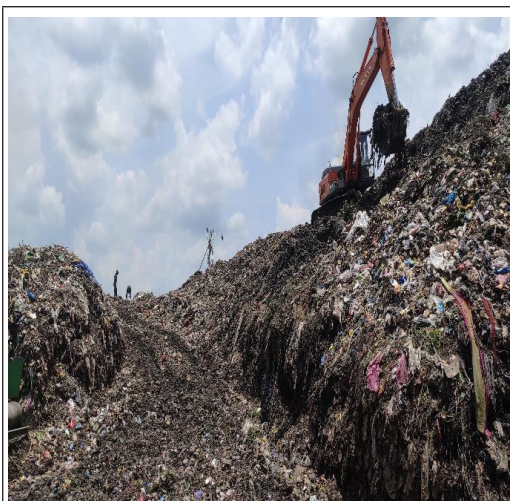


Fig 4.12: Legacy waste at the dumpsite of the Titagarh Municipality

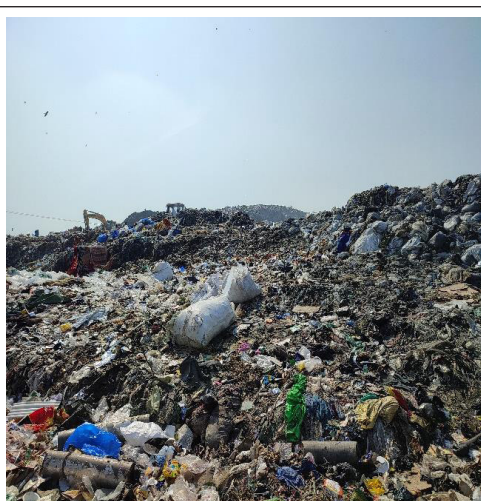


Fig 4.13: Fresh waste dumped over legacy waste in the Garden Reach dumpsite of KMC

4.9.6 Processing of Construction and Demolition Waste

GoI notified the Construction and Demolition (C&D) Waste Management Rules, 2016, in March 2016. As per Rule 3(c) of the C&D Waste Management Rules, 2016, C&D waste means the waste comprising of building materials, debris and rubble, resulting from construction, re-modeling, repair and demolition of any civil structure. Rule 6(8) of the C&D Waste Management Rules, 2016, mandates

³⁹³ Kharagpur Municipality-4 acres, Ghatal Municipality-2.5 acres, Khirpai Municipality-2 acres, Jangipur Municipality-0.33 acres, Jaynagar-Mazilpur Municipality-4.00 acres and Krishnanagar Municipality-15.99 acres.

³⁹⁴ Biomining is the scientific process of excavation, treatment, segregation and gainful utilisation of aged municipal solid waste lying in dumpsites typically referred to as legacy waste.

³⁹⁵ Haldia and Baidyabati Municipalities have two SLFs; and Haringhata Municipality and NKDA do not have dumpsites.

local authorities to: (i) keep track of the generation of C&D waste within their jurisdictions, (ii) establish a data base and (iii) update it once in a year.

Information on the quantum of C&D waste, generated in the State, was not available with the WBPCB and the Department. Out of the 26 test-checked ULBs/Development Authorities (DAs), 25 ULBs/DAs did not have data on the C&D waste generation in their jurisdictions, with only KMC having maintained such data. As per information provided by KMC, about 800 TPD of C&D waste was generated in KMC area during FYs 2017-18 to 2021-22. For construction of the first C&D Waste Processing Plant in the State, KMC issued a work order³⁹⁶ (January 2022), to an agency, for installation and operation of a 500 TPD, C&D waste processing plant at Pathargata. The plant was scheduled to be commissioned in six months from the Letter of Intent, *i.e.* by July 2022. During joint physical verification (December 2022), it was observed that civil construction and installation of the Plant and Machinery were still in progress.



