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ANALYSIS OF SOLID WASTE COMPOSITION IN VIJAYANAGAR ZONE, BANGALORE CITY

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Abstract

Rising solid waste is one of the most critical environmental problems in Bangalore city. Inappropriate management of solid waste will source for many problems. Cumulative solid waste, lack of separation from the source, and absence of information and perception about reprocessing have only degenerated the problem. Information on solid waste generation and composition are essential for correct choice construction in the management strategy of municipal solid waste. the main aim of this paper is to Measure the solid waste management composition in Vijayanagara Zone, Bangalore city in the year 2017-18. This study has been done by using primary data and secondary data. Secondary data was collected from Bangalore City Corporation and ward offices of Vijayanagar zone. Formed on this evidence, an appropriate waste management system can be familiarized to treat the solid waste further proficiently.

Keywords: Solid Waste; Composition; Environmental. Vijayanagara Zone

Introduction

Waste is a frequently increasing problem at global, regional, and local levels and one of the most obstinate problems for local authorities in urban hubs. With nonstop economic growth and refining living standards, the demands for goods and facilities are cumulative quickly, subsequent in an equal growth in per capita waste generation (Narayana, 2008). An important aspect of the city and disposal of solid waste was only two prominent vegetable markets like K.R market and the Russel market exclusively supplying bio-degradable waste to the lonely compost manufacturing unit at Bommanahalli industrial area (Eswarappa B. and I.N.Patil, 1986).

Towns and cities are points of consumption of a variety of both raw materials and finished products. Generally, agricultural raw materials like fruits and others like cotton wool, etc are processed in factories with items like tobacco which get convert into cigarettes sometimes cereals like wheat get transformed into hundreds of by-products also into wheat flour biscuits, and loaves of bread and others. Fruits form final products like jam with curd into yogurt which uses aluminum foil paper and plastic are used in large quantity which alternately turns into solid waste. This kind of non-biodegradable solid waste is on the rise with the growth of the population and also increasing consumerism.

Off-late the Mall culture has picked up as an Indian city like Bangalore in a big way contributing enormous quantity of non-biodegradable solid waste. Cities like Bangalore in India have a different composition of urban solid waste compare to western cities like Paris, London, and New York.

In the case of Indian cities, a huge quantity of wet waste generated from hotels, fruit/ ice cream parlors, and other eateries get piled up and become mixed waste. Only selected big markets to segregate wet waste and send it to compost making units. Whereas in western cities particularly cities like western Europe and North America both domestic and hotel industry segregate it and send it to compost making while dry paper and paper board plastic material ends up into recycling. But unfortunately, in most mega cities this kind of systematic segregation and converting into useful materials is rather limited. A large quantity of domestic waste still goes as mixed solid waste. It is creating problems at levels of collection, transportation, and even disposal. Hence, there is a need for the systematic study of the composition of urban solid waste into wet, dry, biomedical E-waste, and other types. This has to be done systematically at the ward level in each urban area. This further helps in the management of solid waste. Unfortunately, non-availability data on one hand and still emerging new type of solid waste like E-waste demands the need for a systematic analysis of the study of the composition of urban solid waste and also its sustainable management.

On the other side of the scenario of solid waste management, cities like Bangalore, Chennai, Mumbai, New York, Shanghai have vast metal-based industry and automobile industries. Some of them have huge granite processing units and hundreds of electroplating dispose of their waste both solid and liquid (chemical) into the streets and nearby water bodies causing environmental problems. In this chapter, this kind of solid waste is not under consideration. However, formal types of domestic solid waste, commercial solid waste, and others are in the detail of the Vijayanagara zone.

Study Area

It has an area of 8.4 sq. km (1.06 of Bangalore city Corporation area of 709.4sq.km consisting of eight municipal wards six of them lie in the south zone of Bangalore city and the other two lie in the adjacent west zone Magadi road and joins Mysore road southwestern end of the study area. This Vijayanagar zone has a total population of 3,24,375 which accounts for 3.84%. In Bangalore city total population of 8,443,675 (8.4 million). Bangalore city physiographical is a part of south-central Deccan peninsula particularly falling into the southern plateau of Karnataka. Locally it has hills and valleys topographically with granite with genesis hard rock terrain. The study area lies to the southwestern part of Bangalore city into vrishabhavathi valley flows from north-east to south-west.

