

A Comparison of Solid Waste Management between Countries

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ABSTRACT: *Solid waste management is the process associated with the storage, generation, collection, transfer or transport, disposal and processing of solid waste materials in ways best addressing the range of environmental considerations, such as storage, public health, aesthetics, economics, and engineering. This study analyses solid waste and solid waste management in different nations. Solid waste increases every day, and more and more waste is being handled at higher rates and the world needs waste management systems of the future, which are well-organized in all aspects including energy efficiency, waste treatment volumes and an increased use of robotic technology instead of people who are suffering from diseases.*

KEYWORDS: *Disposal, Management, Solid Waste, Solid Techniques, Waste.*

INTRODUCTION

Waste management for cleaner resources and better cities is key strategic precondition. Reduced power and water usage and damaging the atmosphere require state-of-the-art technologies Waste management refers to procedures and actions that must be performed from the beginning to the final disposal of waste [1]. Group of six functional elements comprised the activity involved in solid waste management:

- Recovery and Processing.
- Collection
- Transport and transfer.
- Disposal
- Wastage generation.
- . On site handle, processing and storage

The inter relationship between useful element is shown below in the Figure 1[1].

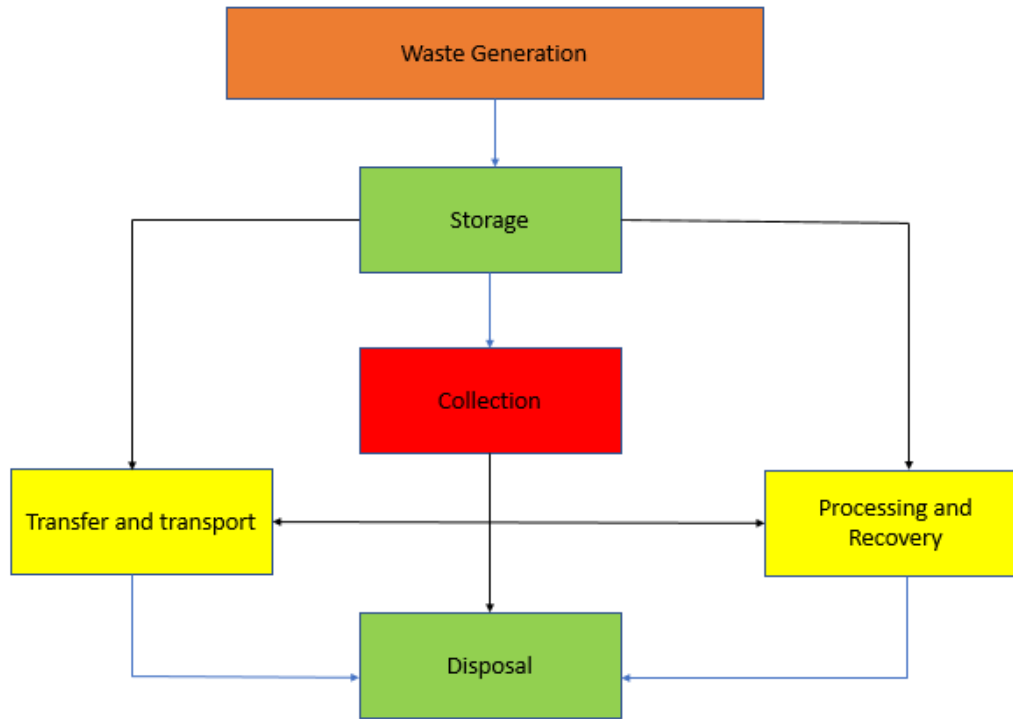


Figure 1: Inter relationship of the functional element including Solid Wastes Management Systems.

Solid wastes are defined in the residential, commercial or industrial environments as unsound or undesirable solid materials derived from human activities [3]. Domestic, industrial, institutional, and demolition waste sources [4] also concern categories. They have numerous solid waste disposals across the world thanks to the high level of human utilization of solid material. Table 1 illustrates the percentage values used in the United States of America in 2001 of waste composition categories (Food Scraps, Yard Trimmings, Paper, Plastic, Metals, Textiles, Rubbers and Leather, Glass wood etc.)[2].

Table 1: Types of Waste Composition in United States Values in Percentage in Year 2001.

| Types of Waste Composition in United states | Value in Percentage |
|---|---------------------|
| Others | 3.4 |
| Wood | 5.9 |
| Glass | 5.2 |
| Textiles, Rubber, and Leather | 7.2 |
| Metals | 8.1 |
| Plastic | 11.2 |
| Paper | 35.3 |
| Yard Trimmings | 12 |
| Food Scraps | 11.8 |

Figure 2 displays the pie chart with a percentage of different kinds of trash disposal in the United States. It is obvious from the pie chart that the minimum waste disposal value is 4 percent compared to other solid waste type and the maximum waste disposal value is 35.3 percent, as indicated in the pie chart, which represents the elimination of paper[3].