Fig 4.14 & 4.15: C&D Waste Processing Plant under construction at Pathargata

Scrutiny of records revealed that NKDA did not undertake estimation of the quantity of the C&D waste generated in its area. To manage the C&D waste, the NKDA (Building) Rules, 2009 (amended in September 2016), provide a paid service for disposal of construction and demolition waste, subject to request being made in the prescribed format, to NKDA, by fixing a fee per ton, payable by the owner/builder/developer/interested person *etc.* NKDA engaged three private agencies, during FYs 2017-18 to 2021-22, through e-tender, for collection, transportation and disposal of C&D waste. Through selected agencies, NKDA disposed of 13,387.04 MT of C&D waste, during FYs 2017-18 to 2021-22. In absence of any processing plant, the C&D waste collected from NKDA area, had been disposed at various low lying lands/inhabitable lands, within the New Town area and at the Dhapa landfill site. Further, in absence of C&D waste processing plants, in other ULBs, the C&D waste generated gets mixed with the MSW.

³⁹⁶ Design, installation and commissioning of C&D waste processing plant, including O&M, for a period of 10 years.



Fig 4.16 & 4.17: Dumping of C&D Waste in low lying land in NKDA

4.9.7 Action by NGT for non-compliance with the provisions of the SWM Rules, 2016

Rule 22 of the SWM Rules, 2016, stipulated the statutory time limits for creation of necessary infrastructure, for implementation of the SWM Rules, 2016. However, though the statutory time limits had already lapsed, compliance with the SWM Rules, 2016, was yet to be achieved in the State. Observing the slow progress in implementation of the SWM Rules, 2016, NGT imposed environmental compensation of ₹ 32.91 crore, for the period July 2020 to May 2021. SUDA paid ₹ 25.62 crore to the WBPCB/Environment Department/CPCB, from the interest accrued from SBM fund. While obtaining approval from the Department for making payments of the above environmental cost, out of interest of SBM fund, it was considered to recoup the expenditure from the budget head of SWB. However, recoupment was not found to be made till August 2022. Another ₹ 0.80 crore had been paid to the WBPCB by the Kharagpur Municipality, in November 2020, with ₹ 6.49 crore still remaining unpaid (as of October 2022). Reasons for non-payment of ₹ 6.49 crore were not provided by SUDA, though called for.

NGT further imposed environmental compensation of ₹ 500 crore on the State of West Bengal, in its hearing dated 01 September 2022, for its failure to process solid waste and directed the State Government to deposit this Compensation amount, within two months, in a separate ring-fenced account³⁹⁷, to be operated as per the directions of the Chief Secretary. This amount was to be utilized for restoration measures. However, SUDA did not furnish (November 2022) records in regards to compliance with the above NGT order. Non-utilization of funds and insufficient budgetary support render delayed the achievement of targets, set in the SWM Rules, 2016, for management of solid waste in urban areas.

Recommendation 8:

The Department should set up required infrastructure for Solid waste processing including early completion of bio-mining and bio-remediation of legacy waste.

4.10 Disposal of waste

As per the Handbook on Solid Waste Management for ULBs of West Bengal (August 2019), open landfills and dump-yards pose severe environmental risks

³⁹⁷ A ring-fenced account is a separate account to be operated as per direction of the Chief Secretary and utilise for restoration measures.

such as leachate generation, fires or emission of greenhouse gases, and hazards to public health through disease vectors such as flies & rodents. It was, however, noticed that the Department did not assess the hazardous impact of waste on the health of the people.

Waste that cannot be reused/recycled/processed further, is to be disposed of at landfills that are designed to minimise the impact of the waste on the environment. As per clause 4.3 of the MSWM Manual, 2016 (Part-II) Sanitary landfilling has to be restricted to non-biodegradable, inert waste & other waste that is not suitable either for recycling or for biological processing.

4.10.1 Status of landfills in West Bengal

As per the SWM Rules, 2016, sanitary landfilling means the final and safe disposal of residual solid waste and inert waste, on land, in a facility designed with protective measures against pollution of ground water, surface water, fugitive air dust, wind-blown litter, bad odour, fire hazards, animals, birds, pests, rodents, greenhouse gas emissions, persistent organic pollutants and slope instability and erosion. Schedule-I of the SWM Rules, 2016, highlights criteria³⁹⁸ for selection of sites for setting-up of sanitary landfills and facilities to be made available at sanitary landfill sites. Audit observed that there were only two sanitary landfills (SLF) in the State, as detailed in **Table 4.8**.