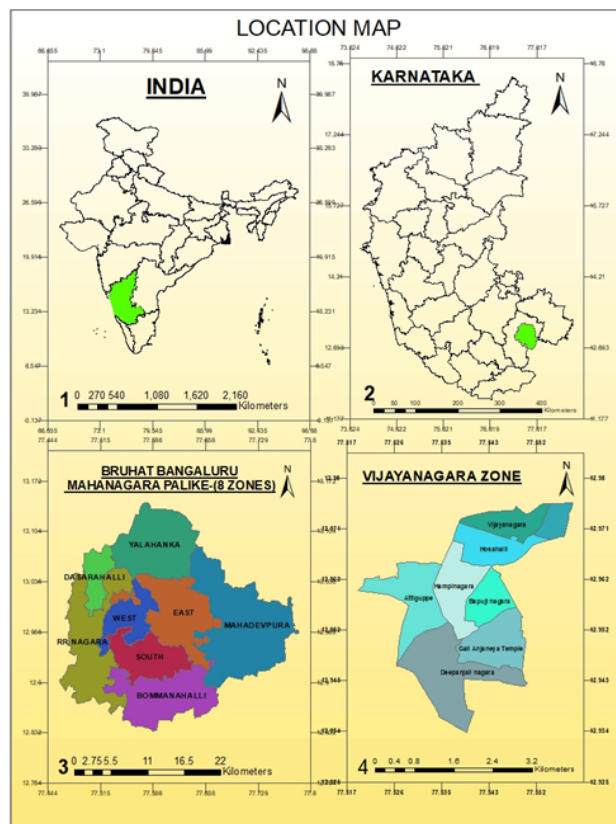


Fig. 1. Study area Location Map of Vijayanagara Zone, Bangalore city

Objective

- Measure the solid waste management composition in Vijayanagara Zone of Bangalore city in the year 2017-18.

Methodology

There is a certain amount of comparative study in the solid waste aspects of Vijayanagar with the bigger Bangalore city. This has been done by using primary data and secondary data. Secondary data was collected from Bangalore City Corporation and ward offices of Vijayanagar zone. To collect systematic data in the study area regarding solid waste generation, segregation into wet and dry waste at the residential level about 1% of systematic random sampling has been employed. Householders have been interviewed. Then selected households have been approached through the questionnaires.

Results and Discussion

Present study area of Vijayanagara zone is a major part of Southwestern zone (Six wards) with a small portion also comes under Western zone (two wards). In terms of

area, this zone with its eight wards accounts for 1.06% is Bangalore city area (BBMP) also in terms of population it accounts for 3.4% in 2011. As per the BBMP estimate, the Vijayanagara zone produces around 166tpd of solid waste. This zone has been already mentioned as more or less predominantly residential areas with a few major roads which have commercial establishments.

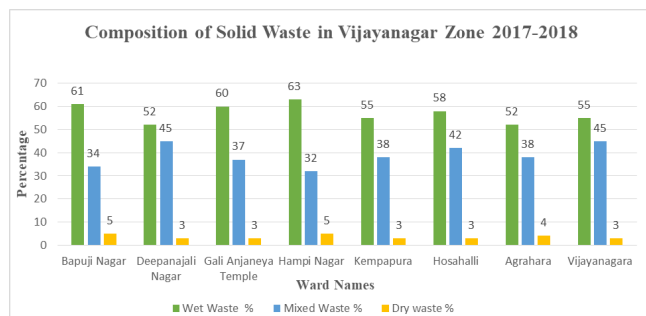


Fig. 2. Composition of Solid Waste in Vijayanagar Zone 2017-2018

The major road is west of cord road passing through the zone there are few hotel establishments and medical institutions. However, in this detailed study of solid waste in the Vijayanagara zone, an attempt has been made to provide ward wise scenario of the composition of solid waste. In the present investigation, an effort has been done to look into the composition of solid waste in the Vijayanagara zone.

Figure 2 depicts the composition of solid waste i.e. wet waste, mixed waste, and dry waste in Vijayanagar zone 2017-2018. E-waste and other store waste are not available in Vijayanagara Zone.

