EXECUTIVE SUMMARY

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Efficient management of different types of solid waste generated by rapidly growing towns and cities across the country is the need of the hour. With ever increasing population and growing consumerism, solid waste management has become an important issue concerning legislators and the public alike. Integrated waste reduction policies along with introduction of new and innovative solutions are the key to minimise the detrimental effects of improper solid waste management (SWM) on the environment and human health.

➢ Scope of Audit

A performance audit on 'Solid Waste Management in Urban Areas of Meghalaya' for the period 2017-18 to 2021-22 was conducted to evaluate whether the management of municipal solid waste (MSW) and special waste (including plastic waste, e-waste, bio-medical waste and construction & demolition waste) was carried out according to existing statutes and legislations. It involved examination of the records relating to SWM in the Directorate of Urban Affairs, State Investment Project Management and Implementation Unit (SIPMIU), Meghalaya Urban Development Authority (MUDA), the Meghalaya State Pollution Control Board (MSPCB), Deputy Commissioners, Municipal Boards, Town Committees and Traditional Institutions (ADCs and Dorbar Shnongs) in the selected urban areas.

(Paragraph 2.4)

➢ Delay in notifying State Policy by Urban Affairs Department

The performance audit showed that there was a delay in notifying the Meghalaya State Waste Management Policy and Strategy, despite the SWM Rules, 2016 reflected lackadaisical approach of Urban Affairs Department in implementing the waste management rules. Further, the State Government was yet to approve the State Policy on Construction & Demolition (C&D) Waste even after a delay of almost five years. The delay in notification and approval of requisite legislations has inhibited the implementation of SWM activities.

(Paragraph 3.2 & 7.1.1)

➢ Framing of Bye Laws

None of the Municipal Boards in Meghalaya, and two autonomous district councils, namely, JHADC and GHADC, had framed bye-laws for implementing SWM Rules 2016, while the KHADC had only notified the Khasi Hills Autonomous District (SWM) Act, 2020 in February 2022, rendering the implementation of SWM Rules 2016 ineffective due to the absence of legally empowering bye-laws.

(Paragraph 3.3)

- **Non- Preparation of Solid Waste Management Plans by Urban Local Bodies**

Urban Local Bodies (ULBs) in Meghalaya were required to prepare comprehensive short-term and long-term Solid Waste Management (SWM) plans aligned with the State policy. However, the selected Municipal Boards, Town Committees, and Census Towns have failed to develop such plans within the stipulated timelines, with only Shillong having submitted a City Solid Waste Action Plan that awaits approval. Absence of SWM Plans indicated that ULBs had not set any short-term or long -term goals and targets absence of targets and goals for implementing the SWM Rules in Meghalaya.

(Paragraph 3.4)

- **Inadequate enforcement of SWM Rules in Town Committees and Census Town Areas**

In Meghalaya, jurisdiction of the Town Committees and Census Towns was not vested upon the Urban Affairs Department. Rather, these areas (47 *per cent* of the total urban population) are governed by the concerned ADCs. Annual Reports were not submitted by the Town Committees and Census Towns to the Director, Urban Affairs Department nor to the MSPCB. As a result, there was no data available with the MSPCB regarding SWM in these areas. Although the Deputy Commissioners were directed to ensure timely submission of Annual Reports by all Town Committees under their respective jurisdiction in a meeting chaired by the Chief Secretary (August 2019), no reports have however been submitted by the Town Committees/Census Towns during the period covered by audit.

(Paragraph 3.5)

- **Non-Preparation of Contingency Plans**

The failure of the test-checked urban areas in Meghalaya to develop contingency plans for waste storage, as stipulated by the MSWM Manual 2016, left them unprepared to address unforeseen crises like waste transportation disruptions and waste accumulation on streets of Jowai leading to public protest.

(Paragraph 3.6)

- **Periodical review of SWM Rules by Urban Affairs Department**

Though the Urban Affairs Department in-charge of implementing SWM and Plastic Waste Management Rules established State Level Advisory Committees for periodic review of implementation of SWM Rules 2016, absence of records of such meetings indicated that these committees were largely non-functional.