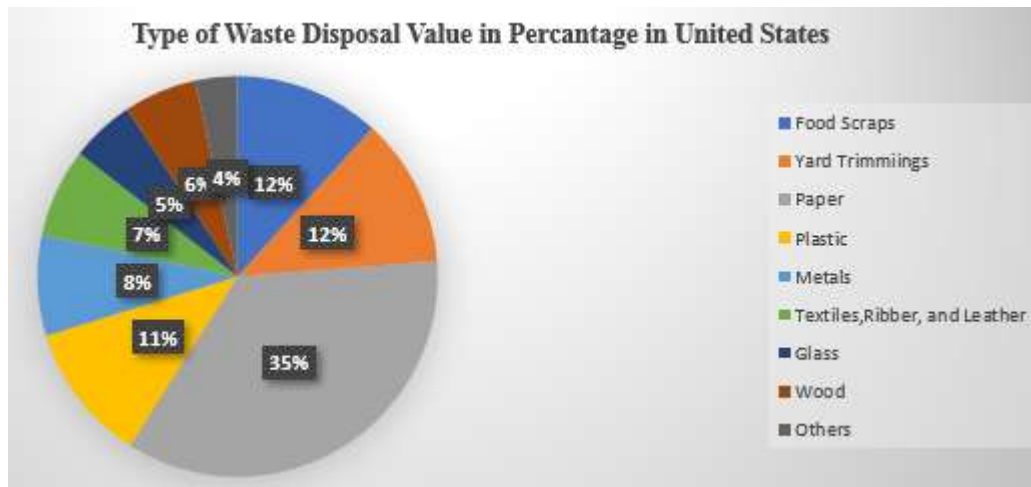


Figure 2: Pie Chart of Types of Waste Composition in United States Values in Percentage.

Waste derived from undesired and unproductive human activity is known as solid waste[5]. Due to greater use and waste of incompatible materials the waste of various materials is increasing every day in India. This table displays the percentage value of waste composition in India in 2003 (e.g. inert, paper, plastics, metals and textiles).

Table 2: Types of Waste Composition Value Percentage in India in 2003.

| Types of Waste Composition in India | Value in Percentage |
|-------------------------------------|---------------------|
| Textile | 3 |
| Metals | 3 |
| Glass | 2 |
| Plastic | 3 |
| Paper | 7 |
| Inert | 41 |
| Compostable | 40 |

The pie chart of the waste disposal % in India is illustrated in Figure 3. The diagram illustrates clearly that the least disposal value of trash is 2%, which consists of solid waste from glass and a maximum disposal value of 41%, which consists of paper disposal as indicated in the pie chart. This indicates that in both the USA and India the greatest disposal value is solid paper waste, however in the U.S. the paper disposal value amounts to 35%, but in India the paper disposal value is 41%

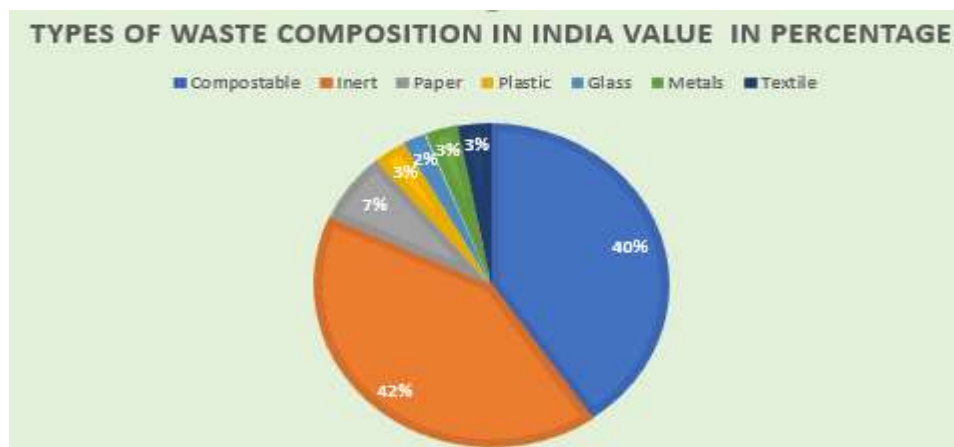


Figure 3: Pie Chart of Types of Waste Composition Value in Percentage in India in Year 2003.

Rapid rise in Indian urbanization and per capita income has considerably led to the country's increased production of municipal solid waste [6]. In India there are several cities producing significant quantities of solid garbage. The total waste produced in tones per day in some cities is shown in Table 3 (Ahmedabad, Hyderabad, Bangalore, Chennai, Kolkata, Delhi and Mumbai)[4].

Table 3: The Whole Waste Generate in Tons in One Day in Different Cities of India.

| City | Whole Waste generate in Tons in One Day |
|-----------|---|
| Hyderabad | 4250 |
| Ahmedabad | 2350 |
| Chennai | 4550 |
| Bangalore | 3750 |
| Delhi | 5850 |
| Mumbai | 6550 |
| Kolkata | 3675 |

Figure 4 shows this. The bar chart indicates that the greatest total trash created per tonnes per day is 6550 tonnes per day in Mumbai, while the smallest amount of rubbish produced in tonnes per day is 2350 tonnes per day in Ahmedabad[5].