Table 4.8: Sanitary Landfills in West Bengal

Location of SLF	Concerned ULB	Area	Land owner	Whether authorisation obtained from WBPCB	Authorisation/ Consent to Operate valid up to	Waste disposed during 2017-22 (in MT)		
						Inert	Segre-gated	Mixed
West Bengal Waste Management Limited, Haldia	Haldia Municipality	10,000 sq m	Haldia Development Authority	Yes	Consent to Operate upto-28.02.2023 Authorisation upto-28.02.2024	10,787	5,383	41,899
Regional Waste Management Centre, Baidyabati, Hooghly	Six ULBs ³⁹⁹	21,04,437 sq m	Baidyabati Municipality	pending	Consent to Operate-28.02.2022 (Expired) Authorisation upto-pending	-	-	3,00,741

From the above table, it is evident that, out of 125 ULBs in the State, only seven ULBs had designated SLFs, for scientific disposal of wastes.

During Joint Physical Verification of the Regional Waste Management Centre, Baidyabati, catering six ULBs, Audit found that five⁴⁰⁰ ULBs, had dumped untreated mixed solid waste in the SLF, defeating the purpose of setting-up of SLF. Due to

³⁹⁸ 100 m away from rivers, 200 m away from pond, 200 m away from habitations, design life of 20-25 year, concrete approach and internal roads etc.

³⁹⁹ Baidyabati, Chapdani, Konnagar, Rishra, Srirampur and Uttarpara-Kortung Municipalities.

⁴⁰⁰ Uttarpara-Kortung, Konnagar, Rishra, Srirampur and Chapdani Municipalities.

dumping of mixed waste in the SLF, the possibility of filling up of the SLF, much before its design life, could not be ruled out as a SLF is meant for dumping of only non-biodegradable, inert and other waste (not suitable either for recycling or for biological processing), the volume of which is lesser than the volume of mixed waste.



Fig 4.18 & 4.19: Dumping of unprocessed mix waste in the SLF of the Regional Waste Management Centre, Baidyabati, Hooghly

Owing to acute shortage of sanitary landfills in the State, solid waste was either being dumped in the dumping grounds, or it was being informally dumped at the road side, in water bodies, drains, canals *etc.* During Joint Physical Verification, Audit observed instances of informal dumping of mixed solid wastes at the road side, in water bodies, drains, canals *etc.* in 25 selected ULBs (*i.e.* except in the case of NKDA).

Joint Physical Verification of 33 dumping grounds/SLFs of 24⁴⁰¹, out of the 26 test-checked ULBs, revealed that 20 dumping grounds had not been surrounded by the boundary walls; 10 dumping grounds did not have all-weather approach roads; 12 dumping grounds were near waterbodies/ canals; and eight dumping grounds were within 200 m of residential areas in violation of the provision of the Rules.

The SUDA admitted (January 2023) the audit observation, and stated that required infrastructure would be developed.



Fig 4.20: Agarpara dumping ground of the Kamarhati Municipality – surrounded by residential areas



Fig 4.21: Dumping of solid waste on the approach road of the dumping ground of the Titagarh Municipality

⁴⁰¹ Except NKDA and the Haringhata Municipality, which did not have a dumping ground/SLF.

4.10.2 Land for setting up of Sanitary Landfills

As per Rule 11(f) of the SWM Rules, 2016, the Department is to ensure identification of suitable land and its allocation to local authorities for setting up solid waste processing and disposal facilities, within one year from the date of notification (8 April 2016) of the SWM Rules, 2016.

As per information furnished (December 2022) by SUDA, out of 125 ULBs in the State, 38 ULBs had sufficient land for processing and dumping of solid waste, while the remaining 87 ULBs either had no land, or insufficient land. Further, inter-departmental transfer of 87.44 acres of land, for 14 ULBs, was under process (December 2022). Due to shortage of sufficient land for disposal, solid waste was being dumped at public places, roadside, river banks, canal banks *etc.*

Audit observed that the Old Malda Municipality had taken (June 2010) 6.87 acres of land on lease, from the Land & Land Reforms Department, Government of West Bengal, by depositing ₹ 19.88 lakh, for setting up of solid waste disposal facilities. Owing to public protests, however, the Old Malda Municipality had been unable to use the land (November 2022). Similarly, the Birnagar Municipality had been unable to use 1.83 acres of land purchased in September 2006, at a cost of ₹ 5.56 lakh due to public protests.