(Paragraph 3.7)

- **Inadequate assessment of waste generation**

A comprehensive assessment of waste generation using well-defined metrics is crucial for effective Solid Waste Management, however, lack of reliable data collection and

periodic surveys in urban areas, along with discrepancies in waste estimation methods, indicated deficiencies in planning and coordination.

(Paragraph 3.8)

➢ Maintenance of SWM data by MSPCB

The effective management of solid waste relies on accurate data collection and analysis, yet discrepancies between waste generation and collection figures reported by the Meghalaya State Pollution Control Board (MSPCB) and information provided by tested Urban Local Bodies (ULBs), along with the absence of data from Town Committees and Census Towns, underscore issues of data accuracy, completeness, and reliability.

(Paragraph 3.9)

➢ Availability of supervisory posts for SWM purposes

The inadequate availability of supervisory staff, falling significantly short of the recommendations outlined in the MSWM Manual 2016, has adversely affected the ability of the selected Urban Local Bodies (ULBs) and Town Committee in Meghalaya to effectively manage solid waste activities, including collection and disposal.

(Paragraph 3.10)

➢ Training of SWM Staff

Unsatisfactory training and capacity-building initiatives for staff involved in Municipal Solid Waste Management (MSWM) activities across various selected Urban Local Bodies (ULBs) in Meghalaya, resulted in operational inefficiencies and issues like mixing of segregated waste during collection, transportation, and processing.

(Paragraph 3.11)

➢ Integration of informal waste collectors in waste management

The recognition and integration of the informal waste sector, including waste pickers and collectors, into the formal waste management system has been inadequately addressed in Meghalaya.

(Paragraph 3.12)

➢ Achievement of Service Level Benchmark

The Service Level Benchmarking (SLB) initiative launched by the Ministry of Urban Development aims to monitor urban services, but despite notification for Shillong Municipal Board (SMB), SLBs for other Municipal Boards were not established, and SMB's performance in meeting SLB targets was generally below benchmarks.

(Paragraph 3.13)

➢ Sources of fund

During the period from 2017-18 to 2021-22 in Meghalaya, the State Government heavily relied on external funding (Asian Development Bank) and Central grants, while the

budgetary support from the State budget as agencies' own resources contributed only a minor share towards financing of Solid Waste Management activities.

(Paragraph 4.2)

➢ Municipal Finances

The financial resources of the six Municipal Boards in Meghalaya from 2017-18 to 2021-22, primarily consisted of their own revenue, Central Finance Commission (CFC) transfers and State Grants-in-Aid, but a significant gap between operating revenue and operating expenses for Solid Waste Management (SWM) activities exists due to insufficient collection of user charges, indicating the need for improved revenue generation and strict enforcement of SWM charges.

(Paragraph 4.3)

➢ Collection of User charges

Despite the provision in SWM Rules and local bye-laws for the collection of user fees from households to cover solid waste management costs, most Municipal Boards did not collect user fee resulting in a significant loss of potential revenue that could have helped offset operating losses incurred in SWM activities.

(Paragraph 4.4)

➢ Segregation of waste at source in the urban areas

Insufficient segregation of solid waste at source by households and institutions and no facilities for segregating domestic hazardous waste indicated weak enforcement of SWM Rules in Meghalaya, on one hand, and other hand an absence of effective awareness raising programmed among the households and citizens. Despite distribution of dual-coloured household bins for source segregation of waste, the effectiveness of segregation of waste at source was inadequate. Data available with the department on waste segregation at source was unreliable.

(Paragraph 5.1.1)

➢ Segregation of domestic hazardous waste and sanitary waste

Absence of notified lists of hazardous waste items, and failure to establish waste deposition centers as required by regulations, and inadequate awareness resulted in non-implementation of source segregation and management of domestic hazardous waste.