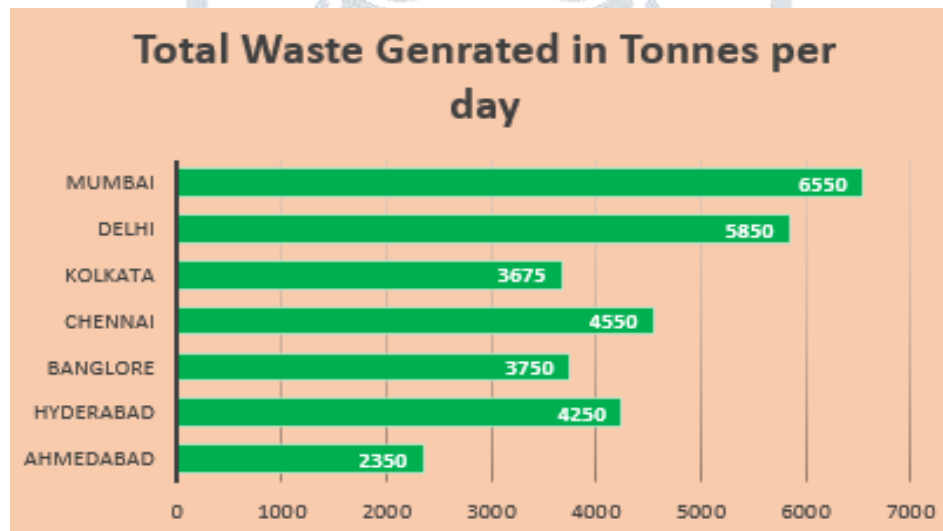


Figure 4: Bar Graph of complete Waste Generate in Tons of the One Day in Different Cities of India.

There is a great deal of waste in the world to handle it While the U.S. accounts for just 4% of the world's population, it accounts for 12% of municipal solid garbage worldwide[6]. There are several ways used for solid waste disposal. Table 4 presents the several methods used for the disposal of solid waste in the United States (recycling, depleting, incineration, and composting)[6].

Table 4: The Various Techniques Values in Which is Use for Solid Waste Disposal In United States.

| Solid Waste Disposal Techniques | Value in Percentage |
|---------------------------------|---------------------|
| Composting | 8 |
| Incineration | 13 |
| Landfill | 54 |
| Recycling | 25 |

This pie chart illustrates the maximum depositary technique for disposal of solid waste that is 54 percent and minimum composting is used for disposal of solid wastes, 8 percent in the United States in 2003, as shown in Figure 5. Figure 5 displays solid waste approaches.



Figure 5: Pie Chart of Various Techniques Values in percentage which is Use for Solid Waste Disposal in United States.

LITERATURE REVIEW

The difference in research contributions by the researcher is indicated below: The new European waste strategies are studied by Andreas Bartl, not mainly aimed at handling waste sources; they emphasise the whole commodity supply chain. The avoidance and reuse of waste has priority and occurs before the end-of-life period of a product or material. Recycled products are only 3rd, however recycling and trash is the least attractive option. Recycling can assist minimise the consumption of main resources, but merely tackles signs instead of the causes [7].

Studies in Saleh Faraj Waste management is increasingly considered as a key component of solid waste management in various parts of the world. Various choices range from tiny decentralised plants to huge organised plants. There are various options accessible. This article covers the different trash recycling methods worldwide [8].

Sunil Kumar et.al research show India that the waste generation and poor garbage management, transport, treatment, and disposal have caused severe environmental problems. The existing waste management plans of India are unable to cope, as a hazard to the atmosphere and community health, with the rise in trash generated by growing urban populations. There are considerable barriers and problems, but the rewards are as important [9].

V. and Bharti. All studies show waste thrown in a number of ways may be repurposed. Their article is on solid waste management methods and strategies in India. The management of solid waste includes a wide range of waste categories: commercial, agricultural, transit, urban, etc. [10].

DISCUSSION

Solid waste management is of great importance in daily life since it may be readily reduced through solid waste management. This study examined the use and analysis of solid waste in several nations. The diverse data examined in this article allows for example to anticipate what solid waste is increasingly contaminating the environment, for example sorts of wastes composition in USA and India percentages. The interaction of functional elements used in the solid waste system.

CONCLUSION

After research by several data authors, it was determined that the maximum disposal value for paper solid waste is 35% in the USA as well as 41% in India. The highest disposal value for paper trash is 42% in India.

Disposal of solids is increasing day-to-day, and orders to solve the world's problem are stepping up to require future waste management systems which are better organised in all aspects, including energy efficiency, volumes of waste treatment and the increased use of robotic technology for people with diseases. Plastic or any substance that will not be removed from the environment, rather than the use of plastic, should be avoided and used.

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