

CHALLENGES OF MUNICIPAL SOLID WASTE MANAGEMENT IN HYDERABAD METROPOLIAN CITY

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Abstract:

Municipal solid waste management is a big challenge to every municipality in India up to now. According to constitution amendment Act of 1992, urban local bodies (ULBs) are accountable for maintenance of cities and towns clean. So ULBs adopted different methodologies in cities but still finding it as challenging task because of insufficient infrastructure, institutional loopholes, lack of funds by all ULBs, other reasons were increasing population, changing habits of people buying capacity, modern life style, lack of awareness, political reasons for failures in strict implementation of policy. Because of these constraints most of the municipalities encouraging private sector participation in MSW management but still finding challenging by municipalities especially Hyderabad municipal corporation. So in this manuscript we try to get better solutions for MSW management by surveying on above said issues.

Key words: Municipal Solid Waste, TPD, urban local bodies, GHMC, Population

INTRODUCTION:

As modern humans we are disturbing the harmonious relation between us, other forms of life and nature. Leading to environmental problems, humans cause lot of impact on human life. Environmental imbalances in metropolitan is created by several factors one of the major cause was accumulation of municipal solid

MSW CATEGORIZED IN TO

waste (MSW), after industrial revolution and urbanization MSW become a main difficulty for all ULBs in 19th century. Because of increasing population in metropolitan cities, increasing buying capacity of citizens in metropolitans leads to increasing of shopping malls, restaurants, for easy carrying purpose non biodegradable plastic covers usage, use and through habit of people, as a status symbol buying of new models or latest market entry products without requirement, less availability of land for the dumping of waste. All together rapid increment in the amount of MSW and also changes in the characteristics of MSW.

MSW is properly managed by following steps

1. Suitable separation of MSW at source i.e is at house hold level, commercial level etc.
2. Proper storing at convenient point to transport
3. Proper transportation vehicles, paths without spillage.
4. Recovery technologies, waste volume reduction technologies, recycling technologies, waste treatment technologies.

All these efforts will trim down the requirement of dumping land area, effective management of dump yard ultimately green house gases reduction and toxins reduction. But it does not happening hundred percent effectively in Hyderabad. Finally some amount of MSW end up with polluting air, soil, underground water and also surface water bodies.

Basic category



- Biodegradable(food,kitchen waste, fruit waste,garden waste etc)
- Non biodegradable(plastics)

Toxic waste category



- Toxic waste(leftover paints,expired madecines,cleaing agents etc)
- flammable waste(expired perfumes and body sprays etc)
- inert waste(construction and demolition waste,dirt from street sweepings etc)

Recover category



- Reusable (cloths,toys,old model furnituer etc which needs second hand market provision)
- Recyclebale(glass,pet bottles, tinnns,metals,paper,thermoplastics etc..)

MSW has become a major environmental issue in developing countries. Different waste materials produced due to several human activities. GHMC is one of the largest urban corporation in India with a population of 6.9million and an area of 625 km² Currently 5500 to 6000 tons of MSW generating per day, which is collected ,transported to the municipal solid waste recycling facility located in Jahwar nagar Village.This landfill is located 50 km north-east of Hyderabad.Since 2007, garbage has been dumped in to the 339 acers of Jawhar Nagar area, which is located within the Kapra Mandal, Medchal district, Telangana state, India.Now that all the old rubbish has been moved to a 125 acre land fill,Scientific capping is being done through the M/S HiMSW calling as legacy dump.Hi MSW limited ,which has developed,operated a integrated cleaning and disposal facility under the concessionaire agreement withGHMC. The daily leachate generate from municipal solid waste is processed by M / s HIMSW with a local RO station with a capacity of 600 KL.

Although Hyderabad is facing major troubles because of generation of more leachate in rainy season and incur high price of infrastructural facilities. During this period, ground water quality deteriorated due to improper outflow management.

