

A REVIEW ON THE RECENT SCENARIO OF MUNICIPAL SOLID WASTE MANAGEMENT IN KARNATAKA STATE

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ABSTRACT

In the Karnataka state there is a rapid pace of increasing population, economic growth, urbanization and industrialization is coupled with accelerated solid waste generation. Waste generation has been a part and parcel of the development activities of mankind. Municipal Solid Waste (MSW) is an example of socioeconomic activities that entails with solid waste generation. Management of municipal solid waste is a national problem and is faced in all the cities of India. As a result, wastes are either scattered in urban centers or disposed of in an unplanned manner in low lying areas or open dumps, or burned by the residents in their backyards. Insufficient collection and inadequate have made the situation exasperating due to which several environmental and health related problems are increasing. Keeping in mind of the present situation, the current review examines the opportunities and improvements that could be brought about in MSW management (MSWM) system in the state.

Keywords: MSW, MSWM, Urbanization, Recent Scenario, Karnataka State.

Introduction

The State government on Thursday approved the Karnataka State Urban Solid Waste Management (SWM) Policy-2020 and the Urban Solid Waste Management Strategy-2020. The new policy has an ambitious target of achieving 100% segregation at source of solid waste in all urban local bodies across the State. The new policy also aims to reduce waste going to landfills to less than 30% of the total waste generated by 2025.

The policy was prepared by the Directorate of Municipal Administration in compliance with the Solid Waste Management Rules, 2016, and is applicable to all ULBs in the State.

According to the policy, most of the ULBs in the State spent maximum portion of their overall budget for waste management on collection and transportation of solid waste.

“Often, less than 10% of the budget is spent on treatment, processing, and final disposal of solid waste. Proper processing, including recycling facilities, do not exist in most ULBs in Karnataka and therefore, majority of the waste is being taken to unscientific disposal sites for dumping,” the document stated.

The new policy calls for focus and effort on segregation of waste and proper processing of waste. However, biomedical waste, e-waste, faecal sludge and sewage, construction and demolition waste, and industrial waste have not been covered under the new policy as they do not fall under the scope of SWM Rules, 2016.

The zero-waste initiative, ‘Namma Kasa Namma Javabdhari’, will be implemented across the State along with awareness campaigns on the practice of reduce, reuse, and recycle.

Review of Literature

Rajani Srivastava, Vijai Krishna and Ishan Sonkar (Aug 2014)¹ Thus, on the basis of this study we may conclude that solid waste management and recycling is major issue of Varanasi district. We can reuse various types of waste depending upon the nature of waste.

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We can also make alternate use of that waste like energy production. This study showed that OB site have highest energy capacity compared to other sites and we can obtained more methane from NG. We can use this site for energy generation purpose.

Enri Damanhuri - I Made Wahyu - Ruslan Ramang Tri Padmi (2009)² The total waste reduction before arrival at the final disposal site is about 48% (wet weight) of overall waste generation for the Bandung metropolitan area. However, this reduction is not the result of waste recovery activities, but mostly due to improper waste handling.

Kapil Dev Sharma (March 2019)³ It can be safely concluded that due to rapid urbanization, industrialization, population growth, and economic development, the amount of waste production in India has increased significantly. The waste composition also changed in last 2 decades of economic growth since 1996. The MSWM system in India is not appropriate due to its dependence on insufficient waste infrastructure, the informal sector, and open waste dumping.

Tanya Chhabra, Anamika Paul, Mimansa Gulati (2014)⁴ Municipal solid waste and its management is a big concern for India these days. Due to rapid growth of urban population, as well as constraint in resources, the management of solid waste poses a difficult and complex problem for the society and its improper management gravely affects the public health and degrades environment.

Objectives of the Study

- To understand environmental and health impacts of improper MSWM.
- To know Recent Scenario of Municipal Solid Waste Management in Karnataka State.
- Implementation of Municipal Solid Waste (Management and Handling) Rules, 2000 in Karnataka.

Methodology

The study is based on secondary data. Data is collected from sources like working papers, journals, articles and internet etc.