Figure 3 shows Attiguppe ward comprises 61% of wet type of solid waste 34% of mixed type of solid waste and 5% of domestic level biomedical waste. Bapujinagar ward comparatively produces 52% of wet waste 45% of mixed waste which also the second-highest mixed waste-producing ward in the Vijayanagara zone and biomedical waste account for 3%. Deepanjalinar solid waste comprises 60% of wet waste 37% of mixed type of solid waste and 3% of biomedical waste in the total domestic solid waste of this ward. Galianjaneya Temple ward accounts for 63% of wet waste, 32% of mixed waste generated in this ward, and contribute 5% of its solid waste in the form of dry waste. Hampinagara consists of 59% of wet waste produces within the ward. Mixed waste produce in this ward accounts for about 38%. Hosahalli Ward's total solid waste about 58% of wet waste, 38% of its total solid waste consists of mixed solid waste at the domestic level, and consist of 4% of the dry type of solid waste. Kempapura Agrahara Ward consists of 52% of wet waste, 45% of mixed waste, and 3% of dry waste in its total solid waste. In the Vijayanagara ward, about 55% of solid waste is wet waste. About 42% of its total solid waste is mixed type coming from residential areas

of Vijayanagara and dry waste constitutes only 3% of its solid waste.

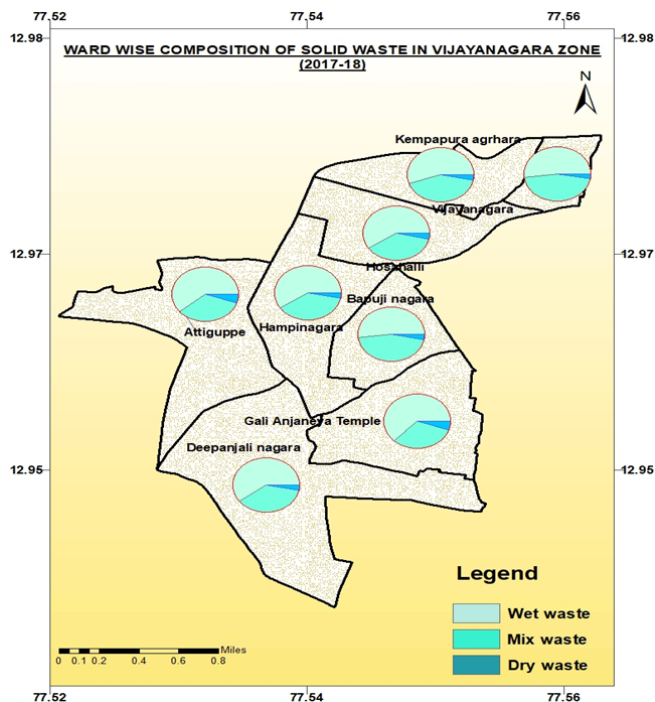


Fig. 3. Ward wise composition of solid waste in Vijayanagara zone 2017-2018

Conclusion

The aforementioned aspects have been discussed for eight sub wards of the Vijayanagara zone like Attiguppe, Bapujinagara, Deepanjalinar, Galianjaneyatemple, Hampinagara, Hosahalli, Kempapuraagrarahara, and Vijayanagara Bangalore city still follows the age-old method of collection of solid waste with marginal changes. The collection of solid waste including the Vijayanagara zone is being done by a pool of grass-roots level municipal workers which are popularly known as pourakarmikas. Vijayanagara zone as a whole in terms of composition generates 37% wet waste consisting of vegetable fruit and other left-overs of greens at the domestic level, whereas 63% of solid waste generation falls into the dry category consisting of waste paper, package materials, paper boards, plastics and other dry items which are derived mostly from commercial establishments. The study area receives a very small quantity of dry waste coming from malls and commercial areas go to paper mills still hardly any concept of pellet making by blending city solid waste with other combustible items for thermal electricity needs to be done. This rising menace of urban solid waste must be tackled both by public and local governments on priority keeping the total environment in view.

Table 1. Composition of Domestic Solid Waste in Vijayanagar Zone 2017-18

Sl.no.	Ward no.	Ward Name	Wet Waste		Mixed Waste		Dry waste		Total(TDP)
			TDP	%	TDP	%	KGS	%	TDP
1	132	Attiguppe	9.25	61.0	5.25	34.0	750	5.0	15.25
2	134	Bapuji Nagar	8.50	52.0	7.50	45.0	500	3.0	16.50
3	158	Deepanajali Nagar	10.50	60.0	6.50	37.0	500	3.0	17.50
4	157	Gali Anjaney-a Temple	8.40	63.0	4.30	32.0	700	5.0	13.40
5	133	Hampi Nagar	8.50	59.0	5.50	38.0	500	3.0	14.50
6	124	Hosahalli	9.70	58.0	6.30	38.0	700	4.0	6.70
7	122	Kempapura Agrahara	8.50	52.0	7.50	45.0	500	3.0	16.50
8	123	Vijayanagara	8.50	55.0	6.50	42.0	500	3.0	15.50
			71.85		49.35		4650		115.85

Source: compiled by Health inspectors BBMP Vijayanagara 2017-18.

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