In Hyderabad, there are still illegal dumping is done through the tippers and trolley at some places. Even though high fine imposed by GHMC on such activity

up to 2,000 to 10,000 Rs, for these illegal dump sites, posing health risks to residents in their vicinity.MSW (Management & handling)Rules 2000,in addition to appropriate recycling and disposal, recommend collecting or transporting source-specific waste.

In this context, this work discusses the potential improvement in handling the waste and how to reduce the amount of waste generation by public awareness. And decentralization of work also reduce the burden on ULB.GHMC is implementing waste to energy project still some gaps there in the current MSWM system this paper address those gaps and possible solutions to bridge the gaps.

HYDERABAD SCENARIO:

The city of Hyderabad is located in the center of Telangana, on the Deccan Plateau, at an average altitude of 536 meters above sea level.(17.366°N latitude and 78.476°E longitude). Since the 1980s, Hyderabad has enjoyed the reputation of being a fastest developing city in Asia [3]. Sixth leading city in India However, with an increased population level, rapid economic growth, and a rise in community living standard, the rate of MSW emergence is accelerating in the capital cities. Local authorities are struggling to ensure a proper solid waste management system up to a satisfactory level.

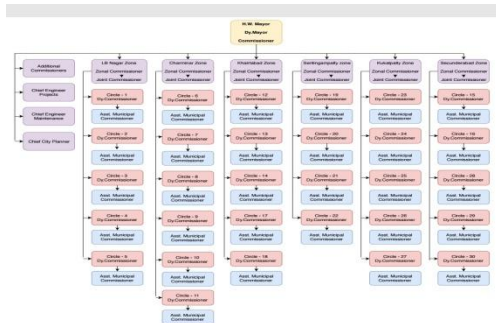
Recently the authorities have taken initiatives and measures to organize the MSWM sector. The research will help to identify the techniques suitable for the current scenario, the gaps in the adopted methods, and the possible alternatives.

URBAN LOCAL BODY OF HYDERABAD

The ULB of Hyderabad is named as Grater Hyderabad Municipal Corporation. It is the local self –government of the cities of Hyderabad and Secunderabad. It is one of the largest urban corporations in India. It covers four districts Hyderabad, Ranga Reddy, Medchal, Malkajgiri and sangareddy. The city of Hyderabad has divided in to six zones Charminar, L.B Nagar, Serilingampally, kukatpally, secunderabad and Khairatabad each zone is further divided in to 30 circles each circle divided in to wards. It consists of 150 wards and 150 elected members called as corporators, each representing a ward .Mayor along with deputy mayor was chosen by winning party for a 5 years term as top administrators

of Greater Hyderabad Municipal Corporation. The GHMC has regular and outsourcing employees governed by the commissioner. He must be an IAS officer appointed and deputed by government of Telangana responsible for duties and functions. Solid waste collection and disposal of Hyderabad is most challenging responsibility among all those.

Figure: 1 GHMC organizational chart (source GHMC web site)



LITERATURE REVIEW

Rajkumar Joshi1 and Sirajuddin Ahmed1(2016), According to planning commission report changes in composition MSW ,almost biodegradable waste ,metal waste ,glass waste generation was constant from 1996 to 2011but paper ,plastic and rubber wastes were increasing significantly.

Da ZhuP. U. Asnani Chris Zurbrügg Sebastian Anapolsky Shyamala Mani (2008)The Ministry of environment and Forest provides financial subsidies of up to 50 %of capital expenditures for the establishment of pilot display stations for composting municipal solid waste.Ministry also provides limited financial support for waste characterization and feasibility studies The scheme was first introduced in 1992. Later the MOEF had approved three pilot projects for qualitative and quantitative evaluation of the MSW in the cities of Hyderabad, Shimla, and Ghaziabad .

