



*Brahmapuram dumpsite,
Kochi Corporation
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CHAPTER I

INTRODUCTION



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Waste comprise of materials which a generator has no further use of in production, transformation or consumption, and which is required to be disposed of. Wastes are generally classified as Municipal Solid Waste (MSW), Bio-medical Waste (BMW), Construction and Demolition (C&D) waste, E-waste, Plastic waste and Hazardous waste by virtue of their nature. They are also classified as biodegradable, non-biodegradable, combustible, dry and inert based on their characteristics. Proper waste management presents an opportunity not only to avoid the detrimental impacts associated with waste, but also to recover resources, realise environmental, economic and social benefits and take a step on the road to a sustainable future. Scientific disposal of solid waste through segregation, collection, transportation, processing and disposal in an environmentally acceptable manner minimises its adverse impact on public health and environment.

1.1 Solid Waste Management in Kerala

Kerala, with a total population of 3.34 crore¹, urban population of 1.59 crore (47.70 per cent) and annual urban population growth of 6.50 per cent, has been urbanizing at a rapid pace. The total solid waste generation in Kerala is estimated at 3.70 million tonnes annually, of which 2.17 million tonnes (59 per cent) are contributed by Urban Local Bodies (ULBs). Of the total waste generated in the State, the share of biodegradable and non-biodegradable waste is at 69 per cent and 31 per cent respectively. The scientific processing and disposal of waste including the development of infrastructure for collection, storage, segregation, transportation, processing and disposal of MSW is an obligatory duty of the ULBs. Currently, the waste management system in the State focuses on the citizens' responsibility to manage biodegradable waste at source, under the campaign 'My waste, my responsibility', thereby instilling a sense of ownership and duty with regard to waste management.

1.2 Organisational set up

The Additional Chief Secretary, Local Self Government Department is the head of the administrative department of ULBs. The Municipal Secretary of each Corporation/Municipality is the administrative head of the ULB and is assisted by the Health Officer/Health Supervisor/Health Inspector in the management of MSW.

1.2.1 Responsibilities of different departments and agencies

The Kerala Municipality Act, 1994 (KM Act), promulgated in line with the 74th Constitution Amendment, provides the legal framework which enables the ULBs to function as the third tier of Government. ULBs are thus empowered to perform functions and implement schemes in relation to 18 subjects specified in the Twelfth schedule, which includes Solid Waste Management. The departments and agencies involved in waste management in the State and the roles assigned to them are represented in **Table 1.1**:

¹ As per 2011 census

Table 1.1: Departments and agencies involved in waste management in the State and the roles assigned to them

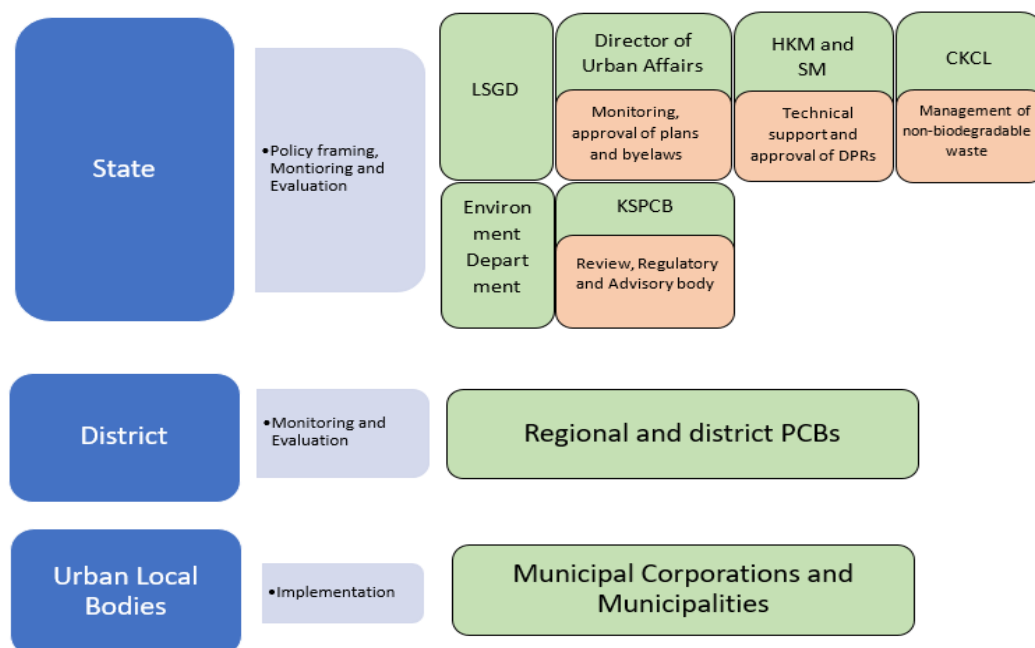
Department / Agency	Roles
Local Self-Government Department (LSGD)	Formulation of policies, overseeing of various service delivery and regulatory agencies associated with decentralised governance, monitoring of performance of local governments in their regulatory and service delivery functions, standardisation of planning processes, technical norms and financial integrity through guidelines issued from time to time.
Environment Department	Nodal department for planning, promotion, coordination, and overseeing the implementation of Central/State environmental protection and conservation policies/programmes and issue of directions to implement the Plastic Waste Management Rules, 2016.
Kerala State Pollution Control Board (KSPCB)	Implementation of various rules in the State under Environment (Protection) Act, 1986. The principal agency for monitoring and controlling waste management, enforces the Solid Waste Management Rules, 2016 and related rules, monitors compliance of Extended Producer Responsibility for E-waste and environmental standards, with strict adherence to the conditions specified for waste processing and disposal sites.
Suchitwa Mission (SM)	Technical Support Group in the waste management sector under LSGD. Responsible for providing technical and managerial support to Local Self Governments of the State.
Haritha Keralam Mission (HKM)	An umbrella mission combining three subsidiary missions of hygienic waste management, water conservation and agricultural development.
Clean Kerala Company Limited (CKCL)	Comprehensive management of all harmful rejections in the state, management of plastic waste and e-waste, establishing Material Collection Facility (MCF) and Resource Recovery Facility (RRF) in ULBs by

