



Study of MSWM Scenario of Gulbarga City

Md. Yusuf
Research Scholar, Dept of Electrical Engg
JJT University,
jhunjhunu, Rajasthan, India

Dr. Sardar Ali
Department of Electrical Engg.
Royal Institute of Technology and Science
Hyderabad, A.P, India

Abstract—The solid waste management is a concern entire globe. The waste generated is a result of unavoidable human activity. The quantity & variety of waste generated is increasing day by day because of population growth, increase in living standard & urbanization. The MSWM problem is managed by rich developed countries, as they possess sufficient resources. However it is a problem of developing countries like India, 115000 tonnes of waste is generated per day in India & is going to be doubled by 2020. The MSWM problem is precarious in developing countries & it warrants for effective, efficient & economic solution. The effects of poor management of MSWM are air & water pollution, health effects, soil degradation & global warming. In this paper a study has been carried out to assess the MSWM scenario in Gulbarga. The study shows that the present practice of MSWM is not satisfactory. Most of the people dump the waste in open plots, in open drains, at the corners of the road & near the waste collection bins. The MSWM & handling rules are not completely complied by the concerned people. The severity of the problem is related to lack of awareness & insensitivity of the people.

Keywords— Municipal solid waste (MSW), municipality solid waste management (MSWM), Global warming, Gulbarga corporation, MSWM & handling rules 2000, landfill, Disposal, Leachat.

I. INTRODUCTION

The MSWM is an index of the socio economic development & prosperity & cleanliness of the region. The increase in industrialization & rising income levels have led to greater use of resources. And the waste generation is related to such factors as urbanization, standard of living & climatic conditions. The MSWM & handling rules 2000 schedule I & II lay down the methods that are to be adopted by all municipal/urban local bodies for proper management of waste. It is the responsibility of the LUB's. the effective MSWM means collection, segregation, storage, transportation, treatment, processing & disposal. The issues related to MSWM are becoming challenging. Sensing & realizing the scenario of generation & disposal problems & their dangers / effects it is essential to follow the guide lines/ rules laid down by MOEF rules 2000 for effective management. The quantity of generation of MSW is increasing constantly & continuously in developing countries like India. The waste generated is collected & transported unscientifically. Out of the total waste collected 90% of it is disposed directly in open dumps or rivers, or in low lying areas. The increase in size & weight of MSW & land cost particularly in metropolitan cities & further shortage of funds, lack of awareness, labour cost, labour problems, machinery cost, i.e. shortage of infrastructure are adding day by day to the problems associated with MSWM.

The inefficient & unscientific management of MSW is responsible for environment & human health effects, global warming, air & water pollution & soil quality degradation. As the methane & other gases are emitted by biodegradation of organic waste, methane has the effect of 20-25 times greater than CO_2 on global warming.

I. STUDY AREA & MSWM PROBLEM

Gulbarga is an urban city of northern Karnataka, India. It is an historic city & fast developing & educational hub, which has 2 Universities, 4 Medical Colleges, 6 Engineering Colleges, no. of Diploma, Degree, PUC, Paramedical, Teachers Training Colleges & scores of High schools & Primary schools. Many large & small scale industries are coming up fast. Gulbarga is a district head quarter & is a zonal centre for six districts. It is well connected by railways & roads, an airport is also about to start. Table No. 1 shows the population area & no. of wards.

Table No. 1

Population census 2011	5.43 Lack
Area of case study	64 Sq. km
Total No. of wards	55

Source: Gulbarga Municipal Corporation

Table No. 2 shows the details of expenditure for MSWM for the Sanitation & Solid Waste Management for last two years.

Table No. 2
(All figures in Lakhs)

Details	2012-13	2013-14 (up to November)
SWM	49.71	36.36
D Group	398.98	321.20
Wages other general	356.36	284.65
Power, Fuel and Electricity	42.31	35.92
Garbage transportation	172.29	219.62
Repairs and maintenance	9.91	3.40
Total per year	1029.56	901.15

Source: Gulbarga Municipal Corporation



International Journal of Ethics in Engineering & Management Education

Website: www.ijeee.in (ISSN: 2348-4748, Volume 1, Issue 5, May 2014)

A. Solid Waste Scenario

Table No. 3 shows the solid waste scenario of Gulbarga city in 2013.

