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STUDIES ON SOLID WASTE MANAGEMENT AT NARSAPUR MUNICIPALITY; W. G. Dt.

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ABSTRACT:

Waste is any substance which is discarded after primary use, or is worthless, defective and of house. Most human daily activities end up in waste generation and this unavoidable trend if not well managed, result to an environmental problem. Solid waste is the useless, unwanted and discarded material resulting from day to day activities in the community. Solid waste management may be defined as the discipline associated with the control of generation, storage, collection, transfer ,processing and disposal of solid waste. The present paper based on the study carried out on solid waste management practice by Narsapur Municipal corporation. This study was also designed to study the composition of solid waste in Narsapur town.

KEYWORDS :- Solid waste, waste generation, management, composition, environmental problem.

INTRODUCTION :-

Higher standards of living of ever increasing population has resulted in an increase in the quantity and variety of waste generated. Management of solid waste has, therefore become very important in order to minimize the adverse effects of solid wastes. In this connection we should stress on three R's principle – Reduce, Reuse and Recycle before destruction and safe storage of wastes.

There are17,000 houses in Narsapur. The population as per the information of Narsapur Municipal Corporation is 60,000. Total solid waste generation is 32 tones/day in Narsapur town and 384 tones of waste generates per year. From that solid waste generation per person is approximately120 gm/capita/day. A typical solid waste generated from Narsapur municipality consists of paper/paper board, yard waste ,plastics, metals, food wastes, glasses, woods as well as other miscellaneous items. Among these, some are organic and inorganic, degradable or non-biodegradable, hence, the need for wastes sorting from the source for effective solid waste management. Although, inadequate formal waste management approaches remain to an extent some benefits to large number of scavengers, they are of great challenges to the governments.

SOURCES OF SOLID WASTES:-

Every day, tones of solid waste are disposed off at various landfill sites. This waste comes from homes, offices, industries and various other agricultural related activities.

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These landfill sites produce foul smell if waste is not stored and treated properly. It can pollute the surrounding air and can seriously affect the health of humans, wildlife and our environment. The following are major sources of solid waste:

1. Residential

Residences and homes where people live are some of the major sources of solid waste. The garbage from these places includes food wastes, plastics, paper, glass, leather, cardboard, metals, yard wastes, ashes and special wastes like bulky household items such as electronics, tires, batteries, old mattresses and used oil.

Most homes have garbage bins where they can throw away their solid wastes in and later, the bin is emptied by a garbage collecting firm or person for treatment.

2. Industrial

Industries are known to be one of the biggest contributors to solid waste. They include light and heavy manufacturing industries, construction sites, fabrication plants, canning plants, power and chemical plants.

These industries produce solid waste in the form of housekeeping wastes, food wastes, packaging wastes, ashes, construction and demolition materials, special wastes, medical wastes as well as other hazardous wastes.

3. Commercial

Commercial facilities and buildings are yet another source of solid waste today. Commercial buildings and facilities, in this case, refer to hotels, markets, restaurants, go downs, stores and office buildings.

Some of the solid wastes generated from these places include plastics, food wastes, metals, paper, glass, wood, cardboard materials, special wastes and other hazardous wastes.

4. Institutional

The institutional centers like schools, colleges, prisons, military barracks and other government centers also produce solid waste. Some of the common solid wastes obtained from these places include glass, rubber waste, plastics, food wastes, wood, paper, metals, cardboard materials, electronics as well as various hazardous wastes.

5. Construction and Demolition Areas

Construction and demolition sites also contribute to the solid waste problem. Construction sites include new construction sites for buildings and roads, road repair sites, building renovation sites and building demolition sites.

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Some of the solid wastes produced in these places include steel materials, concrete, wood, plastics, rubber, copper wires, dirt and glass.

6. Municipal Services

The urban centers also contribute immensely to the solid waste crisis in most countries today. Some of the solid waste brought about by the municipal services include street cleaning, wastes from parks and beaches, wastewater treatment plants, landscaping wastes and wastes from recreational areas, including sludge.

7. Agriculture

Crop farms, orchards, dairies, vineyards and feedlots are also sources of solid wastes. Among the wastes they produce are agricultural wastes, spoiled food, pesticide containers and other hazardous materials.

8. Biomedical

This refers to hospitals and biomedical equipment and chemical manufacturing firms. In hospitals, there are different types of solid wastes produced.

Some of these solid wastes include syringes, bandages, used gloves, drugs, paper, plastics, food wastes and chemicals. All these require proper disposal or else they will cause a huge problem for the environment and the people in these facilities.