Department / Agency	Roles
	arranging shredding machines, bailing machines etc. and their maintenance.

(Source: Official websites of the Departments/Agencies)

Chart 1.1 depicts the authorities at different levels in the management of MSW in the State.

Chart 1.1: Various authorities involved in the management of Municipal Solid Waste



1.3 Audit Objectives

The Performance Audit was conducted to assess whether:

- the strategy and planning of waste management in ULBs was in accordance with extant provisions and supported by an adequate institutional mechanism
- the tasks and projects associated with waste management (segregation, collection, transportation, processing and disposal) in ULBs were planned, implemented and maintained in an effective, efficient and financially sustainable manner and were adequate to meet the requirements of the ULBs and
- the risks to environment posed by waste were identified and minimised.

1.4 Audit Criteria

The observations in the report were benchmarked against criteria derived from:

- Kerala Municipality Act and Rules, 1994
- Solid Waste Management Rules, 2016
- Manual of Municipal Solid Waste Management, 2016

- State Policy on Solid Waste Management, 2018
- Waste Management Rules, 2016 with respect to E-waste, Plastic waste, Construction and Demolition waste and Bio-medical waste
- The Environment (Protection) Act and Rules, 1986
- Orders/judgements of National Green Tribunal
- Instructions, guidelines and policies issued by Central Pollution Control Board, Kerala State Pollution Control Board, Government of India/Government of Kerala, various parastatal agencies, etc. on solid waste management from time to time.

1.5 Audit Scope, Methodology and Sampling

A Performance Audit (PA) on Solid Waste Management in Urban Local Bodies was included in the Report of the Comptroller and Auditor General of India on Local Self-Government Institutions for the year ended 31 March 2010, which was discussed (January 2022) by the Local Fund Accounts Committee. The recommendations of the Committee are awaited. The present PA examined the efficacy of system of management of waste including solid waste, Plastic waste, Bio-medical waste, E-waste and C&D waste in the selected ULBs, covering the period from 2016-17 to 2020-21. The Entry conference of the PA was held on 23 June 2021 with the Additional Chief Secretary, Local Self Government Department (ACS LSGD), in which the audit methodology, scope, objectives and criteria were explained and agreed upon. The Exit Conference was held on 12 May 2022 with ACS LSGD, wherein the audit findings in the PA report were discussed in detail. The audit methodology involved scrutiny of records, analysis of responses to audit queries, joint physical verifications with municipal staff and collection of photographic/videographic evidence.

For selection of units, the 14 districts in the State were ranked based on the risk criteria *viz.*, expenditure incurred by the ULBs for waste management activities, population of ULBs and quantity of waste generated. Three districts from high-risk category and two from low-risk category were selected to get a representative sample of five districts, by simple random sampling methodology using IDEA software. The districts selected were Thiruvananthapuram, Alappuzha, Ernakulam, Malappuram and Kozhikode. All the Municipal Corporations in the selected districts, *viz.*, Thiruvananthapuram, Kochi and Kozhikode Corporations and 40 *per cent* of the Municipalities in the selected districts (19 Municipalities²) were selected for audit based on simple random sampling using IDEA Software.

1.6 Acknowledgement

Audit acknowledges the cooperation and assistance extended by the Local Self-Government Department, Government of Kerala, Directorate of Urban Affairs, Suchitwa Mission and all test-checked ULBs in the smooth conduct of the PA.

² Thiruvananthapuram - Neyyattinkara, Nedumangad;
Alappuzha - Alappuzha, Kayamkulam, Mavelikkara;
Ernakulam - Angamaly, Muvattupuzha, Aluva, Eloor, Kothamangalam, Maradu;
Malappuram - Malappuram, Parappanangadi, Perinthalmanna, Nilambur, Manjeri;
Kozhikode - Koyilandy, Feroke, Vadakara