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A CONCEPTUAL STUDY OF STRATEGIES FOR THE EFFECTIVE DISPOSAL OF SOLID WASTE IN BANGALORE CITY

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ABSTRACT :

Bangalore city is 5th largest city in India. It has 1.2 crore population in an area 704 km^2.There are 198 wards which have about lakh households. They generate 4 to 5 thousand tones of solid waste per day. Collection and disposal is becoming unmanageable owning to the very size of the solid waste generated on one hand and lack of coordination and mismanagement of the BBMP perennial in handling solid waste. The issue is looked conceptually from handling solid waste to disposal. Emphasis is laid on the issues related to base level workers (Powerkarmikas) comprehensively keeping their participation lifting and disposal of solid waste.

KEYWORDS : *Bangalore city-BBMP-Solid waste wet and dry-E-Waste-Biomedical waste-Disposal sites-W2E-Reduction of land filling*.

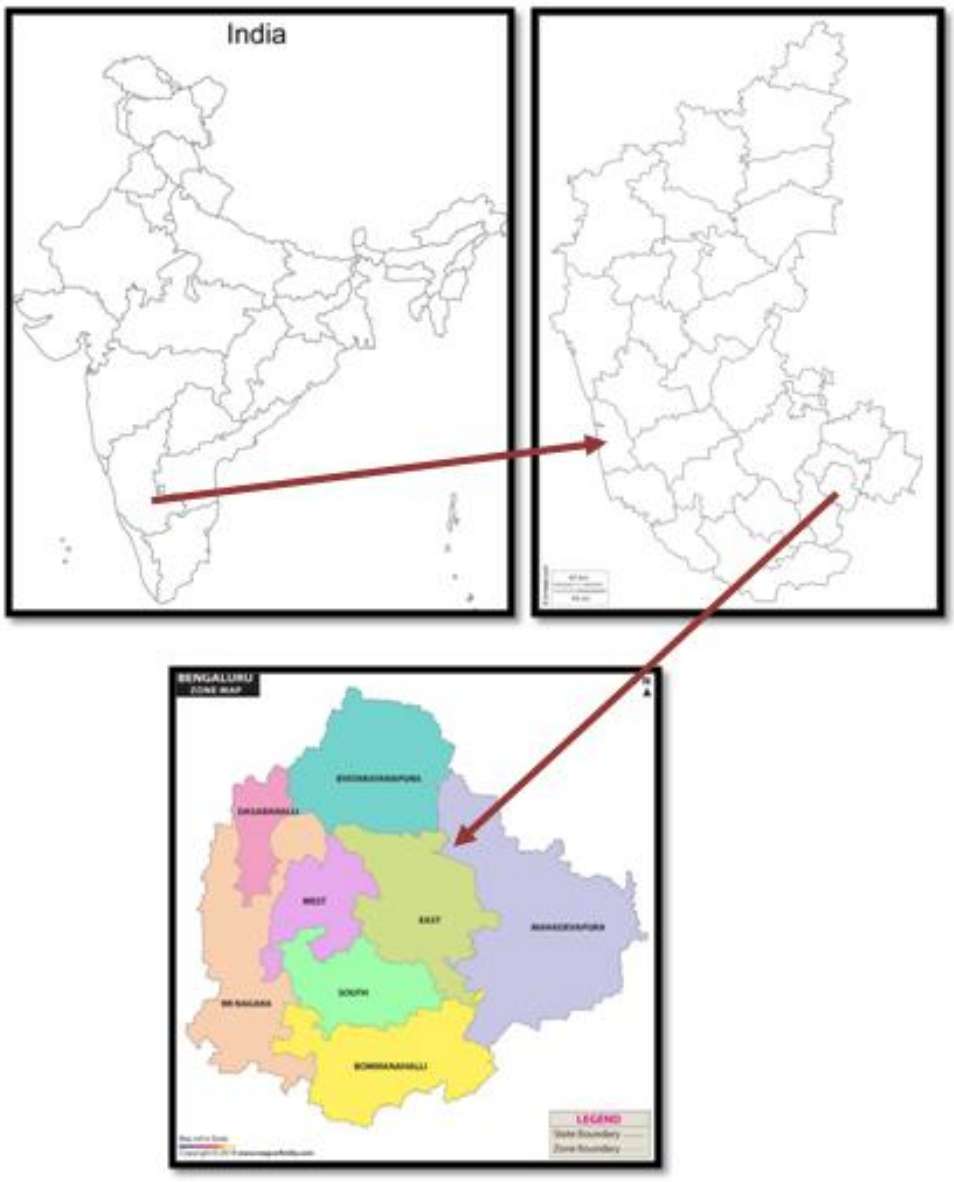
INTRODUCTION

World Urbanization as crossed 50% mark an average. Though this constitutes varying levels and degree of urbanization there is one universal problem face by urbanites is management of solid waste. Western cities with quality and manageable sizes of urban population have tackled the issue of solid waste in a better way. Whereas third world urban giants like China, India, Brazil and many more have unsustainable ,environmentally harzdious dimensions of urban solid waste coming to India the scenario as reach critically and how it is thrithaning the respective urban populations. Solid waste related issues like growing mountains of solid waste Delhi (Gazapuri) ;Mumbai (Deonur).

Whereas Cities like Bangalore are strangling to find land to fill their huge rising amount of solid waste (4000 to 5000 tons per day) in 2016. Even if they have Govt. lands for land filling sites nearby urban villages are constantly resisting the dumping of solid waste. This is mainly due to the problems associated solid waste disposal like foul smell, the leaking latchete, BBMP worries carrying solid waste to their sites create noise, dust and other environmental hazardous even during night hours. Bad smell Latchet reaching ground water as already cause health problems to the near bay villagers. Off-Late BBMP as woken up to rising land filling associated problems and consequent. resistant local people as started same measures to tackle there issues(source level Segregation of solid waste initiation of compost manufacturing in more than one location seeking people participation in zonal level management of solid waste and the like. But problem still persists due to nested interest by contractors

