

Solid waste management in gwalior region: an overview

Adway Tiwari¹, Mukesh Pandey², Sohit Agrawal³

¹PG Scholar, ²Professor & Head of Dept. of department, ³Assistant Professor

¹Department of civil engineering, ITM University, Gwalior, M.P, India

Abstract - Solid waste management is an important factor that is used for treatment process of collecting and treating solid waste and most important thing, we are generating solid waste not intentionally. This paper figure out the solutions for recycling items those do not come in garbage or trash. Solid waste has been an important issue for developing country like India .The best way for solid waste management and practically best way of management both are different perspective in India. A new idea of business generates recycling of solid waste and it is having billion dollar industry in developed countries. These days new waste generating so fast that name is E-waste, and in the overall world, it consists 20-50 million metric tons of electronic devices being disposed of per year. In this paper, an attempt has been made to provide a qualitative and quantitative measurement of solid waste produced in a Gwalior city. So this paper finding the solid waste management in best manner

IndexTerms— Managements, solid waste, Gwalior, Disposal, Bio Degradable

1. INTRODUCTION

Gwalior is a historic city of Madhya Pradesh and its coordinates: 26° 13' 25 N, 78° 10' 45 E and having 646 RL, according to Indian census 2011, the population of Gwalior is noted 2,032,036. The gross population density of the city is 6,292/km². The region which is located 319 kilometers south of Delhi a capital city of India. The maximum temperature recorded 53°C and -10°C recorded as the minimum temp of Gwalior city. Summers comes in last March-May and June having the max temp of summer) monsoon comes in late Jun. Extremely winter comes in January having temp under in the 5-7 °C range (40-45° F). The solid waste production is increasing just because of rapid economic and population growths, and the most important factor is changing the pattern of lifestyle. The MSW generates 380 tons waste in a day and about 80 % solid waste picked from the picking points of the city in the single day. The uncontrolled and unscientific open dumping of waste having increased problem of human health. India as well as the whole world. The Study shows that the main component of municipal solid waste comprises the biomass material such as food, paper, wood waste, clothes rags, rubber, plastics, polythene, and other daily used discarded materials that dump out from each and every house in Gwalior city. s 90% unscientifically and unmannered open dumping of municipal solid waste is directly responsible problems of public health, the environmental problems and distort the surround aesthetic beauty and causes the loss of sanitary and hygienic environment. it is happening in large volume in urban spaces, municipal and industrial sectors of the country are responsible, The solid form include human excreta (night soil), household waste (generally termed as garbage), city wastes (resulting from public utilities & sanitation services), commercial waste (resulting from institutional activities), industrial waste (resulting from industrial process/ production activity) etc are result of Improper municipal solid waste (MSW) and practice. India is most populated and developing nation. People daily activity generates millions of tons solid waste every day. This waste generation pattern varies from metro cities to small cities in India. India has different geographical and demographical pattern so the waste generation pattern varies from one state to another state or one region to another region so the waste generation pattern is different in Gwalior as compare to others cities of India. The generation of solid waste depends upon the standard living of people, economic condition, the rate of literacy of population and historical or religious value of places. Gwalior is a rapid budding city and massive quantities of Municipal Solid Wastes (MSW) are generated daily, and only one dumping site located at Gwalior-Shivpuri road and the rest is indiscriminately disposed of in open spaces, water bodies, roads, by-lanes and open drains. No efficient work has done for assessing the amount of household solid waste generation in the city. a big portion of biomass material such as paper, food, wood waste, clothes rage, plastics, vegetable, rubbers, polythene, tires, and others daily used discarded materials comes in municipal solid waste management Gwalior. Since lacking proper facilities in Gwalior city these discarded wastes are not dumped at ultimate place of rest so it creates a lot of hazardous environmental condition, sanitary losses of surrounding and distorting the aesthetic beauty of surrounding. The generation of energy from the waste varies from one place to another place worldwide hence energy content of Gwalior is different from the other cities. Metro cities like Delhi, Mumbai, Kolkata, Chennai, Hyderabad, Bangalore etc. produce more and more waste and also utilized these waste for energy generation effectively as the comparison to other cities of India. In Gwalior, city urbanization is going on at rapidly rates hence the waste generation are increasing day by day. On the basis of the Quantum and Quality of MSW production in Gwalior, many technological options to recover energy from solid waste. They can be Incineration, Pyrolysis, Anaerobic digestion & Landfill gas recovery. The waste composition of Gwalior city maximum shows organic matter near about 55 %. Wastes to Energy technologies are can be derived renewable energy from organic matter present in the municipal solid waste. By involving various technologies the energy can be recovered and it can be utilized in the form of Electricity (i.e. power), Heat, Fuel, Biogas (Methane), and Syngas with additional byproducts can be used such as fertilizer from digested sludge and the Ash content which is used for construction material.