Zonal or ward officers can take care of street sweeping, door-to-door collection, and secondary storage of waste while the municipality takes care of transportation, treatment, and disposal. When

functions are decentralized, organizational and monetary powers to per-form the tasks must also be decentralized. The municipality should give all the necessary resources and administrative powers to local authorities, while making these authorities accountable for the roles they are performing. In India, the 74th amendment of the constitution of India has made decentralization of administration obligatory in cities with population above 300,000. The amendment requires that ward committees perform the municipal functions delegated to them.

MATHODOLOGY:

1. Conducting door to door survey at few identified areas with assist of municipality workers.
2. In Elite societies and apartment survey was conducted with Google forms through mobiles.
3. Interaction with gated communities' welfare association.
4. Site visits to municipal dump yard
5. Plan to interact with Street sweepers of different localities.
6. Plan to interact with supervisors of different localities.
7. Plan to Interacted with supervisors of different localities.
8. Plan to Interacted with deputy commissioner of different circles.



Figure 1: Physical survey conducted at Sriram nagar colony of Jalpally municipality,Hyderabad.



Figure 2: Composting site of Jalpally area

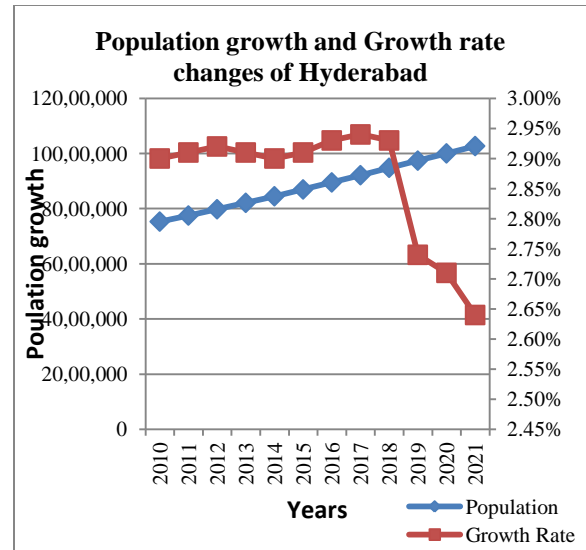


Figure 3: littering at some place of hyderabad city (Photo taken on November 2020)



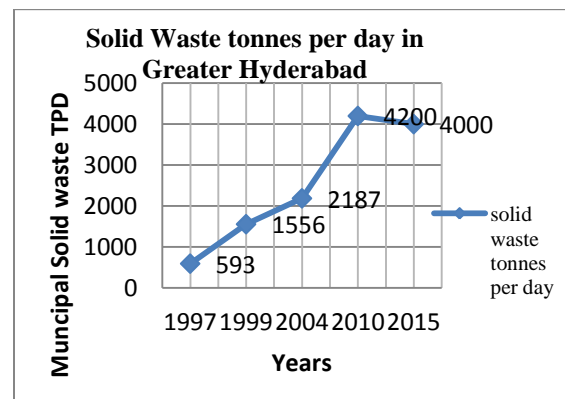
Figure 4: Waste management Awareness program conducted at Rajandhar Nagar circle, Hyderabad city (Photo taken on 2019) with support of Mahaveer engineering college student.

RESULTS AND DISCUSSION:



Graph1: Population growth and Growth rate changes of Hyderabad.

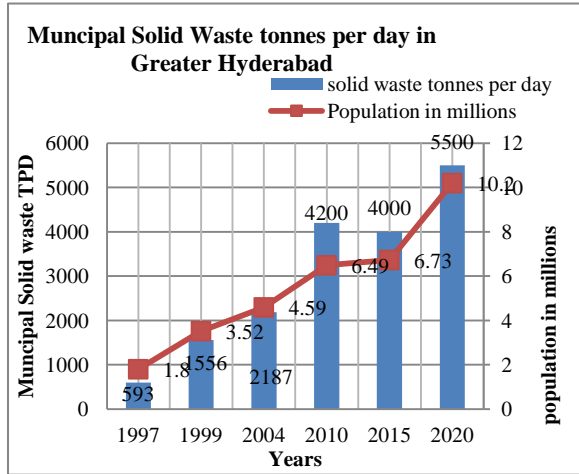
From the above graph we find that population was constantly increasing but growth rate was from 2014 onwards. Growth rate is always proportional to MSW generation.



