

Urban Solid Waste : Its Impact and Management



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Abstract

Due to the progress of human civilization and population explosion global environment has been gradually degraded and natural resources have started misused and destroyed thoughtlessly. Like other developing countries in India also rapid urbanization and industrialization has gradually created the problem of pollution. Metropolitan cities in India face more problem of waste than any other cities for example Mumbai generates about 5000 MT and other large cities such as Pune and Ahmedabad generate waste in the range of 1600-3500 MT per day. It is the duty and responsibility of the urban local bodies in India to collect, process, transport and dispose this solid waste. According to the Municipal waste Rules notified in 2000 by the Ministry of Environment and Forest urban local bodies has to collect waste in a segregated manner and undertake safe and scientific transportation, management, processing and disposal of municipal waste. But it is seen that most of the urban local bodies find it difficult to implement these rules. The National and State Governments have provided impetus to improve the solid waste management in urban areas under various schemes and programs. In this paper, we intend to study the urban waste and its impact on environment.

Keywords: Urban Waste, Waste Management.

Introduction

With the progress of human civilization and population explosion global environment has been gradually degraded and natural resources have started misused and destroyed thoughtlessly. Like other developing countries in India also rapid urbanization and industrialization has been created the problem of pollution. Because these two factors are the main sources of wastes. Study reveals that 16% of total global population is there in India, where as its land portion is only 2% of total global land. As a result, different environment related problems have been arising daily. It is observed that approximately 338 billion tons of contaminated wastes are produced in the whole world. As a result of urbanization green hilly areas and agricultural lands are transformed into residential plots. For their convenience people or government founded factories, industries and other some production unit at these urban areas. A large amount of wastes are produced by these production sectors. So, it is the time for all of us to be alert to prevent the creation of different types of wastes.

Following pictures depicts the unhealthy presence of waste in urban areas –

Picture: 1



Picture: 2



Picture 3: Showing Road Encroachment in Urban Areas



Picture4: Showing Solid Waste Management in Unscientific Way



Review of Literature

Sheth, Patel and shah (2016) made a study on solid waste management Ahmedabad city. The findings of the study reveal that Municipal solid waste comprises of more than 50%of organic waste in Indian Urban context as it contains vegetables, food waste paper, clothes and other biodegradable components as well.

Choudhury and choudhury (2014) made a study on the trends of Urban waste management in Agartala city. The main purpose of the study is to access the recent trends, scope and challenges of Agartala Municipal Corporation towards the management of msw.

The study reveals that Municipal solid waste in Agartala generally consist of house hold, commercial, electric wastes and biomedical waste etc. Joshi and Ahmed (2016) made a study the status and challenges of municipal solid waste management in India. In the study they made an attempt to evaluate the major parameter of municipal solid waste management. The study concludes that installation of solid waste processing units in metropolitan cities and development of formal recycling sector is the need of the hour in developing countries like India.

Objectives of the Study

1. To find the sources of waste in urban areas.

2. To find out the affects of waste in urban areas.
3. To find out measures for waste management in urban areas.

Methodology

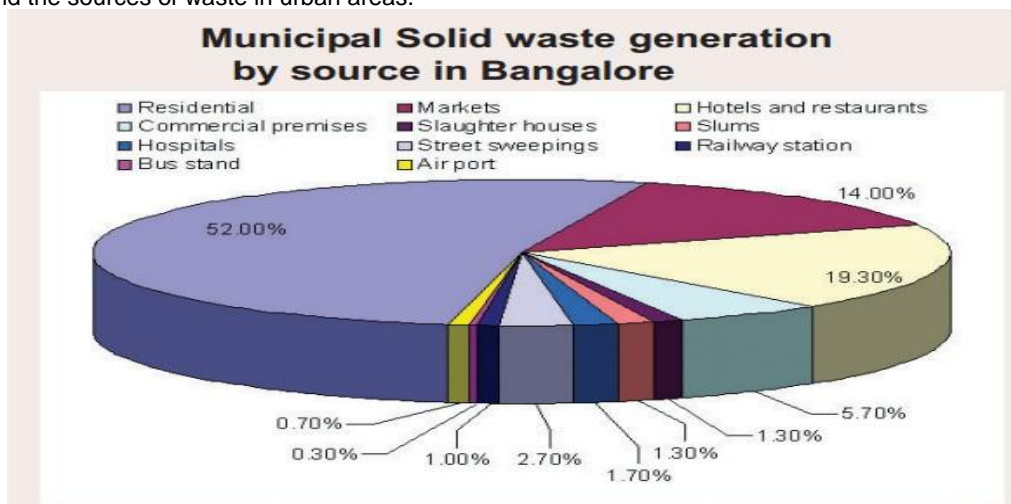
This is a field study. For the study both primary and secondary data is collected. Primary data is collected by visiting the metropolitan cities and personal interview with local citizens. Secondary data is collected frombooks, journals newspaper and different websites.