Table No. 3

1.	Population	5.4 Lack
2.	Waste generation in kg/capita/day	0.370
3.	Waste generation Tons / day	200
4.	Waste collection tons / day	170 (85%)
5.	Waste collection	Daily
6.	Door to door collection	Partial
7.	Separation at source	Nil
8.	Length of roads	1021 km
9.	Road sweeping	
10.	i) A type daily ii) B type twice in wear iii) C type once in a week	281 km 318 km 422 km
11.	Landfill site	Available near Udnoor village 7 km from Gulbarga city
12.	Total area of dumping Site	28 acres 19 guntas
13.	Water facility at landfill site	Two borewells are dug
14.	Processing of waste	-
15.	i) Segregation ii) Composting	Nil Nil

Source: Gulbarga Municipal Corporation.

Table No. 4

1.	Health Officer	Nil
2.	Junior Health Officer	Nil
3.	Environment Engineer	3
4.	Senior Health Inspector	4
5.	Junior Health Inspector	3
6.	Food Inspector	Nil
7.	Veterinary inspector	Nil
8.	Drivers	2
9.	Sanitary Supervisors	Nil
10.	Cleaners	2
11.	Pourakarmikas	228
12.	Outsourced Pourakarmikas	440
13.	Loaders	6
14.	Burial ground watchman	Nil

Source: Gulbarga Municipal Corporation.

II. METHODOLOGY ADOPTED

Literature survey field visits, questioners, interviewing with people & records of Municipal Corporation.

A. HUMAN RESOURCE POSITION FOR MSWM

Table No. 4 shows the human resource position details of Gulbarga City Corporation.

B. RAG PICKERS

They collect recyclable waste plastic iron & paper from community bills streets corners and open plots. About 5 to 10 percent of waste is collected by rag pickers it is sold to local traders. Thus MSW serves as a source of earning & living for hundreds of poor families.

C. COLLECTION OF WASTE

The collection & transportation of MSW is done in a single shift. The shift starts at 5am early in the morning. The sweepers sweep the streets & roads, the cleaners clean the drains. The collected waste by sweepers is transported to dumper bins. Some sweepers lit the waste gathered intentionally to reduce the quantity. Few sweepers push the waste in open drains even public throws the waste in drains, which results in blockage of drains & over flowing of drains on the roads. At few localities the workers shift the waste from small open points to dumper bins by push carts or by tricycles. The open top tractors, tippers transfer the waste to disposal site. The photos 1, 2, 3, 4, 5 & 6 shows the sweeping, collection & transportation of waste.

Table no. 5 shows the transportation facility available at Gulbarga City Corporation.

Table No.5

s.no	Transportation Means	QTY
1.	Auto tippers	14 Nos.
2.	Suction cum Jetting machine	1 No.
3.	Compactor 18 m ³	1 No.
4.	Push carts	50 Nos.
5.	Tippers	2 Nos.
6.	Dumper Placer container	55 Nos.
7.	Dumper Placer Container	45 nos.
8.	Compactor container	55 Nos.
9.	Tractor trailers	11 Nos.
10.	Dumper placers	8 Nos.
11.	Front end back hoe loaders	1 No.
12.	Water tanker for spraying	1 No.

Source: Gulbarga Municipal Corporation



International Journal of Ethics in Engineering & Management Education

Website: www.ijeee.in (ISSN: 2348-4748, Volume 1, Issue 5, May 2014)

The waste dumped near road corners, open plots dumper placers & around RCC bins is transported in open top tractors, tippers to the dump site (landfill) located near Udnoor village which is 7 km from the city. About 85% of waste is collected & transported.

D. LANDFILL

Landfill is situated in survey No. 82, covering an area of 28 acres & 19 guntas near Udnoor village at a distance of 7 km from city. Few trees are planted, compound wall is incomplete. Gate is not provided, stray animals can easily enter the area. One trench of size 50m x 50m x 3m is provided with HDPE lines & geo textile membrane Leachat collection in also provided. Two bore wells are provided. There are no internal roads, drains and lighting arrangement. Bacterial solution is sprayed to control bacteria, foul odour & flies. The landfill is not used completely as per MSWM rules 2000. There is no facility for segregation & processing of waste at landfill site. Table 6 shows the details of landfill site. The Gulbarga Corporation has entered into an agreement with M/s. Hanjer Biotech energies a Mumbai based firm on 13.04.2012 for contract for processing & waiting for approval from the Government of Karnataka. Photo 7 shows the waste dumped at Landfill site.