METHODS OF SOLID WASTE COLLECTION AND DISPOSAL:-

There is a specific site for the municipal solid waste management at Narsapur town. Regularly dry and wet wastes are collected by dustbins from various houses of Narsapur municipality and transported to the disposal point

The activities associated with the management of Municipal Solid Waste from the point of generation to final disposal can be grouped into the six functional elements.

- Waste generation
- Storage
- Collection
- Transportation
- Segregation & Processing
- Disposal

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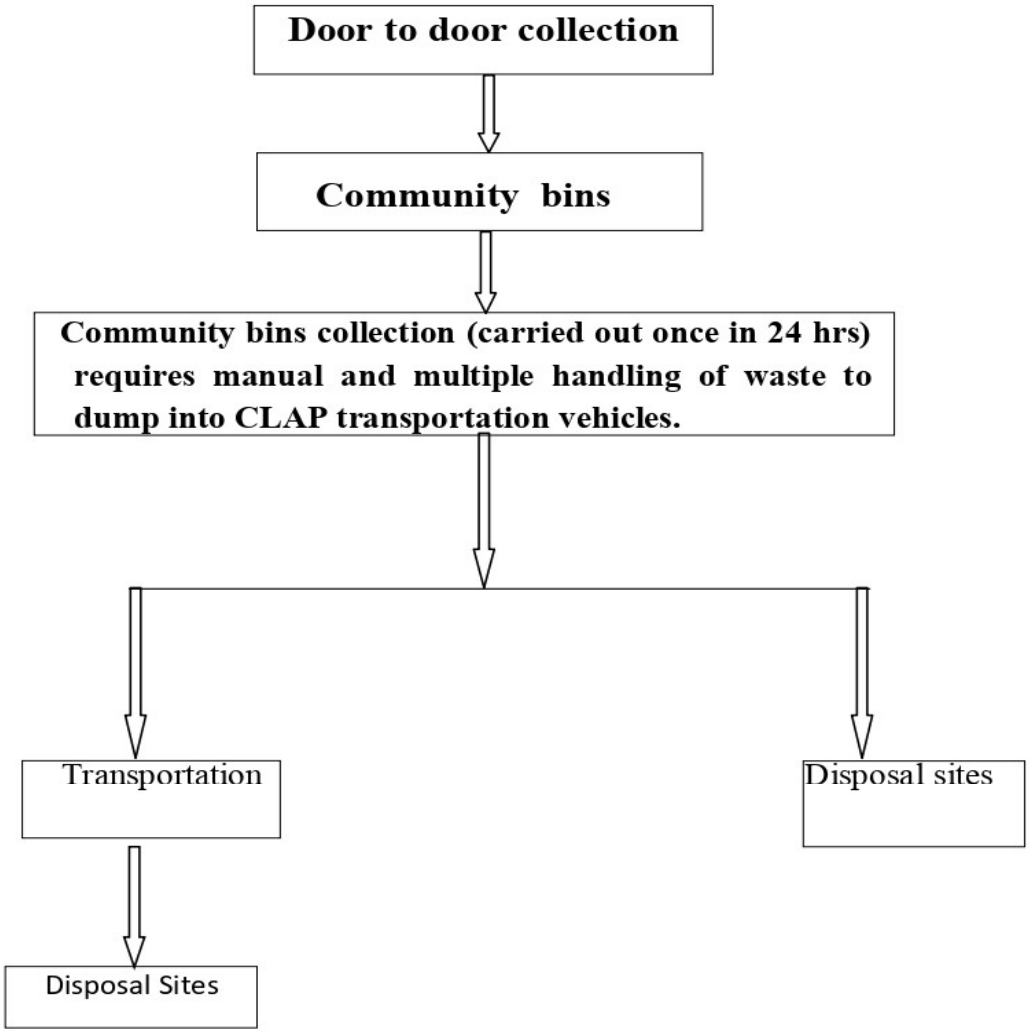

COLLECTION OF SOLID WASTE

Disposal of solid waste is done by the following methods at Narsapur municipality.

1. Composting: It is done by any type of bio-degradable wastes such as hotel refuge, biodegradable portion from residence and commercial market, vegetable waste, leaf litter etc. It is a biological process in which micro-organisms specifically fungi and bacteria convert degradable organic waste into substances like humus. It is formed from the compost with good quality and environmentally friendly manure, excellent medium for growing plants.

2. Land filling: Waste is stored in 5 acres area. All inorganic material is used for the land filling and dumping. The land fill is covered with layers of sand, clay, top soil and gravel to prevent seepage of water.