(Paragraph 5.1.2)

➢ Extent of collection of municipal waste at source

Municipal Boards and Dorbar shnongs played primary role in collection of municipal waste from households under Municipal areas and most ULBs reported almost hundred *per cent* collection of municipal waste at source, absence of a reliable system for assessment of quantum of waste imposed limitation on the reliability of the data available, including absence of weighbridges methods, including the absence of

functioning weighbridges, has led to uncertainties in quantifying the actual amount of waste collected, raising concerns about waste management accuracy and effectiveness.

(Paragraph 5.2.1)

- **Infrastructure for Collection and Transportation of municipal solid waste**

Lack of source segregation in the tested urban areas resulted in mixed waste being sent to treatment facilities, leading to manual sorting by informal workers during processing and disposal, consequently affecting the quality of processed waste.

(Paragraph 5.2.2)

- **Facilities for waste collectors and handlers**

Vehicles utilised for transportation of waste were not equipped with the necessary specifications such as partitions for segregated waste and management information systems. As such, waste was mixed during transportation and effective monitoring of the whole process was non-existent.

(Paragraph 5.3.1)

- **Monitoring of transportation vehicles through Management Information System**

The ULBs and Autonomous District Councils in Meghalaya were ill-equipped to manage and monitor transport vehicles carrying municipal waste from collection points to dumping sites. Absence of Management Information Systems (MIS) and essential facilities in waste transportation vehicles, along with the lack of GPS and GIS, limited their capacity for identification of garbage vulnerable points and regulated movement of transport vehicles as part of solid waste management services.

(Paragraph 5.3.2)

- **Status of Waste Processing in Meghalaya**

Test check of urban agglomerations revealed that significant portion (70 *per cent* to 98 *per cent*) of municipal waste ended up in landfills without any processing.

(Paragraph 6.1)

- **Integration of the informal sector in recycling process**

Despite the presence of recycling initiatives in certain urban areas, such as Shillong and Tura, the proper functioning and integration of waste recovery centers and recyclers into the solid waste management system, as required by SWM Rules, 2016, have been lacking, leading to suboptimal recycling efforts.

(Paragraph 6.3)

- **Compost plant in Nongpoh**

The Nongpoh solid waste management project, sanctioned under JnNURM, faced delays and remained incomplete, with the composting facility and associated structures

left unused and unfunctional, despite payments for civil works and machinery which led to wasteful expenditure of ₹ 4.48 crore.

(Paragraph 6.4.1)

- **Compost Plant in Tura**

The Tura solid waste management project sanctioned under JnNURM, including a compost plant, faced delays and remained incomplete, with the composting facilities and associated structures left unused and the machinery not utilized as intended, despite payments for civil works and commissioning which led to wasteful expenditure of ₹ 5.16 crore.

(Paragraph 6.4.2)

- **Compost plant in Shillong**

The compost plant installed at Marten landfill site in Shillong was handed over to the Shillong Municipal Board (SMB) but experienced underutilization due to challenges in source segregation, lack of marketing efforts, and issues with compost quality, resulting in a production far below its capacity.

(Paragraph 6.4.3)

- **Identification and acquisition of suitable land for sanitary landfill and other waste management facilities.**

The Solid Waste Management Rules mandated the identification and allocation of suitable land for waste processing, but despite the reconstitution of a Task Force Committee and recommendations for certain areas, the acquisition process for the required land in multiple urban areas including Shillong, Tura, and Jowai was still pending as of May 2023.

(Paragraph 6.5.1)

- **Availability and Landfill Capacity of the Waste Disposal Sites**

Despite the establishment of Task Force Committees and the stipulation under Solid Waste Management Rules, none of the four tested urban areas have successfully acquired suitable land for processing and disposal facilities for solid waste, with only Tura having initiated the acquisition process among the three identified areas.