and even some BBMP official who have not understood the dangers of unattended solid waste both at the source region and at disposable locations. There is a need for not only simple segregation of wet and dry waste but also segregation of biomedical waste and E-Waste for the sustainable management of solid waste. This need to be talkeled at zonal level without leveling anything that needs to sustain like Surat city in Gujarat, which as learnt a costly lesson know provides a good example a effective management of urban solid waste.

STUDY AREA:



Map 1: study area map of Bengaluru city (Eight BBMP zones).

For the purpose of the study Bangalore City Corporation area has been considered. It has eight zones comprising totally 198 municipal / Corporation wards (See figure No.1).It as area of 704km^2. There are Eight Ward zone stable no.1shows some important aspects of their zones. Bangalore City is probably the fastest growing metropolitan city of India. It is 5th largest in terms of population. It is one of the leading industrial cities in India. It is a home for information (IT) and Biotechnology (BT)

Industries with title of silicon valley of India a site exports nearly 60% of software's produce in India annually Since,1985 this IT, BT and a vast of other big and small industries like HAL, BEL, Vovlo, Kirloska Toyota within BMRDA have increased the interaction of Bangalore city with other nations in the world. As a consequence the cities is become third largest air transportation center next Delhi and Mumbai in India.

In consequence to all there in the recent years there is rise in commercial malls, five star hotels, No. of health care institutions and educational institutions. Thereby the city has become knowledge capital of India. As per 2011 census it has a population of 1.2 crore population with a total households of 2,01,831.Now City Produces around 4 to 5 thousand tons of solid waste and city is strangling to manage the solid waste.

OBJECTIVES:

Present research investigation as some of the following objectives they are

1. The main objectives is to looking to methods adapted to manage the urban solid waste over the years in Bangalore City.
2. Another important objectives to identify and suggest highly viable methods and strategies for the comprehensive utilization urban solid waste.
3. One of the objectives is to provide spacio-tempral scenario solid waste.

