Solid Waste Management

Subhrangsu Sekhar Dey

Abstract— Increase of population with their improved lifestyle and build up industrial is increase generation of solid waste in rural as well as urban in our country. But still we used to drop our rest waste into the open land. There are absence of dustbin to all the locality and unsystematic and unscientific way of collections of municipality the solid waste affects our life. People affects by viral fever and headache etc. It also affects to aquatic animal and also increase surface air temperature cause of methane, CO2 and NO_2 from organic food materials and industrial waste.

Minimization of solid waste can save our global and change of climate condition. Use separated and proper dustbin to drop your waste and in rural areas are required toilet to save people and children from viral disease. Conservation of methane gas to use as CNG in vehicles, transportations and motors etc. to save energy. Paper and plastic materials can be reuse as decorating items and raw materials by proper training of self-help groups via municipality. Minimization the use of polythene and plastics uses for food container. Don't waste your rest foods from rituals and social parties, serve them with poor peoples. It's time to save our generation as well as our global to make green and clean global.

Index Terms— Unsystematic and Unscientific way of collection, Conserve CH_4 gas, less using Polythene, Save energy, Don't waste foods, Use reusable bags, Proper Dustbin etc.

1 Introduction

Increases of population and their modern lifestyle, results in increase of generating solid waste in urban as well as rural areas. There are some developed and developing countries most problem about the solid waste. High population and industrials are massive amount of solid waste which impact on the public health issues, global warming and change of climate condition. Mainly from the large communities and industrial hazardous solid waste affects our environmental. Some countries are lack of economical resource and technological resource, results are affected to control the solid waste.

2 Types of Solid waste

Bacically two type of Solid Waste which affects to our environment and as well as Public Health issues.

2.1 Communities waste

A.Household Waste:-Vegetable waste, kitchen waste, etc.

B.Hospital Waste: - Disposable syringes, Glucose bottles Blood and urine bags, Intravenous tubes, surgical gloves, etc.

C.Hotel/Catering Waste: - Foods, Carry bags, Bottles, Containers, Trash bags, Packages, etc.

D.E-Waste: - Discarded electronic devices like computer, TV, music systems etc.

Plastic Waste: - Plastic bags, bottles, buckets etc.

2.2 Industrials Waste

A.Manufacturing Companies Waste: - Hazardous inorganic chemicals and metal complexes like mercury, Sulphates, Nitrates, Nickel, Zinc, etc.

B.Chemical Laboratory:-Mixture of hazardous organic and inorganic chemicals.

C.Nuclear Laboratory:-Radioactive elements.

D.Liquid Waste: - water used for different industries e.g. tanneries, distilleries, thermal power plants, etc.

3 Cause of Solid Waste

First of all the communities' bad manner and undisciplined lifestyle. They always used drops their waste in open land like on the road, on stair and public place etc. which help of increase the impacts of solid waste. Absence of proper dustbin to the population areas and unsystematic and unscientific way of collection of the municipality.

4 Results of Solid Waste

It has recently observed that 7.2 millions of hazardous waste and 150 million of industrial low hazardous waste are lying in open land and Square km every year are filled by solid waste in our India. 1600 crores rupees expensed for treatment & disposal them[3]. In 1981 to 1991 population of Mumbai increased from 8.2 million to 12.3 million during the same period the solid waste of municipal has grown from 3200 tons to 5355 tones, an increase of 67%. Bangalore city produces 2000 tons of waste per annual which put pressure hygienic condition of the city[2].