GoI had sanctioned (April 2017) an Integrated SWM Project, within the Naihati Municipality at an estimated cost of ₹ 40.21 crore, under SBM-U. The main components of this project were construction of an SLF and a Compost Plant.

The Naihati Municipality had, therefore, allotted (May 2017) 8.295 acres of land, to KMDA (the implementing agency), for the project work. KMDA had awarded (June 2017) the work of construction of the SLF, to a contractor, at a tendered cost of ₹ 10.55 crore, for completion within 12 months. Audit observed that the WBPCB had, however, denied (June 2018) its “*Consent to Establish*” for the project, as the site proposed for the project had a water body, as well as habitations within 200 metres.

KMDA officials requested (25 June 2018 and 16 August 2018), the Chairman, the Naihati Municipality, to select another suitable land for the project, so that the project could be started immediately. However, the Naihati Municipality had failed to identify another parcel land. Consequently, the work of construction of the SLF had not been started and the tender had been closed in February 2019.

Thus, construction of SLF, for the Naihati Municipality, had not been started (as of August 2022), for want of availability of suitable land. Consequently, approximately 100 TPD of solid waste, generated in the Naihati Municipality area continued to be dumped unscientifically.

4.10.3 Authorisation by the West Bengal Pollution Control Board

Clauses-c to h of Rule 16 of the SWM Rules, 2016, elucidated the role of the State Pollution Control Board (SPCB), in regard to granting of authorization for operating an MSW processing and disposal facility. The authorisation makes it

incumbent upon the operator to scientifically manage municipal solid waste and comply with the provisions of the SWM Rules, 2016.

In case of the second SLF, at Baidyabati, Hooghly, it was observed that the WBPCB had given ‘Consent to Operate’ up to February 2022. The Baidyabati Municipality had applied to the WBPCB for extension of ‘Consent to Operate’, in March 2022, but the same was yet to be renewed by the WBPCB as of November 2022. Further, the required authorisation, under the SWM Rules, 2016, had also not been obtained for the facility as of November 2022. Thus, the SLF at Baidyabati was functioning without ‘Consent to Operate’, as also without the authorisation required under the SWM Rules, 2016. Thus, WBPCB failed to enforce the consent mechanism.

The SUDA stated (January 2023) that the WBPCB would be requested to issue necessary consent.

4.10.4 Burning of waste in landfill sites/dump sites

NGT had directed⁴⁰² (December 2016) that there shall be complete prohibition of burning of waste on land, including at landfill sites. The NGT remarked that for each such incidence or default, violators including the project proponent, concessionaire, ULB, any person or body responsible for such burning, shall be liable to pay environmental compensation of ₹ 5,000 in case of simple burning, and ₹ 25,000, in case of bulk waste burning. Environmental compensation shall be recovered as arrears of land revenue by the competent authority in accordance with the law.

During JPV, traces of burning of mixed waste had been noticed in seven dump sites, in five⁴⁰³ ULBs. Owing to the failure of the ULBs, to contain burning of waste in landfill sites/ dumpsites, the possibility of deterioration of ambient air quality, at the dumpsites and at the vicinity could not be ruled out.

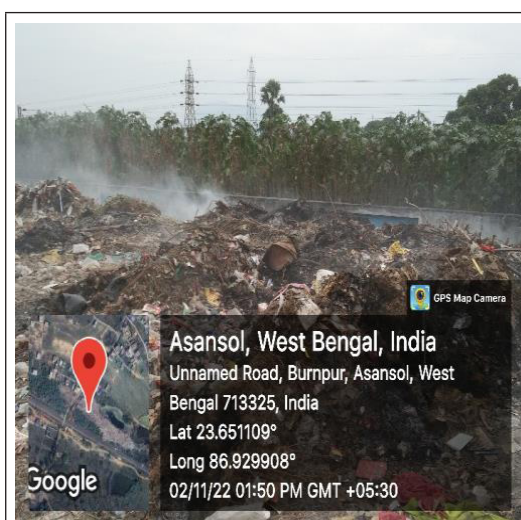


Fig 4.22: Fire at Burnpur Dumping ground of Asansol Municipal Corporation



Fig 4.23: Fire at dumping site in Mirik NAA

⁴⁰² O.A.No-199/2014.