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3. Incineration: This method involves the burning of solid wastes at high temperatures until the wastes are turned into ashes. Incinerators are made in such a way that they do not give off extreme amounts of heat when burning solid wastes.

Incinerators that recycle heat energy through furnace and boiler are called waste-to-energy plants. These waste-to-energy systems are more expensive to set up and operate compared to plain incinerators because they require special equipment and controls, highly skilled technical personnel, and auxiliary fuel systems.

This method of solid waste management can be done by individuals, municipalities and even institutions. The good thing about this method is the fact that it reduces the volume of waste up to 20 or 30% of the original volume.

4. Recovery and Recycling: Recycling or recovery of resources is the process of taking useful but discarded items for the next use. Plastic bags, tins, glass and containers are often recycled automatically since, in many situations, they are likely to be scarce commodities.

Traditionally, these items are processed and cleaned before they are recycled. The process aims at reducing energy loss, consumption of new material and reduction of landfills. The most developed countries follow a strong tradition of recycling to lower volumes of waste.

Collection of Dry waste & Wet waste from Narsapur Municipality

As a part of decentralization entire Narsapur town is divided in to five zones for the collection of solid waste as follows.

- Market
- Households
- Hospitals
- Restaurants
- Vegetable Shops

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RESULTS AND DISCUSSION:-

Municipal solid waste heap up on the roads due to improper disposal system. People clean their own houses and litter their immediate surroundings which affects the community. This type of dumping allows biodegradable materials decompose under uncontrolled and unhygenic conditions. This produces fowl smell and breeds variety insects. Toxic substances may also percolate to contaminate the ground water.

There are many varieties of municipal solid waste such as food waste, rubbish, commercial waste, institutional waste, street sweeping waste, industrial waste, construction waste and sanitation waste . It contains recyclable (Paper, Plastic, Glass and Metal etc.), Toxic substances (Paints, Pesticides, Used Batteries, Medicines etc.) Compostable Organic matter (Fruit and Vegetable peels, Food waste), Solid waste (Sanitary napkins).

The collected data shows that the maximum proportion of refuse caused by food and vegetable wastes, second highest was fruits waste and plastic. Percentage of Plastic carry bags was higher, where glass, ceramic and metals were nearly equal with each other. Provision of litter bins at public places shall be made and there will compulsory segregation at all the sources. As the disposal site is at 3 km away and smaller vehicle are used for the transportation of solid waste. Recovery and reuse of material such as metal, plastic, glass and rubber etc. should be done throughout the year. System should be based on Environmental protection rules (Reduce, Recycle, Reuse and Recover) Public awareness, political will and public participation as essential for the successful implementation of the legal provisions and to have an integrated approach towards sustainable management of municipal solid wastes. There should be sufficient health and safety provisions for workers at all stages of waste handling. Annual report of addition of the strategies for collection of solid wastes have to be formulated.

Solid waste generated from Railway Station, Narsapur Municipality

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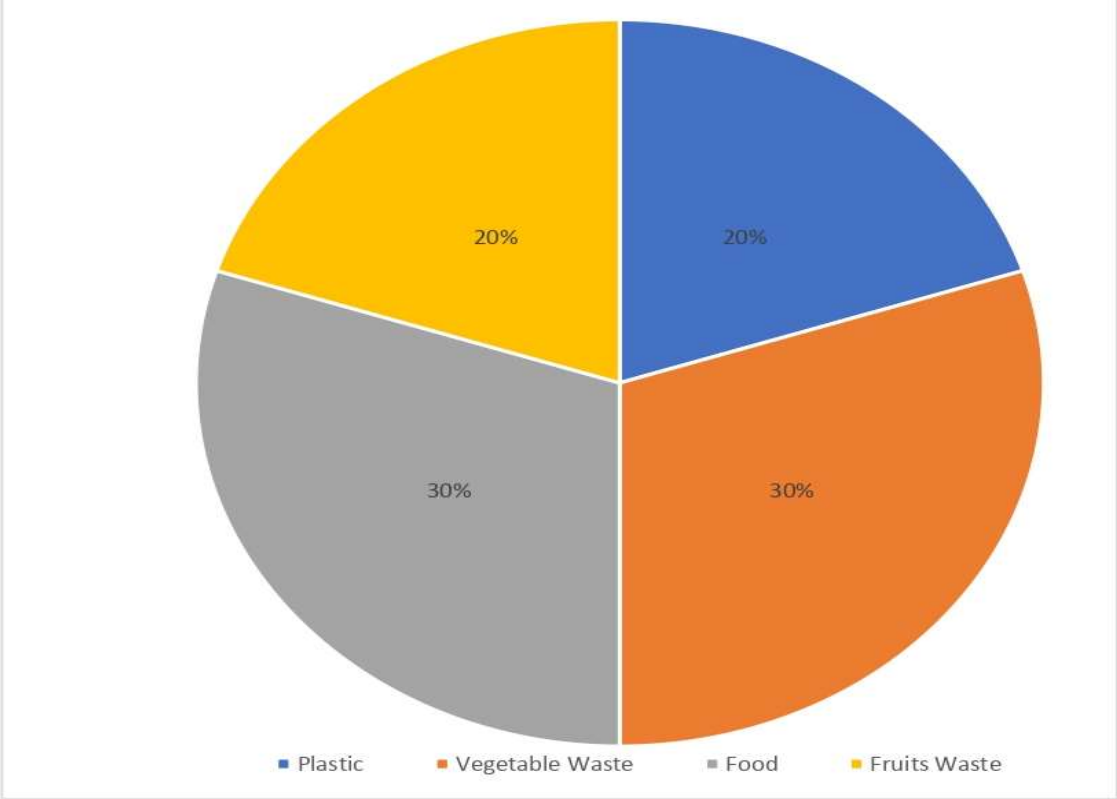

