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STUDY ON SOLID WASTE MANAGEMENT IN NIZAMABAD MUNCIPAL CORPORATION TELANGANA STATE, INDIA

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ABSTRACT: A solid waste management scheme is a complex system of social, economical, legal, political, environmental, technical and operational nature. Now a day, we are facing a problem regarding the management of waste generated daily. This waste includes solid waste from industrial zone, commercial zone and residential zone. Among all these waste management from residential zone requires first priority because if this waste is not properly disposed off daily, then it will create problems to public health, affects the aesthetics. This paper gives the present status of solid waste management in Nizamabad Region and also suggests some methods to control the same. Urgent steps in this direction will reduce the water, air, soil pollutions and health hazards. The town is an important business centre. The study was carried out for one calendar year that is 2015. The work is a humble beginning to study the solid waste focusing on domestic waste or organic waste related to degradable products and non degradable recyclable wastes in commercial area or market yards. The solid wastes are collected on an average of 175 metric tons per day manually, and from where the wet and dry material was separated, the wet wastes are sent to the compost yard and the dry material will be sent to recycling place. As urbanization continues to take place the management of solid waste is becoming a major public health and environment concern in urban areas of many developing countries.
Key words: Solid Waste, Dumping yard, Solid waste management, Pollution.

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INTRODUCTION

India at present is a waste stressed nation. Even though having enough resources and knowledge of principles and practices, both urban and rural ecosystems face tremendous consequential damages to the environment due to the adverse effects of wastes [1]. The solid waste from Nizamabad Muncipal Corporation is rising day by day. Such rise in solid waste generation is observed because of increase in urbanization, population density and income, changing food habits, taste and pattern. The growth of industry, commercial units such as hotels, theaters, restaurants, malls are rising fast [2]. Such units are positively contributing to the solid waste generation. Solid waste collection, segregation and disposal capacity of Municipal Corporations is low and inadequate with rising solid waste. Therefore Municipal Corporation must adopt scientific methods for collection, segregation and disposal of solid waste. Municipal corporations must accommodate private sector for investment and management of solid waste [3]. Urgent steps in this direction will reduce the water, air, soil pollutions and health hazards. It will improve the quality life of people in Nizamabad, Muncipal Region.

Waste management is all the activities and actions required to manage waste from its inception to its final disposal. This includes amongst other things, collection, transport, treatment and disposal of waste together with monitoring and regulation [4]. It also encompasses the legal and regulatory framework that relates to waste management encompassing guidance on recycling etc.

The term usually relates to all kinds of waste, whether generated during the extraction of raw materials, the processing of raw materials into intermediate and final products, the consumption of final products, or other human activities, including municipal (residential, institutional, commercial), agricultural, and special (health care, household hazardous wastes, sewage sludge). Waste management is intended to reduce adverse effects of waste on health, the environment or aesthetics [5].

Waste management practices are not uniform among countries (developed and developing nations); regions (urban and rural area), and sectors (residential and industrial).

Throughout most of history, the amount of waste generated by humans was insignificant due to low population density and low societal levels of the exploitation of natural resources [6]. Common waste produced during pre-modern times was mainly ashes and human biodegradable waste, and these were released back into the ground locally, with minimum environmental impact. Tools made out of wood or metal were generally reused or passed down through the generations [7]. However, some civilizations do seem to have been more profligate in their waste output than others. In particular, the Maya of Central America had a fixed monthly ritual, in which the people of the village would gather together and burn their rubbish in large dumps.

MATERLALS AND METHODS

Study Area: A study on the solid waste management was carried out at Nizamabad, Telangana State which is 170kms away from greater Municipal Corporation Hyderabad. Nizamabad occupies an area of 40 Sq.kms and it is located at latitude 18.672^0 N and longitude78.094^0 E with an elevation of 395m. (Fig.1)

The Godavari River enters into Telangana from Nizamabad district at Kandhakurthi. Nizamabad was founded in the year 1905 when Nizam's Dominion were recognized, where upto it was known as Indur which was supposed to have originated from the name of the King Indradatta who seems to have flourished it during the 5th century A.D. Later during the 18th century the Nizams ruled over the Deccan region and the district got its name from him.

Nizamabad is a city and a municipal corporation in Nizamabad district of Telangana state, India.It is headquarter of the district It is one of the major urban centre in TS and the third biggest in TS after Hyderabad and Warangal As of 2011 census, the population is recorded as3,11,152, with 66,670 households, by 2014 household survey by Govt of Telangana State recorded the population as 4,87,709 which makes it the third most populous city in TS after Hyderabad and Warangal.

Fig.1:Map of Nizmabad city

Collection of domestic waste from door to door is collected manually, in the collection vehicle and the commercial waste is also collected manually. Both commercial and domestic solid waste are transport to dumping yard situated at mallaram was done at regular intervals between 6AM to 10AM and 2.00 PM to 5.00 PM. The collected solid waste is separated in to two groups that is wet and dry components. (Fig.2). The waste collection methods vary among different countries or regions.

