

Spatial Strategies for Implementation of EPR Effectively in Kerala

Darsana Jose

Department of Architecture and Planning, College of Engineering Trivandrum, Thiruvananthapuram, Kerala, India

Prof. Preethi Prabhakar

Department of Architecture and Planning, College of Engineering Trivandrum, Thiruvananthapuram, Kerala, India

Abstract

Rapid urbanisation and rising consumption patterns in Kerala have intensified plastic waste generation, placing increasing pressure on Urban Local Bodies (ULBs) and informal waste workers. Although Extended Producer Responsibility (EPR) is mandated under India's Plastic Waste Management Rules to shift post-consumer waste management responsibilities to producers, its on-ground implementation in Kerala remains weak and largely limited to portal-based compliance. This study examines the spatial gaps in urban waste management infrastructure that constrain effective EPR implementation in the state. A mixed-method approach combining policy and literature review, secondary data analysis, primary field surveys, and GIS-based spatial analysis was adopted. A ward-level case study was conducted to assess waste collection systems, material flow, infrastructure availability, and working conditions of informal waste workers. The findings reveal uneven spatial distribution of facilities such as Mini-MCFs and MCFs, inadequate service coverage in peripheral areas, and weak integration of informal sector actors, resulting in continued operational and financial burdens on ULBs. The study proposes spatial strategies including ward-level infrastructure planning, zonal and regional facility hierarchies, GIS-based routing, and integration of EPR into urban development plans. These strategies highlight the critical role of spatial planning in strengthening EPR accountability, infrastructure equity, and sustainable urban waste governance in Kerala.

Keywords

Extended Producer Responsibility, Infrastructure Gaps, Spatial Planning, Urban Waste Management.