COMPOSITION OF MUNICIPAL SOLID WASTE IN NARSAPUR TOWN

Collection of Toxic substances (Paints, Pesticides, Used Batteries, Medicines etc.) Compostable Organic matter (fruit and vegetable peels, food waste), Solid waste (sanitary napkins) from Narsapur railway station.

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Waste management is an intrinsic part of any developing or industrial society and its generation and disposal is influenced by some factors like population explosion, level of environmental awareness of the people and the government's approaches towards it. In a study, it has been observed that the volume of waste does not actually constitute the problem but the ability or inability of governments individuals and waste disposal firms to keep up with the task of managing waste and the environment. In the Narsapur Municipality, indiscriminate dumping of refuse causes lots of environmental problems such as:

- Blockage of canals/water ways causing more flooding when it rains;
- Air pollution due to burning of waste at dumpsites;
- Waterpollutionassomeresidentsdiscardtheirwastesinwaterbodies.Insomecases,rainwater carries the rubbish into the waterways;
- Street litters which affect the aesthetic appeal (visual pollution) of the town.

In Narsapur town, agencies lack the ability to adequately cope with the upsurge in the volume of municipal solid waste generated and this has led to the creation of transportation, recovery, recycling and disposal of solid waste in the town. The present study emerges with the main aim of willingly involving the local citizens of Narsapur town in sustainable solid waste management to reduce environmental pollution. The study will apply the following objectives to achieve our aim:

- Engaging the community in environmental education by creating awareness of waste sorting at homes, schools, colleges and offices and educating them on the consequences of their actions.
- Collection of recyclables and providing dry and wet dust bins to people for motivation
- Engaging the community by conducting weekly sanitation exercise within and around the community
- Conducting of awareness campaigns in Narsapur municipality. **Fig: a & b**

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Fig :(a) Fig :(b)

Fig :(a) Distribution of Dust bins by Sanitary Department in Narsapur Municipality
Fig :(b) Awareness Campaign by Sanitary Department at Narsapur Municipality

CONCLUSION:-

Burning of materials produce dioxins, frons and poly chlorinated biphenyles which have potential to cause various types of ailments including cancer. We stress on three R's principle – Reduce ,Reuse and Recycle before destruction and safe storage of wastes. The process of reducing ,reusing and recycling saves money, energy, raw materials , land space and reduces pollution. We should create awareness about solid waste management to minimize affects of solid wastes and prevent spreading of diseases. Due to improper waste disposal systems, particularly by municipal waste management teams, wastes heap up and become a menace. While people clean their homes and places of work, they litter their surroundings which affect the environment and community.

References:-

(1) Narsapur Municipal Corporation
(2) Anand S.,(2010). *Solid waste management*, Mital publication.
(3) Bhatt S., (2004). *Environment protection and sustainable development*, APH publication.
(4) Bryman, A.,(2008). *Social Research Methods* (3rd ed.), Oxford university Press Publication.
(5) Kurian Joseph, perspectives of solid waste management in India, International Symposium on the Technology and Management of the Treatment & Reuse of The Municipal Solid Waste, Shanghai, China,2002