2. NEED OF SOLID WASTE MANAGEMENT

As the Gwalior city is in developing phase which results in accumulation of waste, as a result, it is very necessary to find an alternative source of the disposal or the management of these wastes followings is the basic problem by which the need of solid wastes management is very recovery as follows:

- Bad odour of the waste
- Minimize the green gases effects
- To control the health diseases
- To minimize the waste

3. LITERATURE REVIEW

3.1 Mufeed Sharholly, Kafeel Ahmad, R.C. Vaishya , R.D. Gupta

Qualitative and quantitative characteristics of municipal solid waste are main purpose of the study with general Allahabad city. Required sample picked from various location and analysis the various kinds of characteristics of municipal solid waste. Solid waste segregation originates for recycling promotion or segregated materials for reuse. And reduction of the quantity statics of solid waste. and raw materials supply for manufacturers .The structure of municipal solid waste management defines mostly involvement of organic matter (45.3%), waste compost can be good approach to analyzing the soil correction of production .the sudden expansion in the quantities of MSW shows incapacity provided daily collected material and its result health risk, suddenly shows that current municipal solid waste management scenario which is management impaction to create people awareness. [1]

3.2 Subhasish Chattopadhyay , Amit Dutta , Subhabrata Ray

The saturation of existing landfill site the main cause of groundwater solution in Kolkata .the main issue of Kolkata devotes 70-75%. its expenditures on the basis of collection of solid waste and transformation consists 25-30%, less than 5% involves final arrangement .maximum expenditures engage operationally and with system maintenance and capital expenditures occurs only small amount of percentage local bodies of Kolkata needs sudden capital investment is required for better result . The production of large quantities production of MSW has a serious factor environmental issue .local bodies of Kolkata are doing their work but they find difficulties in managing paperwork during increasing magnitude problems. waste segregation at source is the main issue of municipal solid waste management, house-to-house consist low volume collection, open vats come in large number, low functioning waste efficiency of transport structure which is carried old transportation . newly added areas also having low collection efficiency , and recycling system also not sufficient, maximum developing country facing uncontrolled land disposal of MSW like India .[3]

3.3 Rajendra Kumar Kaushal, George K. Varghese, Mayuri Chabukdhara

Quantities of characteristics in India over last forty years. The critically studies observation report the current estimating and forecasting practices of MSW and mark the limitation in term of change the things for getting suitable management of the solid waste and also new things added for making far better than management of solid, for these things only local bodies are responsible for enhancing the new level of solid waste and attempt has been made for quantity and characteristics of MSW , finding their effects on the basis of performance and well capacity plans for recovery/recycle, compost, incineration, and landfill facilities. To change process of waste composting defines the segregation importance for the getting the successful waste working management. The municipal controller has features of good storage in ideal level for they can ignore unhygienic and unsanitary conditions.

3.4 Brijesh Kumar Pandey , Savita Vyas, Mukesh Pandey and Anurag Gaur

The main ingredient of municipal solid waste includes the biomass material such as food, paper plastics, polyethene, wood waste, clothes rags, rubber, and other daily used released materials that dump out from all houses of Bhopal city. different kind of studies show that almost 90% municipal solid waste is disposal belongs to unscientifically and unmannered open dumping .which places creates problems to people's health and the most important environmental problems is distortion of the surround aesthetic beauty and its resultant loss of sanitary and hygienic environment .92% of the MSW produced in country as direct disposed on open dumping manner which is an insecure and unplanned thing which is happening in India and India knows an agricultural country and its some of the cities are congested and crowded and they seriously need special attention from MSW management at present Bhopal is not having any specific site for segregation of solid waste. It is happening in manual order by Rag pickers from the respecting dumping site of solid waste in very small volume .currently no concept of a transfer station in Bhopal exists. In previous practices of SWM at Bhopal, no data entry is properly maintained as required for the current system, it's not an easy task to get possible assess current performance .then the procedure is going to improve day by day with initiative steps from the organization . And still collection efficiency is near 65-70% which extremely requires improvement. Economic development leads population growth, urbanization and industrialization they are increasing energy demands gradually. The prosperity and high quality are the main cause of human life caused which development increases the waste generation and energy consumption. So we need sustainable development and environmental protection, and for this wastes should be processed effectively so that it can justify the energy demands and maintain sustainability.