Graph 2: Solid waste increment trend in Hyderabad TPD

From the above graph we find that continuous increase municipal solid waste was observed. Presently solid waste management becoming burden for GHMC but funds for solid waste management not increasing with the same proportion.

Graph 3: Municipal Solid Waste tons per day in Greater Hyderabad



By observing the above graph from 2004 to 2010 there is a drastic increase in population (4.59 million to 6.49 millions) at the same time municipal solid waste quantity also doubled from 2187 TPD to 4200 TPD, after that gradual increase is observed in population and MSW in case of Hyderabad.

This graph is generated base on data taken from reference (7)

S.no	Measure taken by GHMC	Public opinion	Suggestions for success/remarks
1	Disposal of waste in the streets, open spaces, vacant areas or in drains was banned Levy of administrative charges for littering of streets	Rules are there not implementing properly	a) Fines should collect strictly by GHMC. b) Citizens should be responsible and behavioral changes needed
2	Source segregation of waste Blue and green bins were provided by GHMC for Wet and Dry waste segregation purpose, Auto trolley having provision to carry wet and dry waste.	95% public is not following And dust bin collectors are not insisting for segregation because mechanized segregation was there at some places in city	a) Those who were not segregated their waste should not be collected by door to door collector for 3 days . b) with fine they have to collect on 4 th day. c) Repeated several time municipal water supply must be stopped
3	Door to door collection of waste	100% implementing	Good
4	Waste collection should be performed on a regular basis (daily collection).	Alternate days collection .If dust bin collectors went on leave no alternative arrangements	a) It should not be delayed b) if dust bin collectors went on leave alternative arrangement must be done.
5	Street sweepers must provide with individual containerized wheelbarrows, metal plate and tray, long handled broom and protective cover. Automated street sweeping vehicles for main roads	All main roads were cleaning effectively, but sub streets were not. At some places only	Local ward member should instruct sanitary supervisor to prepare time table for cleaning of littering areas of sub streets in case of less manpower
6	Garbage bins provided at public places, such as bus stands, auto stands, commercial, market places.	Provided by GHMC but not sufficient	Number of bin should be more. They must provide at ideal distance and reachable place.

7	Modern technology should be used to enhance storage capacity.	GHMC trying to adopt modern technologies for sanitation purpose	How far they are going to successful?
8	Abolition of open waste storage sites and manual collection.	Yes up to some extent	May be in new feature it happens 100%
9	Upgrading of existing dumpsites done with public private partnership. IMSWMS by Ramky Enviro Engineers Ltd	Integrates municipal solid waste management system at Jawahar Nagar Heard form media still local people are facing several problems like ground water pollution, health effects and insects and vectors problems, air pollution etc	Local governments are promising that they will find the solution.
10	<i>Biomedical waste management</i>	Public has doubt about it. Biomedical waste management not happening properly.	It has to be disposed of properly
12	Environmental friendly aerobic composting sites	Present in few circles	composting sites number should be increase
13	Capacity building programmes should be established	Not up to the mark	Scientific community should work with local municipal authorities
14	Public awareness strategies should be in to consideration.	Conducting through advertisements	More number of NGO's should involve.

Conclusion: Several attempts to improve better management of municipal solid waste in the Hyderabad city. The following recommendations may serve as a the following recommendations may serve as a policy tool for decision makers, planners and all those involved in the management of municipal solid waste. Coming to the funds allocated for MSW is consumed in salaries of sanitation workers and transport of waste. Little bit of changes in implementation strategies, strict implementation of policy and awareness of public are the gaps must be fulfilled according to mention in the table.

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