Environmental and Health Impacts of Improper MSWM

The decomposition of waste into constituent chemicals is a common source of local environmental pollution. This problem is especially acute in developing nations. Very few existing landfills in the world's poorest countries would meet environmental standards accepted in industrialized nations, and with limited budgets there are likely to be few sites rigorously evaluated prior to use in the future. The problem is again compounded by the issues associated with rapid urbanization. A major environmental concern is gas release by decomposing garbage. Methane is a by-product of the anaerobic respiration of bacteria, and these bacteria thrive in landfills with high amounts of moisture. Methane concentrations can reach up to 50% of the composition of landfill gas at maximum anaerobic decomposition. A second problem with these gasses is their contribution to the enhanced greenhouse gas effect and climate change. Liquid leachate management varies throughout the landfills of the developing world. Leachate poses a threat to local surface and ground water systems. The use of dense clay deposits at the bottom of waste pits, coupled with plastic sheeting-type liners to prevent infiltration into the surrounding soil, is generally regarded as the optimum strategy to contain excess liquid. In this way, waste is encouraged to evaporate rather than infiltrate.

There are potential risks to environment and health from improper handling of solid wastes. Direct health risks concern mainly the workers in this field, who need to be protected, as far as possible, from contact with wastes. There are also specific risks in handling wastes from hospitals and clinics. For the general public, the main risks to health are indirect and arise from the breeding of disease vectors, primarily flies and rats. Uncontrolled hazardous wastes from industries mixing up with municipal wastes create potential risks to human health. Traffic accidents can result from toxic spilled wastes. There is specific danger of concentration of heavy metals in the food chain, a problem that illustrates the relationship between municipal solid wastes and liquid industrial effluents containing heavy metals discharged to a drainage/sewerage system and /or open dumping sites of municipal solid wastes and the wastes discharged thereby maintains a vicious cycle including these some other types of problem are as follows:

- Chemical poisoning through chemical inhalation
- Uncollected waste can obstruct the storm water runoff resulting in flood
- Low birth weight

- Cancer
- Congenital malformations
- Neurological disease
- Nausea and vomiting
- Mercury toxicity from eating fish with high levels of mercury
- Plastic found in oceans ingested by birds
- Resulted in high algal population in rivers and sea.
- Degrades water and soil quality.

Waste Generation in Karnataka State

Approximately 11,085 tonnes of solid waste is generated per day in Karnataka, of which 6,817 tonnes per day which accounts for 61.5% is being processed, the Central Pollution Control Board informed the Southern Zone of the NGT. The total solid waste generated in the state, total 1,250 tonnes per day (11.2%) is put in landfills, said the Board.

The Southern Bench of the NGT, which is hearing a case related to pollution of Ulsoor lake in Bengaluru lake, also asked the CPCB to submit an independent report about the state government's compliance report on the Green Bench's earlier direction about solid waste management in Karnataka. The total 316 urban local bodies, 284 local bodies have initiated door-to-door collection of waste, while the remaining ULBs were in the process of initiation. The state has 217 plastic waste recycling units which have a combined capacity of 310 tonnes per day. There are a total 216 composting units in the state with a combined capacity of 5,834 tonnes per day.

The state doesn't have waste-to-energy facilities. However, a 600 tonne-per-day (11.5 MW) waste-to-energy plant is being built by BBMP and Karnataka Power Corporation Ltd (KPCL) at Bidadi and 200 tonne-per-day plant by NTPCL at Dharwad City Corporation, the affidavit said.

Knowledge of the sources and types of waste in an area is required in order to design and operate appropriate solid waste management systems (Table-1).

