

**ROLE OF URBAN GOVERNANCE IN WASTE MANAGEMENT  
WITH SPECIAL REFERENCE TO BANGALORE CITY:  
ISSUES AND FUNCTIONAL CHALLENGES**

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**ABSTRACT:**

This paper examines the role of urban governance in waste management with special reference to Bangalore city. Urban governance of solid waste in Bangalore is managed by the Bruhat Bangalore Mahanagara Palike (BBMP). But it is struggling to manage 5000 tonnes of daily waste through centralized landfills and decentralised participatory approaches. The BBMP supervises waste management in Bangalore aiming to move from a linear Collect & Dump Model to a Circular Sustainable System. The majority of this five thousand tonnes of waste is unprocessed and landfills have almost come to a saturation point creating environmental issues. The BBMP Urban Waste Management Policies are now focusing on decentralized waste management, composting and active involvement of NGOs. The Karnataka State Government Urban Solid Waste Management Policy promotes 3Rs Reduce, Reuse & Recycle by encouraging Waste to Energy projects in partnership with private NGOs and Business Firms. But there are several functional challenges including poor segregation rates with only 30%, limited processing capacity and inadequate infrastructure. Civic Activism groups, activists and residents play a major role in waste management by partnering with the BBMP promoting sustainability and advocating stronger waste management policies.

**KEYWORDS:**

Bangalore City, Urban Governance, Waste Management, Issues, Functional Challenges.

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**Objectives:**

1. This study aims to focus on the role of BBMP in making multi-criteria policy making in waste management.
2. This study aims to know the Operational Management Challenges before BBMP in treating waste in the city.

**Methodology:**

1. This study adopts a Multi-Stage Approach including waste generation, assessment, collection, transportation and treatment in Bangalore city.
2. This study includes conducting surveys, interviews and literature reviews to understand current lapses in the policy making and policy execution level.

**Review of Literature:**

1. Solid Waste Management – Modes Assessments & Appraisals In Bangalore – by I.S.A. Baud & Hans Schenk provides a critical detailed analysis of the formal municipal and informal handling of solid waste in Bangalore the study also advocates improved integrated collaboration.
2. Initiatives In Solid Waste Management – A Case Study Of Bangalore City by Natasha Calra & S Manasi is an in-depth study of Bangalore waste management. This is a working paper from the Institute for Social and Economic Change analysing specific practical waste management initiatives.
3. Management of municipal solid waste by Ramachandra – this study covers waste generation treatment and disposal practices by urban governance in Bangalore.

Introduction: Solid waste management in Bangalore has become a much discussed challenge with numerous solutions and approaches being proposed ranging from budget allocations to setting up solid waste management plants and outreach programmes on waste segregation at the source across all wards.

As Per Karnataka State Pollution Control Board, Karnataka generates about 11,044 tonnes per day of municipal solid waste with 50% being wet and organic waste, 30–35% dry waste and 10–20% construction and demolition waste. Bangalore urban city generates 4593 tonnes of waste daily with only 1943.8 tonnes being processed. This leaves a

significant portion ending up in landfills leading to severe environmental and health issues. To address this, a transformative shift from a linear to a circular waste management system is applied by Urban governance institution across Bangalore city. BBMP is facing the challenges of rising population with increased waste disposal, lack of infrastructure for waste management and retreatment, poor community participation and poor CSR activities.

Innovative Efforts of BBMP – The Urban governing institution of the Bangalore city BBMP is concerned over the increasing debates of the poor performance of the BBMP in combating waste management.

**Public & Private Partnerships:** Innovative waste management solutions through Public & Private Partnerships is being encouraged by BBMP. The BBMP and Bangalore Solid Waste Management Limited engage in Private Partnerships for waste management in the city. PPP model is supporting BBMP in setting up Waste Processing Units, Compost Plants, C & D Recycling Facilities thereby reducing reliance on landfills. More than 70 kiosks have been installed through PPP.