5 Impacts on Environment

Solid waste increases the surface air temperature and surface climate condition for releasing of CH4, NO2, and CO2 gas

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from organic waste which increases the global warming.
Recently in Mumbai (2005) cloudburst clogged the sewage line due to large no. of plastic bags[8] and Blast in the Bhusan Steel factory at Noida, caused due to imported scrap from Iran[9].
Reduction in the number of migratory birds due to consumption of contaminated foods. Stray animals dying on streets and farmland due to consumption of plastic bags, which blocks the food movement in their stomach[10]. Increase the harmful insects, kits like mosquitoes, bacteria and microbiological for tires, tanks and drains pool water.Some of the cities are used to drop waste materials into the pond, river and sea, results are harmful to aquatic animal and floatage of the river which effects on the boat.
Solid waste impacts on public health issues like viral fever, headache, toxicity, and chronic disease to their health..

6 FUTURE PEDICTION OF SOLID WASTE

TERI Projects in India

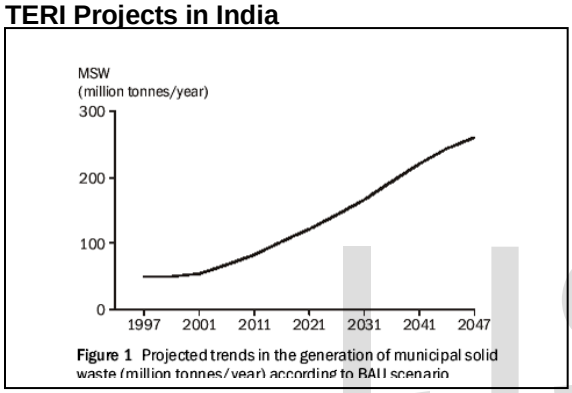

Figure 1 Projected trends in the generation of municipal solid waste (million tonnes/year) according to BAU scenario

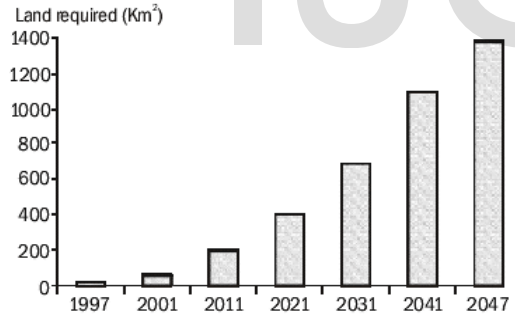

Figure 2 Cumulative land requirement for disposal of municipal solid waste (Km^2)

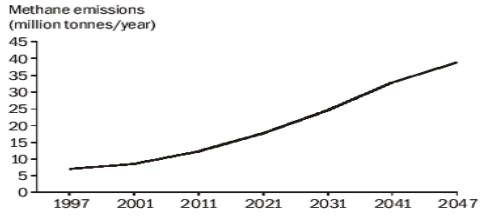

Figure 3 Emission of methane from landfills

7 Importances of waste reduction

In the affluent countries, the main motivations for waste reduction are frequently
related to the high cost and scarcity of sites for landfills, and the environmental degradation caused by toxic materials deposited wastes. There are lack of positive significant for encouraging about benefits from waste reduction. Money is barrier of reduction solid waste and absence of technological procedure.

- To save people and children from viral, chronic disease reduction of solid is most important.
- We can reduce the using of energy by reuse of paper, plastics and other recycled materials.
- To reduce global warming as well as reduce surface air temperature.
- To reduce the growth of mosquitoes, bacterial, kits and poisonous organism.
- Sometimes forest and locality is catches fire by the cause of methane which releases from solid waste.
- To make our global clean and healthy.
- Rural area requires toilet to save people from viral disease.
- Reuse, recycling, and reclamation are ways of managing hazardous wastes which, if properly conducted, can avoid environmental hazards, protect scarce natural resources, and reduce the nation's reliance on raw materials and energy.