⁴⁰³ Asansol MC, Kamarhati Municipality, Mirik NAA, KMC and Siliguri MC.

4.10.5 Dumping of solid waste in rivers

In OA No-10/2016/EZ, the NGT directed (20 September 2021) the State Authorities, including the Siliguri Municipal Corporation (SMC) and the West Bengal Pollution Control Board, to take steps for removing the garbage that was polluting the water of the rivers Mahananda, Jorapani and Phuleswari.

Wire netting and boulder sausage work, for *in situ* bio-remediation, had been set up in 36 major drains falling into the Mahananda River. However, no such work was found to be done in Jorapani and Phuleswari rivers. During JPVs (November 2022), instances of dumping of garbage, plastic and other material, in the Mahananda, Jorapani and Phuleswari rivers, were noticed. Thus, NGT order had not been fully complied with (as of November 2022), to arrest water pollution, due to the dumping of solid waste.



Fig 4.24: Gratings installed in a drain falling in River Mahananda to arrest Solid waste

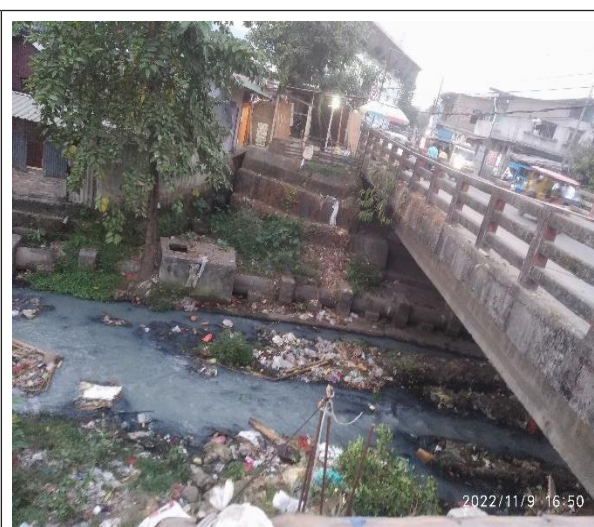


Fig 4.25: Solid waste dumped in River Jorapani

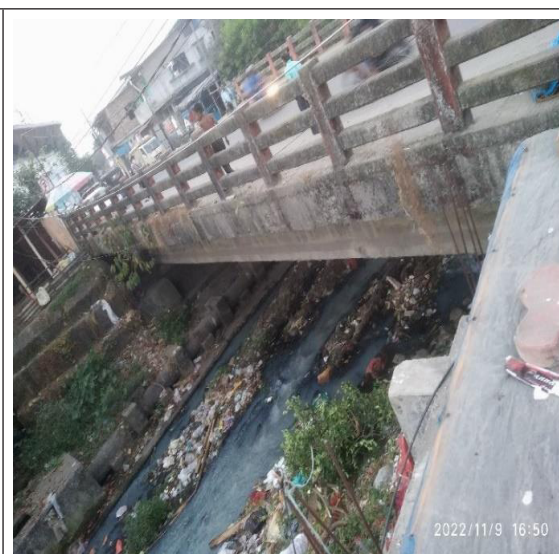


Fig 4.26: Garbage in Phuleswari river

Recommendations:

- 9. The Department should provide sufficient and suitable land for setting up of waste processing and disposal facilities in ULBs on priority to minimize the adverse impact of untreated waste on public health and environment.**
- 10. The Department should ensure that burning of solid waste, in landfills/dumping sites, is stopped and the violators, if any, are mandatorily and swiftly penalised.**

4.11 Monitoring and Evaluation of Waste Management System

4.11.1 Monitoring system at the ULB level

Clause 6.4 of the MSWM Manual, 2016, envisages establishment of a complaint redressal system, for citizens to voice their complaints and grievances regarding the provision of MSWM services, for promoting efficiency and transparency at the ULB level. The ULBs, through an analysis of the complaints or grievances it receives, are expected to identify lacunae and bridge gaps in service delivery. The time taken for resolution of grievances and the action taken in this regard, are also to be monitored and recorded through this system.