**Sustainable Practices by Businesses:** BBMP urges Businesses to adopt sustainable practices such as using eco-friendly materials designing products for durability and implementing take back schemes. BBMP has partnered with firms like E-Scrappy Recycling Firms and Bin bag recycling firms to handle electronic and electrical waste. RE Tex Firms is helping in sorting textile waste. Several business firms are conducting regular waste auditing to identify the quantity and type of waste generated allowing for better reduction of waste strategies. Several business houses including Bare Necessities Zero Waste Solution are practicing sustainable practices such as adopting sustainable zero waste eco-friendly packaging materials. SAAHAS Waste Management Pvt Ltd is specialised in managing waste for commercial establishments and residential areas. Daily Dump is providing solution for composting organic waste in offices and business firms.

**Corporate Social Responsibilities (CSR):** BBMP urges companies to contribute to waste management efforts through CSR initiatives such as sponsoring recycling programmes and conducting awareness campaigns. CSR initiatives. Waste management in Bangalore city focuses mainly on source segregation, mechanical collection and decentralising processing.

Major projects include ITC company's Wellbeing out of Waste (WOW) Embassy Groups' ECO Gram, GAIL's CNG for Automobiles. These companies are supporting government initiatives in reducing waste management crisis. Embassy group ECO Gram launched in 2016 manages waste for over 4 thousand households across North Bangalore collecting 3.5 metric tonnes of waste daily, while GAIL provides 18 CNG powered waste collection vehicles to BBMP to improve collection efficacy and reduce air pollution. ITC is helping in educating households and schools about waste management.

**Leveraging technology:** Leveraging technology to develop innovative solution for waste management using AI and IoT for efficient waste collection and sorting. Key technologies include GPS/RFID Tagged Vehicles for route optimization, AI smart Bin (BIN Pro) for automated waste sorting and TRASH BOT for separating wet/dry waste. ELCITA utilizes smart scientific processing for a ZERO waste to landfills goal perfectly. The Karnataka High Court has directed the BBMP towards implementation of a Unified Digital Platform featuring a Mobile App, Geo Tagged Grievance Reporting and CCTV surveillance for monitoring waste management.

**Community involvement:** Community involvement is very important in reducing waste and in managing waste. BBMP is conducting awareness campaigns to educate residents about the importance of waste reduction and recycling the waste practices. Initiatives such as neighbourhood composting clean up drives, ward wise waste repair workshops second hand items stores, repair shops, refurbishing centres etc are helping in creating community awareness. Sometimes BBMP is providing incentives for residents to participate in Waste Management Programs and offering Discounts on Utility Bills for those who segregate waste as per BBMP guidelines.

**Second hand markets:** BBMP is focusing on making waste recyclable. There has been a new plan of opening Second Hand Items Markets which can facilitate buying and selling of second hand items including plastic utensils, wooden items, electronic waste items, textiles etc. BBMP is also planning to set up Repair Workshops and Refurbish Centres helping people to get their broken/out of order or such items repaired instead of throwing it. This helps in reducing the waste. These centres are designed to work around the clock so that the reduction

initiatives in solid waste becomes successful.

**New Initiatives:** The kitchen waste disposal is the main problem faced by BBMP and new initiatives towards reducing the Kitchen waste is considered on par with other issues. BBMP is also thinking of initiating Community Kitchens as a parallel for reducing per house kitchen waste. But there is a need for furthering the awareness about community kitchens. Key strategies include Namma Kasa Namma Javabdari initiative promoting source segregation, public private participation, for processing and a shift towards a circular economy to reduce reliance on overburdened landfills.

**Developing robust infrastructure:** Developing a robust infrastructure is on the top priority list of BBMP. Increasing collection centres, recycling plants, and sorting units. Investing in infrastructure for waste collection, segregation and recycling is being emphasised by BBMP. There are 164 Dry Waste Collection Centres that facilitate the segregation and collection of dry waste. There are 7 waste processing plants with a processing capacity of 1570 tonnes per day. There are 13 Bio-methanation plants with a processing capacity of 65 tonnes per day. But BBMP seriously plans to broaden the infrastructure base of the waste management.

**Conclusion:** Even with several initiatives the city is continuing with combating the mounting piles of solid waste. Establishing a comprehensive policy framework that supports the circular economy principles needs to be prioritised. This needs to include policy regulations to reduce waste generation. Providing encouragement through incentives for businesses to adopt sustainable practices and stricter enforcement of waste generation and waste segregation at the household level is the need of the hour.

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