NEED FOR THE STUDY:

In cities like Bangalore problems of solid waste is getting environmentally hazardous level. Apart from creating an ugly right uncleared solid waste in several locations is creating foul smell multiplication of rodents, fries problem of lactht. Often these things happen very close to water tanks (Attipguppe), schools, Eaterians, temples with in densely populated residential blocks. Hence, this study.

STRATEGIES:

The Waste to Energy (W2E) plants are an urgent necessity for Bangalore not only does the city's ever increasing waste requires disposing off but the considerable pressure on landfill sites also decreases. Technical solutions definitely need to be adopted while BBMP's waste collection needs streamlining. About 150-200 tons of garbage is normally required to feed a 5MW plant Bangalore generates an estimated solid-waste of around 4500 tons per day. An ideal quantity to run W2E plants. Each of the proposed waste to energy units would consume 200-500 tons of garbage, take only segregated waste and have a mix of burn technology for the dry waste and biomethanization for the wet waste whereby organic material is micro-biologically converted to biogas.

Establishment of W2E plants is one of the viable options before BBMP which must be taken up with pripority. For which world leader in W2E Sweden must be consulted. Though Sweden is importing dry solid waste for its 20 and odd energy plants, it has the right technology regarding using mix solid waste for thermal power generation.

The Gradual reduction of land filling in Bangalore city. At present there are seven active land filling site for the daily generated 4500-5000 metric tonnes solid waste. Vartualy there is a fight between the locals and BBMP officials on dumping solid waste in their seven location (Kannahalli, Bellahalli, Seegehalli, Doddabidarakallu, Lingaderenahalli, Subrayanpalya, Chikanagamagal one of the localities the locals created a blocked and about 60-80 BBMP compactors standard for two in the same locality villagers complain headache, vomiting due to foul smell bad odor and lactate from their garbage. Fill compactors entered village lands. BBMP given assurance of stopping dumping in the near future. But now How BBMP is going to reduce or stop landfilling is a wonder. This required total segregation of solid waste at sources and all wet waste must be compared in different viable locations and dry waste must be used for compalsularily W2E as discussed short while ago.

BBMP ZONES AND THEIR SOLID WASTE RELATED ASPECTS 2017-18

Sl. no.	Zones Name	No. of Wards	Area (km2)	%	Population	%	Solid Waste generation (TPD)	%
1	Bommanhalli	16	97.7	13.89	11,01,557	12.17	656	11.96
2	Bangalore East	44	91.7	13.00	16,73,257	18.49	1,036	18.89
3	Bangalore South	45	61.2	8.69	21,24,691	23.48	1,271	23.18
4	Bangalore West	43	49.2	6.98	15,35,666	16.97	965	17.60
5	Dasarahalli	8	27.9	3.96	4,96,684	5.49	298	5.40
6	Mahadevapura	17	171.4	24.30	7,81,685	8.64	590	10.76
7	Rajarajeshwarinagar	14	100.8	14.30	7,86,685	8.69	339	6.18
8	Yelahanka	11	104.3	14.80	5,45,799	6.03	327	5.96
	Total	***198***	***704.2***		***9,046,024***		***5,482***	

Table 1: BBMP zones and their solid waste related aspects 2017-18.