3.5 Lilliana Abarca Guerrero, Ger Maas, William Hogland

Analysis the literature data related to solid waste management on the basis of work done during publication 2005 to 2011, few articles give quantitative information which related to solid waste management of developing countries .The analysis is classified in two of the major scientific journals, first is Waste Management Journal another known as Waste Management and Research. These research targets to get cause the stakeholders' action and conductivity. That is an important factor proceeding in the waste management and classified the affected factors on basis of the system which is involving thirty urban areas from 22 developing countries in 4 continents. A combination of the proceeding system which is using to evaluate the stakeholders and factors affected the performance of waste management in the cities. Scientific literature, existing databases, observations on the basis of collected

data like during visits to urban areas, relevant professionals structured interviews, with the participation of exercises at respected workshops and fill the questionnaire from the stakeholders. They were used to find the conclusions which follow Descriptive method and method of an inferential statistic. The outcome of the research is got the comprehensive list of stakeholders which is related in the system of waste management and marks the affecting factors which reveal the main causes of the systems like the failure during planning, changing or implementing and these factors of information very useful for the better system of waste management in cities. The cities are having various type of solid waste management system as well as having various kinds of cultures. The analytical research provides a comprehensive analysis of stakeholders and some key factors which affect their respected systems. The key factor is given below. :

1. Solid waste management having multi-dimensional issue .like general demand for equipment from Municipalities. This study indicates that intensive system is not only related to technological solutions but also related to environmental ex. socio-cultural, legal, institutional and economic these are important factor exist in the overall system of function. :

2. Waste management marked a large volume of different stakeholders, with having different fields of interest. They all involved in the major role in shaping the system, but often it is seen t only as a responsibility of the local authorities but usually, it's seen only as a responsibility of the local bodies. In the best manner, the citizens should have considered as co-responsible as well as the municipality department.

3. Universities, research centers have a very important role in preparing professionals and technicians in environmental fields which includes waste management also. Some developing countries already took interests in this education and research, and their citizens are assuming their responsibilities towards environment.

4. Fundamental is to produce reliable data and to create proper information channels within and between municipalities. Decision makers, responsible for planning and policy making, need to be well informed about the situation of the cities in order to make positive changes, developing integrated waste management strategies adapted to the needs of the citizens considering their ability to pay for the services.

5. The information related to solid waste management and its important factor is very used full for planning, changing or implementing a better waste management system in a city.

4. CONCLUSIONS

In this paper we see the characteristics of solid waste management and figure out problem we faced during solid waste management and know the respective matters which consist in solid waste. which kind of changes required for best way to manage solid waste and the value of main ingredient of solid waste management and its effects on environment as well as living things and reveal the main causes of systems like failure during planning, changing or implanting factor effecting of solid waste management .

REFERENCES

- [1] Mufeed Sharholy, Kafeel Ahmad , R.C. Vaishya, R.D. Gupta. "Municipal solid waste characteristics and management in Allahabad, India" Waste Management 27 (2007) 490–496. Accepted 9 March 2006 Available online 12 June 2006
- [2] Subhasish Chattopadhyay , Amit Dutta , Subhabrata Ray. "Municipal solid waste management in Kolkata, India – A review" Waste Management 29 (2009) 1449–1458. Accepted 29 August 2008 Available online 12 December 2008
- [3] Rajendra Kumar Kaushal, George K. Varghese, Mayuri Chabukdhara. "Municipal Solid Waste Management in India-Current State and Future Challenges: A Review" International Journal of Engineering Science and Technology (IJEST)
- [4] Brijesh Kumar Pandey , Savita Vyas, Mukesh Pandey and Anurag Gaur. "Characterisation of municipal solid waste generated from Bhopal, India" Current Science Perspectives 2(3) (2016) 52-56
- [5] Lilliana Abarca Guerrero a,† , Ger Maas a , William Hogland b. "Solid waste management challenges for cities in developing countries" Waste Management xxx (2012) xxx–xxx Received 11 May 2012 Accepted 5 September 2012 Available online xxxx