8 BULK DENSITIES OF RESIDENTIAL WASTES FOR WORLD[4-6]

Country	Kg/m³
United Kingdom	150
United States	100
Egypt	330
Nigeria	250
Singapore	175
Tunisia	175
Bangladesh	600
Burma	400
India	400-600
Indonesia	400
Mexico	300 to 500
Nepal	600
Pakistan	500
Paraguay	390
South Korea	200 to 450
Sri Lanka	400
Thailand	250
Tanzania	330

9 PHYSICAL AND CHEMICAL CHARECTERITIC OF RESEDENTIAL WASTE VARIOUS LOCATION OF WORLD

	M.C (%)	VS (%)	ASH (%)	C (%)	H (%)	N (%)	P (%)
Calcutta,India	42	32	26	18	N/A	0.55	0.55
Maxico city	50	32.5	33	15	1.5	0.9	
Manila,Philippines	42.6	33.8	23.6	18.3	2.2	0.24	

REFERENCES [5,6,11]

10 TYPICAL BULK DENSITIES OF MIXED MSW AND VARIOUS COMPONENTS OF MSW

Component	Density (kg/m^3)
Mixed Solid Waste Mixed MSW	
Loose	90 to 178
After dumping from compactor	207 to 237
Truck	
In compactor truck	297 to 416
In landfill	475 to 772
Shredded	119 to 237
Baled	475 to 712
Mechanically Recovered Fractious (Loose)	
DRDF	481 to 641
Aluminum Scrap	224 to 257
Ferrous Scrap	369 to 417
Crushed glass	1.042 to 1.363
Powder RDF (Eco Fuel)	417 to 449
Recovered Materials Loose	
Corrugated	16 to 32
Aluminum Cans	32 to 48
Plastic Containers	32 to 48
Miscellaneous papers	48 to 64
Garden Waste	64 to 80
News papers	80 to 112
Rubber	209 to 258
Glass bottles	193 to 305
Food Waste	353 to 401
Tin cans	64 to 80
Densified	
Baled aluminum cans	193 to 289
Cubed ferrous cans	1.042 to 1.491
Baled newspaper	353 to 529
Baled high grades	321 to 465
Baled PET	209 to 305
Baled HDPE	273 to 385

Reference[7]

11 BULK DENSITIES OF VIRGIN MATERIALS

Components	Density(kg/m^3)
Wood	593
Cardboad	689
Paper	705 to 1,154
Glass	2,501
Aluminium	2,693
Steel	7,855
Polypropylene	898
Polyetylene	946
Polystyrene	1,042
ABS	1,026
Acrylic	1,186
Polyvinylchloride(PVC)	1,250

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12 CONCLUSION

Organic matter constitutes 35%–40% of the municipal solid waste generated inIndia. This was recycled by the procedure of composting, one of the oldest forms of disposal. Naturally the process of decomposition of organic waste are yields manure or compost, which is very rich in nutrients. It is a biological process which micro-organisms, mainly fungi and bacteria, convert degradable organic waste into humus like substance. Which increase the nitrogen and carbon in the soil and also your food rest also help of increasing the fertility of the soil.
Sorted your waste material to help of recycle and use separated dustbin for deposited waste. Keep separated your solid waste each other to help of sorted. Plastics, glasses, old cloth, cotton, medicinal, shrapnel and etc. keeps separated for help of recycles.

SORTED METHOD FOR SOLID WASTE

Source- (www.unpluggedliving.com)

- Conserve the methane gas for using as CNG in vehicles, motor, transportations and many more reducing methane gas.
- Reducing CO2, NO2 and another gas from releases solid waste.
- We can use the waste oil as bio-diesel or bio gas.
- Making of decorative items by self-help group via proper training to poor class families via government.
- Don't waste your rest of food from rituals and parties serve to the poor people.
- Reduce the uses of polythene take reusable bags when go to the market.
- Use reusable container for take foods and reduce to use of foods container.
- Bio-gradable items should be buried in the deep ground.
- Use bio-gradable plastic materials to save our environment .

ACKNOWLEDGMENT

I wish thanks to my teacher Dr. Renu Upadhyay, Dr. Divya Prakash, Dr. Shashi Verma,classmates and parents for supported me this work.

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