Main Sources of Urban Waste

At present every city of India produces 12 billion tons of waste in a year and the amount of waste created by per Indian daily is 0.3- 0.5 k.g.[vide, 1997,1990) .

Following are the main sources of urban wastes-

1. Hospitals and Nursing homes.
2. Household waste.
3. Shop –Market waste.
4. Small scale industries [cottage industries).
5. Parks and gardens.
6. Hotels, Restaurants and Printing press etc.



Source: Internet

Hospitals and Nursing homes create waste like food and clothes used by the patients, cardboard, syringe, cotton, operated body parts, dead foetus, stool. In India, quantity of household wastes per year is more than 15 billions. People of thickly populated area throw their waste particles anywhere which causes health hazard.

Useless raw material, pieces of cloth, paper, pieces of jute etc. are come out as garbage from cottage industries.

In modern times Parks and gardens are made to increase the beauty of the city and town. But instead of it, we observe that plastic bag, bottles, leftover food, dead animals are common to see above mentioned places.

In the same way hotels and restaurants create waste like used, and adulterated food, broken

furniture's, tin, polythene bags, broken bottles etc., which are unsafe to human and animal life

Damaged printing materials, large amount of torned pieces of paper, plastic are come out as wastes from printing press.

Types of Waste

We can divide above mentioned wastes in two ways and that are-

1. Biodegradable and
2. Non-biodegradable.

First one is less harmful than second one because biodegradable waste can be reused by recycling. But at present amount of this waste is so high that nature herself has been lost her capacity to manage. On the other hand, it is not possible to recycle the second type of waste i.e. Non-biodegradable waste like polythene and plastic, pieces of various metals, ceramic etc. Due to this, bio-

diversity is highly affected by this type of waste. As a result of throwing these wastes on the road side or open places, rain water carries artificial flood by blocking the sewage system and everybody suffers from it.

Following table shows the amount of waste produced daily in the main cities of India-----

City	Quantity of waste[Ton]	Quantity of Disposed or Managed
Ahmedabad	1500	1200
Bangalore	2130	1800
Mumbai	5800	5000
Kolkata	3500	3150
Delhi	3800	2420
Lucknow	1500	1000
Tamilnadu	2675	2140
Patna	1000	300
Surat	1250	1000

It has been mentioned earlier that both types of small and big industries and factories play serious role in producing garbage or waste. Generally, these two production sectors create waste like useless raw materials, emission of harmful smoke, chemicals, pieces of packing covers, tin container, broken glass container etc.. A large amount of poisonous wastes emit in some industries during working hours. 10-20% waste is dangerous for human life that is emitted from chemical industries. Radioactive waste which are emitted from nuclear reactor sector most harmful and dangerous for all living beings. More over thermal plant, refinery, power plant, atomic energy project, steel industries, paper mill, saw mill, leather industries, sugar mill etc. are the major waste producing or emitting sources.

Impact of waste in Urban Areas

Proper waste management measures can change badly affected environment of the municipality areas. Because of the insufficient supply of garbage 'dustbin', people throw their wastes anywhere on the roadside or open place. As a result of this non-biodegradable waste create an unhealthy condition. At the same time neighbouring area loses its beauty. Sometimes due to lack of awareness people through garbage into roadside drains that cause's artificial flood which enters into the houses, schools etc. This contaminated water carries germs of various disease s which are generally epidemic.

Industrial wastes are very poisonous. They transform the physical quality and organic character of the soil and decrease the productivity of agricultural land. Plastic, polythene, steel, arsenic, mercury etc. are harmful for other animals which cause nerve diseases in them.

The negative effect of the unsustainable management of waste in Indian metropolis is manifested in environmental pollution road encroachment, air pollution, health and in residential land encroachment.

Environment Pollution

Dumping of any type of waste in an open space is a big threat to the environment as it creates a sore sight within the vicinity, pollute the air and the environment.

Road Encroachment

Road encroachment is another problem created due to solid waste. Road should be clear of any obstructing material in order to reduce the risks of accidents or other physical harm to the road users.

Air Pollution

Waste disposal is mostly done by the primitive measures not by scientific ways. Burning of waste in open space is commonly seen which generate serious green house gases and other harmful gases that pollute the air within the vicinity.

Residential land encroachment

In urban areas a large areas of land are being used and lost to solid waste dump sites.

Management of Waste

In case of waste management all of us should be aware and have to give importance on the following matters:

It is important to note that amount of waste depends on the amount of raw material used in the industries and factories. In fact less the use of raw material, lesser the waste. We can use some wastes in other ways and can be economically benefited. For example, old been grown up where decorative items are made with these waste materials. Aluminium, glass, bronze, mercury etc. can be reused by recycling.