Audit observed that, out of the 26 test-checked ULBs, Complaint Registers for SWM activities, had not been maintained in 22⁴⁰⁴ ULBs. As a result, the action taken against individual complaints, as also the time taken to resolve such complaints, could not be assessed in audit.

4.11.2 Service Level Benchmarks

Benchmarking is an important mechanism for introducing accountability in service delivery. It involves measuring and monitoring of performance of the service provider, on a systematic and continuous basis. Recognising its importance, the Ministry of Urban Development (MoUD), Government of India, launched (February 2009) the Service Level Benchmarking (SLB) initiative, covering water supply, waste water, SWM and storm water drainage. MoUD defined a common minimum framework for monitoring and reporting on various performance indicator, of which eight performance indicators pertain to SWM.

As per the declarations made by the test-checked ULBs, their achievements in regard to the extent of segregation, extent of recovery⁴⁰⁵ of MSW, extent of scientific disposal⁴⁰⁶ and extent of cost recovery⁴⁰⁷ of MSW, were significantly low, as shown in **Appendix-32**. However, the achievement claimed by the ULBs could not be verified in audit, as supporting records in this regard were not available.

⁴⁰⁴ Except Burdwan Municipality, Kurseong Municipality, Siliguri MC and Kolkata MC.

⁴⁰⁵ This is an indication of the quantum of waste collected, which is either recycled or processed. This is expressed in terms of percentage of waste collected.

⁴⁰⁶ The amount of waste that is disposed in landfills that have been designed, built, operated and maintained as per standards laid down by Central agencies. This extent of compliance should be expressed as a percentage of the total quantum of waste disposed at landfill sites, including open dump sites.

⁴⁰⁷ This indicator denotes the extent to which the ULB is able to recover all operating expenses relating to SWM services from operating revenues of sources related exclusively to SWM.

The SUDA while admitting (January 2023) the audit observation stated that agencies engaged in the management of solid waste would be directed to ensure improvement in achieving service level benchmark.

4.11.3 Submission of Annual Reports

As per Rule 24 of the SWM Rules, 2016, the operator of a solid waste processing and disposal facility is to submit its annual report to the ULB, in Form-III, on or before 30 April every year. The ULBs are required to file their Annual Reports, in Form-IV, to the concerned State Pollution Control Boards, on or before the 30th day of June, following the financial year to which the report relates. Each State Pollution Control Board, has to prepare and submit its consolidated annual report, to the Central Pollution Control Board and Ministry of Urban Development, in regard to the implementation of these rules and action taken against non-complying local bodies by the 31st day of July of each year in Form-V.

During scrutiny of records of the WBPCB, Audit noted that, out of the 125 ULBs in the State, only 35 ULBs had submitted their annual reports, for the Calendar Year 2017, to the WBPCB. Further, due to delay in submission of Annual Reports (submitted their Annual Reports after August 2018), by the ULBs, the WBPCB had filed its Annual Report, in Form-V, for the Calendar Year 2017, to the CPCB, only in the month of December 2018. Thereafter, the ULBs and WBPCB had submitted their Annual Reports on time.

As per WBPCB's Annual Report for the Calendar Year 2021 on the SWM Rules, 2016, submitted to CPCB in July 2022, there were six SLFs in the State having an aggregate capacity of 1,162 TPD. Audit, however, observed that, as per the documents made available to Audit, there were only two⁴⁰⁸ SLFs in the State. Further, as per the Annual Reports, there were 107 dumpsites, with 1.20 crore MT of legacy waste, out of which five dumpsites had been cleared. Audit, however, observed that, as per the documents made available to Audit, there were 123 dumpsites in the State and only one legacy waste dumpsite (at Kharagpur) had been cleared (till December 2021).

As per the above mentioned Annual Report, there are 62 Composting Units (Capacity 3,023.80 TPD) in the State. However, in reply to an audit enquiry, WBPCB provided (October 2022) a list of 41 composting units only. Thus, the Annual Report of WBPCB did not reflect the actual compliance status of the SWM Rules, 2016, and there is a need to reconcile the number of available facilities with the field establishments and ULBs.