Table No. 6

Distance form city	7km
Extent of land	28 acres & 19 guntas
Approach Road	Available
Compound wall	90% completed
Bore wells	2 bore wells are provided
Leachate tank	Available
Segregation at landfill site	Nil
Waste Processing	Nil
Internal roads & drains	Nil
Watchman room	Under construction
Lighting	Nil
Composting	Nil

Table No. 6 shows the details of landfill site

The MSWM is not up to the mark in Gulbarga city. There is lack of awareness of public about environmental effects of improper

III. CONCLUSION

MSWM & its health hazards. There is shortage of funds & human resource. It is due to negligence of government bodies. Participation of local community is not there. There is no proper payment of tax by the beneficiaries & collection of tax is not enforced by the authorities because of political reasons. The waste management problem is acute in slums & unauthorized colonies. Substandard roads & pit formation is

proving difficult to sweepers, to maintain the roads clean & drain cleaning is not done on regular basis. The burning of waste by sweepers to reduce the quantity of waste & litting of waste by wasted interests is creating air pollution the smoke lasts some times for days. The waste dumped in open drains by sweepers & public, chokes the drain. It results into home for bacteria and foul smell & flooding during rainy season. Safety tools are one not used by sanitation workers. The out sourced workers are less paid, the waste transportation is done in open top tractors & tippers. Dumper tracer / bins are not provided at many points. The landfill site is not properly utilized. The MSWM & handling rules 2000 be complied in all respect.

REFERENCES

- [1] Aruna D, Byragi Reddy-T, Swamy A.V.V.S. "Study of Municipal Solid waste Management Scenario of Kakinod city", International Journal of Engineering Research and Applications. Vol. 3, Issue 1 January- February 2013, PP 931-940
- [2] Anirban Das Moitrayee Samy, Pankaj Kumar Roy, Majumdar, Arun Kanti Biswas, Asis Mazumdar. "Municipal Solid Waste Management in Kolkata Metropolitan areas a case study" Journal Environmental science An Indian Journal 2010.
- [3] Developing Integrated Solid Waste Management Plan training manual Vol. 4, United nation Environmental program 2009.
- [4] Hasan Ali, Noraziah Ali, Abd Rashid Ahmed Maznah Ibrahim Shaharuddin Ahmad and Sarifah Yaacob. "Solid Waste Management and the Willingness to pay for improved services towards Achieving sustainable living." Advances in National and Applied Sciences, Vol.6(1), PP. 52-60, 2012.
- [5] H.Abu Qadis, F. Abdulla and L. Qrenawi," Solid waste Landfills as a source of Green Energy: Case study of Al Akeeder Landfill", volume4, number 1, Jan 2010, PP-69-74.
- [6] Municipal Solid Waste Management and Handling rules, MOEF Government of India 2000.
- [7] Narendranath Guria, Dr. Vijay Kumar Tiwari "municipal Solid Waste Management in Bilaspur City (C.G) India", National Geographer Allahabad.U.P.,Vol. No. 1 + 2 Jan-June, July- Dec. 2010
- [8] Sachin S Pendse "Solid Waste Management in India –A Study of Mumbai Online" International Disciplinary Research Journal Vol. 2 ISSE 4, July-Aug. 2012.
- [9] T.Ramachar, K. Mohammed Rafi, M. Umamahsh & N.V.S. Gupta. "Municipal Solid Waste Management (MSW) scenario in Kurnool City", Andra Pradesh India. Global Journal of Research in Engineering chemical engineering Vol. 12 issue 2 version1, year 2012.
- [10] Tapas Dasgupta "Waste Managemetn in Bhopal Municipal Corporation Issues and perspectives" International Journal of Scientific Engineering and Technology volume No. 2, issue No. 9 Sept. 2013, PP-8097-810 year.
- [11] Vladimir Lapcik, Marta Lapikova, "Possibilities of Energy recovery from Municipal Waste Geo Science Engineering" Vol. L 8, No. 4 P-49-55



PHOTO - 1



PHOTO - 3



PHOTO - 2



PHOTO - 4



PHOTO – 5



PHOTO – 7