(Paragraph 6.5.2)

- **Open dumping of waste**

Waste generators in certain areas were observed to be violating Rule 4(2) of the Solid Waste Management Rules, 2016 by dumping waste in open spaces and water bodies, as seen during Joint Physical Verifications and reported in news articles, causing both environmental degradation and health risks.

(Paragraph 6.6)

➢ Meghalaya State Policy on Construction and Demolition Waste

Delay in finalizing and approving the Meghalaya State Policy on Construction & Demolition (C&D) Waste, along with the lack of direction from relevant authorities, has hindered the implementation of C&D Waste Management Rules 2016 in the State.

(Paragraph 7.1.1)

➢ Comparison between Meghalaya SWM Bye Law and C&D Waste Management Rules 2016

As per information furnished by MSPCB, there were 142 unauthorised Health Care Facilities in the state in 2020. Data for 2021-22 was not available even though called for.

(Paragraph 7.1.2)

➢ Authorisation status of Health Care Establishments

Healthcare facilities in Meghalaya showed a gradual decrease in unauthorized status from 2017 to 2020 under the Bio-Medical Waste Management Rules 2016, but MSPCB should ensure compliance of BMW Rules 2016 by all the HCFs in the state.

(Paragraph 7.2.1)

➢ Generation and treatment of Bio Medical Waste

Despite an increase in bio-medical waste (BMW) generation from 2017 to 2020, treatment by Common Bio-Medical Waste Treatment Facility (CBMWTF) surged from 37 *per cent* to 76 *per cent*, while captive treatment declined. However, scrutiny revealed operational issues with the sole CBMWTF in Shillong, casting doubt on the accuracy of reported data provided by MSPCB to CPCB.

(Paragraph 7.2.2)

➢ Disposal of Bio Medical Waste

Except for Shillong Municipal Board, the test-checked ULBs and Town Committees in Meghalaya lacked Common Bio-Medical Waste Treatment and Disposal Facilities (CBMWTF) as required by BMW Rules 2016, resulting in improper disposal practices that pose risks to public health and environmental contamination.

(Paragraph 7.2.3)

➢ MSPCB Status of CBMWF in Shillong

Non-functioning incinerator of CBMWTF Shillong attracted imposition of Environmental Compensation of ₹ 0.82 crore on Shillong Municipal Board by the CPCB.

(Paragraph 7.2.4)

➢ Producer Responsibility Organisation registered with MSPCB

In Meghalaya, there are three registered Producer Responsibility Organisations (PROs) based in Shillong responsible for collecting e-waste, but there was a lack of dedicated collection vehicles, insufficient storage facilities for categorization, and lack of awareness, hindering effective implementation of e-waste management as per E-Waste Rules 2016.

(Paragraph 7.3.1)

➢ Inventory of e-waste in the state of Meghalaya

The Meghalaya State Pollution Control Board (MSPCB) has failed to maintain an inventory of e-waste generation as required by E-Waste (Management) Rules 2016, leading to a lack of comprehensive data for comparison with e-waste collection by Producer Responsibility Organisations (PROs).

(Paragraph 7.3.2)

➢ Disposal of E-Waste mixed with Municipal Solid Waste

E-Waste found to be mixed with Municipal Solid Waste in Tura solid waste disposal site in contradiction to the E-Waste (Management) Rules 2016.

(Paragraph 7.3.3)

➢ Status of submission of Annual Return of Plastic Waste

The plastic waste management reporting by ULBs has been inconsistent as evidenced by incomplete and delayed annual reports, discrepancies between submitted data and CPCB estimates, and the lack of MSPCB's effective oversight and guidance to ensure accurate reporting.

(Paragraph 7.4.1)

➢ Setting up of infrastructure for plastic waste management

The selected ULBs and Town Committees in Meghalaya have not taken effective action to establish infrastructure for plastic waste management or provide accurate information on plastic waste, revealing a lack of commitment from both the local authorities and higher administrative bodies, while on-site observations demonstrate mixed disposal with MSW, limited segregation efforts, and challenges related to recycling capacity.

(Paragraph 7.4.2)