4.11.4 Compliance of SWM Rules 2016 in model cities and towns

Clause (iv) 39 (ii) of the NGT order in O.A. No. 606/2018 dated April 2019, cited that at least three major cities, and as many major towns, as possible, in the State, were to be notified within two weeks and were to be made fully compliant with the SWM Rules, 2016, within the next six months. In compliance of the NGT direction, the Department had notified (April 2019) three⁴⁰⁹ model municipal

⁴⁰⁸ SLF at Haldia and SLF at Baidyabati.

⁴⁰⁹ Asansol Municipal Corporation (AMC), Durgapur Municipal Corporation (DMC) and Bidhannagar Municipal Corporation (BMC).

corporations and five⁴¹⁰ model municipalities that were to be developed as model cities/towns complying with all the criteria of the SWM Rules, 2016. Audit observed that the identified model municipal corporations/municipalities had to be made fully compliant with the SWM Rules, 2016, by October 2019, but this had not been achieved, as of November 2022. As per the Annual Report (Calendar Year 2021) of WBPCB on the SWM Rules, 2016, the model municipal corporations/municipalities were expected to be fully compliant with the SWM Rules, 2016 by December 2022.

Out of the eight model municipal corporations/municipalities, three⁴¹¹ were test-checked, between July and November 2022, for assessing the extent of compliance with the SWM Rules, 2016. During Joint Physical Verification and on scrutiny of the records of these ULBs, Audit observed instances of inadequate collection of segregated waste, inadequate processing of collected waste, delay in bio-mining of legacy waste, delay in construction of processing facilities for fresh waste, disposal of mixed waste in sanitary landfills *etc.* In view of the deficiencies noticed during Joint Physical Verification, the possibility of making the model municipal corporations/municipalities compliant with the SWM Rules, 2016, within December 2022 appears to be remote.

The SUDA stated (January 2023) that steps would be taken to ensure that the model cities/town are made fully compliant with SWM Rules, 2016.

4.11.5 Integration of Informal waste collectors

Rule 15(c) of the SWM Rules, 2016, stated that local authorities have to establish systems, for recognising organizations of waste pickers or informal waste collectors, and to promote and establish systems for integration of these authorized waste-pickers and waste collectors, in order to facilitate their participation in solid waste management, including door-to-door collection of waste. Rule 15(l) of the SWM Rules, 2016, stated that local authorities have to provide training on solid waste management, to waste-pickers and waste collectors. The State Policy on SWM stated that, ULBs should engage rag-pickers and similar kinds of groups, for segregation and selling of recyclable waste, at secondary transfer stations⁴¹². Rule 15(d) of the SWM Rules, 2016 stated that local authorities have to facilitate formation of Self Help Groups, provide identity cards and, thereafter, encourage their integration in solid waste management, including door-to-door collection of waste.

As per information furnished (November 2022) by SUDA 4,076 rag-pickers had been identified in eight ULBs⁴¹³. Further, in the remaining 117 ULBs the identification process would be started soon. Audit, however, observed that the identified waste-pickers/collectors had not been registered by the ULBs,

⁴¹⁰ Uttarpara-Kotrung Municipality, Baidyabati Municipality, Rishra Municipality, Kalyani Municipality and Haldia Municipality.

⁴¹¹ Asansol Municipal Corporation, Haldia Municipality and Baidyabati Municipality.

⁴¹² Place where solid waste collected from door-to-door is dumped for subsequent transfer to processing/disposal facilities.

⁴¹³ Asansol MC-520, Durgapur MC-1,728, Bidhannagar MC-1,329, Baidyabati Municipality-116, Haldia Municipality-85, Kalyani Municipality-139, Uttarpara-Kotrung Municipality-61 and Rishra Municipality-98.

for their integration with the formal SWM system. Further, they had not been imparted any training on solid waste management, nor any financial incentive had been provided to them so far (as of November 2022).

Recommendations:

- 11. The Department should draw up a time-bound plan for ULBs, for achieving the Service Level Benchmark targets.**
- 12. WBPCB should ensure strict monitoring of SWM facilities through regular inspections and ensure that its Annual Report on SWM reflect the actual position.**

KOLKATA

The **24 APR 2024**

Anadi Misra

(ANADI MISRA)

Principal Accountant General
(Audit-II) West Bengal

Countersigned

NEW DELHI

The **26 APR 2024**

Girish Chandra Murmu

(GIRISH CHANDRA MURMU)

Comptroller and Auditor General of India