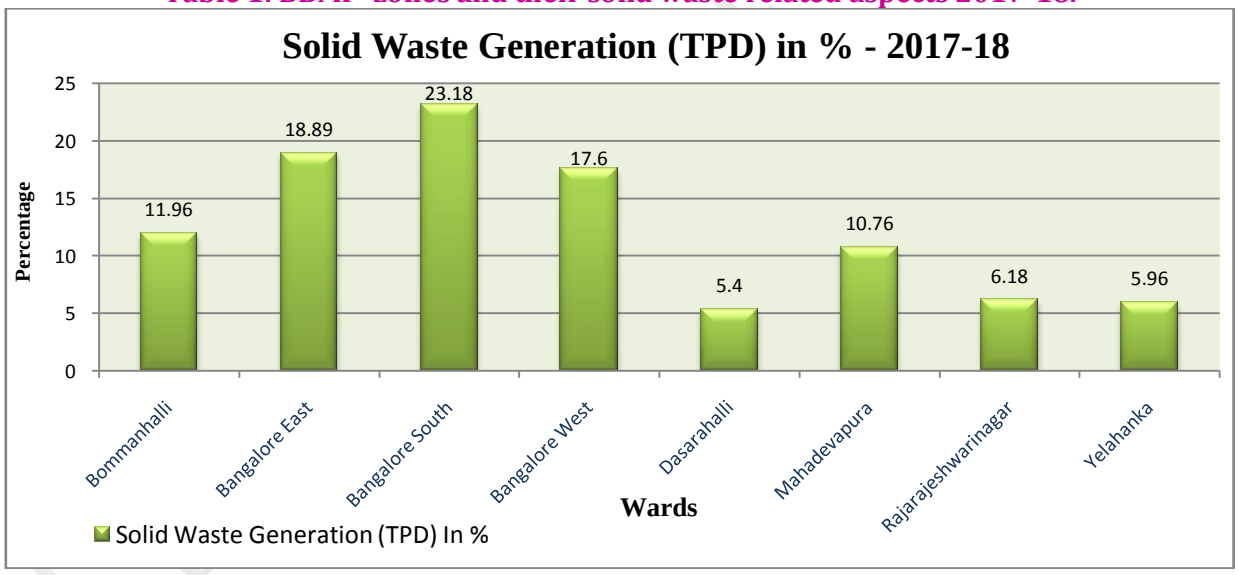


***Figure 1*: solid waste generation (TPD) in percentage, 2017-18.**

There is no systematic collection transportation to sorting locations of bio-medical waste like general solid waste this biomedical waste collection and disposal through significantly created suitable incriminators is also required for Bangalore. Though big medical centers are having some amount of systematic disposal of biomedical waste but the rest of cities residential waste and small clinics bio-medical waste need to be establish incinerators along with their much to be done for deposal of e-waste there are hardly any technologically Environment Friendly methods of disposal and safe disposal places. In most of Indian cities the requravary and disposal of refuse E-waste needs to significantly

studied. This is mostly required in these days of rising consumption of mobile phones, T.V's, Refrigetors, Air conditions and the like.

In the recent years the tonnage of solid waste generated across this fast growing Bangalore City has become unmanageable. This is mainly due to the vast area of the city (704 KM^2), No of the wards (198),with households 2,101,831 and population of more than 1.2crores, along there factors the no of powarkarnmikas (actual garbage lifters 20000 BBMP and contractors) No of compactors 284 BBMP officials, contractors are growing by the day. Still the problem is so enormous and getting actual everyday because of lack of coordination between officials and ground level workers. Though this issue can be fixed but unfortunately, the intervention of corportors and politicians with vested interest for financial gains making things worst.

For the effective disposal of solid waste human resource involved must be treated with environmental consequences of not effectively collecting and disposing solid waste. BBMP must awake before the happening of Surath like situation with due respect to some municipal corporators and other concerned officials who are handling the solid waste. Most of the corportors and some higher officials are trying to make money out of the solid waste particularly even with holding the salaries of base level workers, this is highly deplorable.

There is a need to provide some amenities to these base level workers who are doing essential and important civic job of managing solid waste. They are always working in a health hazard situation.

They must be provided with

(a) Soon after their work bath room facility with quality portal water

(b) They must be compulsorily covered with suitable insurance so that after doing lifting and disposing of garbage throughout their life must have some comfortable financial position.

(c) Most of the powerkarnikas are not provided with residential accommodation. This must be looked into facilitate them to attend their work by computing short distance from their home to work.

(d) Existing medical facility must be much more accessible and of free of cost to these powerkarmikas and to their family members.

(e) Powerkarmikas children should have reservation in good educational institutions not simply done into poor quality municipal schools.

CONCLUSION :

In the recent years Bangalore city is having nagging problem of solid waste disposal. Its daily production of 5000 tpt of solid waste offers is not lifted and disposed properly. There are problems at managing base level workers with the unnecessary interference of carporetors, politicians and BBMP officials. There are rampant allegations of misusing of funds earmarked for the basic civil work. There is an urgent an must job of looking at the issue of solid waste disposal environmentally.

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