Source	Typical Waste Generators	Types of Solid Wastes
Residential	Single and multifamily dwellings	Food wastes, paper, cardboard, plastics, textiles, leather, yard wastes, wood, glass, metals, ashes, special wastes (e.g., bulky items, consumer electronics, white goods, batteries, oil, tires), and household hazardous wastes
Industrial	Light and heavy manufacturing, fabrication, construction sites, power and chemical plants	Housekeeping wastes, packaging, food wastes, construction and demolition materials, hazardous wastes, ashes, special wastes
Commercial	Stores, hotels, restaurants, markets, office buildings, etc.	Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes
Institutional	Schools, hospitals, prisons, government centers	Paper, cardboard, plastics, wood, food wastes, glass, metals, special wastes, hazardous wastes
Construction and demolition	New construction sites, road repair, renovation sites, demolition of buildings.	Wood, steel, concrete, dirt, etc
Municipal services	Street cleaning, landscaping, parks, beaches, other recreational areas, water and wastewater treatment plants	Street sweepings; landscape and tree trimmings; general wastes from parks, beaches, and other recreational areas; sludge
Process	Heavy and light manufacturing, refineries, chemical plants, power plants, mineral extraction and processing	Industrial process wastes, scrap materials, off-specification products, slag, tailings

As is shown in the above table, MSW includes wastes generated from residential, commercial, industrial, institutional, construction, demolition, process, and municipal services. However, this definition varies greatly among waste studies, and some sources are commonly excluded, such as industrial, construction and demolition, and municipal services. Most often only residential waste is referred to as MSW.

Implementation of Municipal Solid Waste (Management and Handling) Rules, 2000 in Karnataka

The Municipal solid waste (Management & Handling) Rules, 2000 has been enacted under the Environment (Protection) Act, 1986 vide notification No.S.O.908(E) of MoEF, New Delhi, dtd.25/09/2000. The said Rules prescribe the responsibility of various agencies under section (4), (5), (6) & (7). The responsibility of the State Board under section 6 (3) is to issue authorisation (means consent as per definition) to the Municipal authority or an operator of the facility stipulating compliance criteria and the standards.

- **Rule (4) - Stipulates Responsibility of Municipal Authority**
 - “Every Municipal authority shall, within the territorial area of the municipality, be responsible for the implementation of the provisions of these rules, and for any infrastructure development for collection, storage, segregation, transportation, processing and disposal of municipal solid waste”.
- **Rule (5)- Stipulates Responsibility of the State Government and Union Territory Administrations**
 - “The Secretary -in charge of the department of Urban Development of the Concerned State or the Union territory, as the case may be, shall have the overall responsibility for the enforcement of the provisions of these rules in the metropolitan cities.
 - “The District Magistrate or the Deputy Commissioner of the Concerned district shall have overall responsibility for the enforcement of the provisions of these Rules within the territorial limits of their jurisdiction”.
- **Rule (6) - Stipulates Responsibility of Central Pollution Control Board and State Pollution Control Board**
 - The State Pollution Control Board shall monitor the compliance of the standards regarding ground water, Ambient Air, leachate quality and compost quality including incineration standards as specified under schedule II, III & IV.
- **Rule (7) – Management of municipal solid waste**
 - Any municipal solid waste generated in a city or a town, shall be managed and handled in accordance with the compliance criteria and the procedure laid down in schedule-II.
 - The waste processing and disposal facilities to be set up by the municipal authority on their own or through an operator of a facility shall meet the specifications and standards as specified in schedules III & IV.

The Status of Municipal Solid Waste Management in Karnataka

The total numbers of Local bodies (LBs) in Karnataka are as follows:

• Local bodies	- 218
• BBMP	<u> 01</u>
	219

Local bodies' details are as follows;

City Corporations	– 07*
City Municipal Council	– 44
Town Municipal Council	– 94
Taluk Panchayats	– 68
Notified Area Committee (NAC)	– 05*

(*1. Gokak Falls, 2. Kudremukha, 3. Pachanaday, 4. Jappinamogaru & 5. Bheemaranagudi) **218**

* Viz., 1.Davanagere, 2.Mysore, 3. Mangalore, 4.Belgaum, 5.Hubli-Dharwad, 6. Bellary & 7. Gulbarga.

Conclusion

MSWM system in India is unsatisfactory. Although the economic condition of our country is poor, we have to handle the problem for the benefits of the whole public. To tackle the problems with maximum possible effectiveness, the country should develop area-specific solutions to their problems in the management of MSW. Most importantly we cannot ignore the fact that the country is progressing towards developing sound institutions and proactive policies regarding MSW. The way forward is to build on the strengths and work on the weaknesses of the current system. This analysis suggests a number of priority actions to move towards an increasingly integrated and sustainable MSWM system.

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