Table 1: The Sources of Muncipal Solid wastes

Sources	Examples
Residential	House Holds,Apartments
Commercial	Shops, Hotels, Offices, Hospital and Institutions
Agriculture	Field Scrap, Markets, Domestic wastes
Industrial	Factories, Small scale firms

Fig.2: Door to Door Collection of Garbage Through Try Cycle by Sanitation Worker

Fig.3: Nizamabad Dumping Yard at Mallaram

RESULTS AND DISCUSSION

In Nizamabad Town the Solid waste is generated 175 metric tons per day but an average of 140 metric tons of solid waste is collected per day that means 35 metric tons per day is remained un collected which dumped in open and contaminates the ground and surface water [8-11].

As Urbanization and Modernization continues to take place, the management of solid waste is also becoming a major environmental and public health concern in urban areas of many developing countries. A typical solid waste management system in place like Nizamabad has lot of problems such as collection, open dumping, burning MSW and (water / Air / Soil) pollution control. The solid waste is dumped in open areas.

Table 2. Physical characteristics of municipal solid wastes in Nizamabad.

S.No	Number of places surveyed	Paper	Rubber<comma> leather and synthetics	Glass	Metal	Compostable matter	Inert material	
1	12	3.45	0.58	0.36	0.13	36.57	33.59	
2	15	3.35	0.53	0.36	0.12	30.04	38.38	
3	9	5.32	0.51	0.36	0.39	36.95	34.73	
4	3	4.27	0.58	0.38	0.49	47.57	39.07	
5	4	6.27	0.38	0.18	0.4	20.84	43.9	

The public sanitation system is lacks because of inadequate planning in Nizamabad as well as unsustainable solid waste management. Indian cities are often characterized by poorly rendered services including Solid waste management. In Mysore India the city is found to be highly efficient in collection of waste, transportation, dumping and Segregation of waste in to Dry &Wet .Solid waste Management activities practiced very effectively. The collection efficiency is also maximum extent.

Table 3.Chemical characteristics of municipal solid wastes in Nizamabad.

S.No	Number of places surveyed	Moisture %	Organic matter %	Nitrogen as total nitrogen %	Phosphorous as P_2O_5 %	Potassium as K_2O %	
1	12	35.81	27.09	0.52	0.33	0.63	
2	15	29.52	15.14	0.44	0.36	0.59	
3	9	36.98	16.89	0.46	0.42	0.52	
4	3	11.03	15.6	0.36	0.59	0.58	
5	4	28.72	29.07	0.36	0.42	0.32	

Treatment and disposal of municipal solid waste management

India is facing the lacking of resources or the technical expertise necessary to deal with the disposal of municipal solid waste. The two leading innovative mechanisms of waste disposal being adopted in India include composting (aerobic composting and vermi-composting) and waste-to-energy (WTE) (incineration, pelletisation, biomethanation). WTE projects for disposal of MSW are a relatively new concept in India. Although these have been tried and tested in developed countries with positive results, these are yet to get off the ground in India largely because of the fact that financial viability and sustainability are still being tested. Only 6%–7% of the MSW is converted into compost in India. Rest MSW is disposed off through landfilling. An incineration and biomethanation type of waste-to-energy system of solid waste disposal has also been introduced in India but contributes at minor level in present scenario.

CONCLUSION

Unscientific and Poorly designed or poorly managed landfills will create adverse environmental impacts; well managed, scientific landfill can be a hygienic and relatively inexpensive method for disposing waste material is used. Incineration is controversial method of waste disposal, due to amine as of gaseous pollutants. Nizamabad a town which has a proper dumping yard and need the collected solid waste should be properly handled or managed to see that ground water should not be contaminated with degradable or non degradable waste. A treatment plant is required for recycling.

The municipality should have a proper plan and implement the system keeping in view of increasing population in the area. Public participation and co-operation awareness for the clean environment will be a successful operation in Nizamabad town. Education and Awareness in the area of waste and waste management is an important aspect from a global perspective of source management. Every urban domestic household be provided with bins for recyclable and non recyclable waste. House hold waste is segregated, recyclables be made in to new product like vermi compost, General waste such as non recyclable wastes will be shifted to landfill area. It is a common practice in most of the under developing countries that the disposing of waste in landfills of abandoned areas. Poorly managed landfills leads to a number of environmental impacts, for example the wind current will carry the litter to different clean places, attracting different types of insects, animals and also leads to the formation of methane gas and carbon dioxide. This creates a filthy odor problem for the near-by residential areas, the formed waste material that is organic in nature can be recycled. The waste gases from the process, such as methane can be used for cooking purposes, it also generate heat and electricity.

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