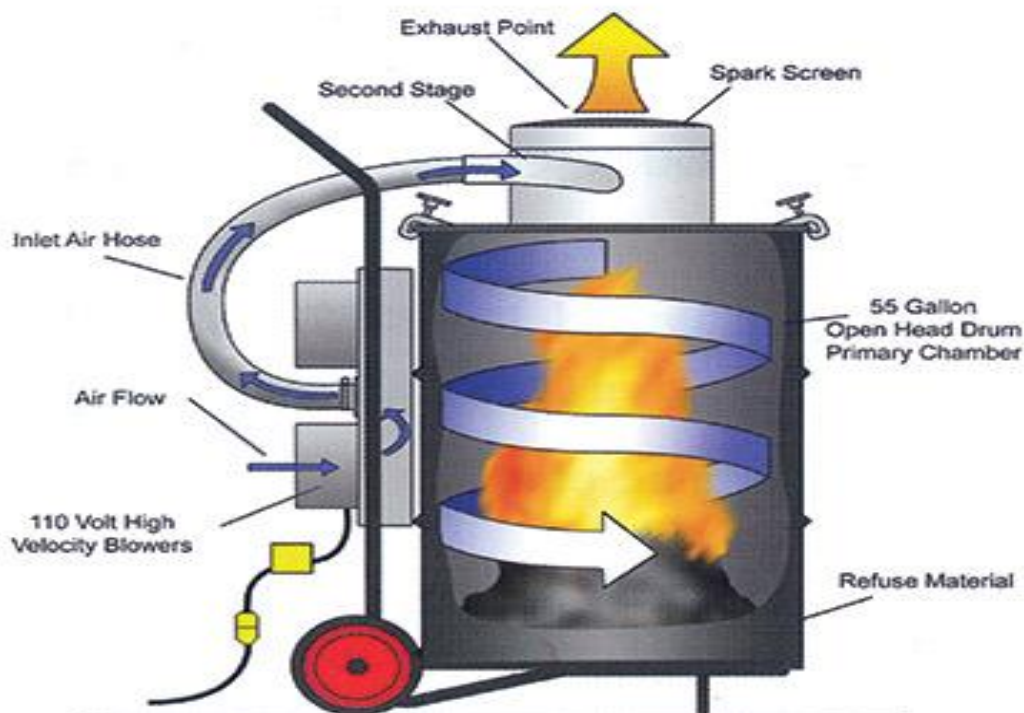
We can prepare shoes, chap pals, leather-water bottles, lamps etc. From old and used glass-plate, steel ring, tyre, leather bag, jacket with the help of "Brig water and Lidgren [1981] technique". This recycling technique helps us economically and keeps the environment intact.

Then additional wastes which are left after recycling can be tackled or dispose in following ways :

1. Less harmful, general wastes should be disposed by the municipality in a place far away from residential area.
2. Kitchen wastes can be used as animal food.
3. Things that are used by the epidemic patient should be sterilized or burnt.
4. 'Incinerator' is a new innovation in the field of waste management. Waste can be burnt by the 'Incinerator'. There should be a controlled burning capacity in the "Incinerator" so that it can produce as little as non-harmful wastes. So incinerator should be well standard. Then waste can be burn properly and left over waste will be germ -free.

Use of Incinerator to Manage Waste





5. Composed pit also plays an important role in waste management. It is an old system of garbage disposal. For this, at first biodegradable waste such as kitchen waste, dry leaves, grass etc. have to store in a place. After some days, with the help of some micro organism, nature herself produces a non-harmful, clean soil like matter. It is very useful in the vegetable and flower garden. Bio-gas and bio-fertilizer can be produced by composed pit process. Bio-gas is used in cooking and in electricity production.
6. Hard, solid, waste can be used in earth filling of low land in a scientific manner. In these process sufficient layers of mud, hard plastic and sand have to be given earlier in the desired deep pit land so that under earth water cannot mix to the contaminated particles. Then the deep pit land is to be filled by other solid wastes. But it should be remembered that this process of earth filling is only fit for construction purpose, not for agriculture.

Conclusion

Solid waste management in urban area of India and disposal of it has been investigated and the findings shows that the municipal solid wastes are mostly composed by biodegradable and non biodegradable materials. The study further reveals

that the agency responsible for the evaluation of these wastes does not do that in a regular basis. It is also seen that the present waste disposal situation is expected to worsen due to rapid urbanisation.

The consequences of the poor waste management are manifested in environmental degradation, road encroachment, air pollution, loss of aesthetic view of the metropolis.

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