

Emerging Trends in Waste Management

Domendra Verma*, Sheela Khande, Umesh Kumar, Snehal Vairagade

Kalinga University, Raipur (C.G), India-492106

*E-mail: cchotuverma723@gmail.com

ABSTRACT: One of the most emerging issues facing the world is the waste problems. Waste are unwanted or unusable material, that's any substance which is discarded after primary use, or it is worthless, defective and of no use. Waste has been an important environmental problem in our world from the time of the industrial revolution. Besides the waste we create at Household, Biomedical and other public places. The waste has different types like wet waste (Biodegradable), dry waste (Non-degradable), e-waste, chemical waste and recyclable type. Sources that causes problem are agriculture, industries, fisheries etc. The objective of writing this paper is too aware the current issue and their solution related waste management in India. The act run by government like, environment production act 1986, regulation of CPCB and SPCBs must be improved more. This paper also provides some suggestion and recommendation towards waste management. It cover several acts and yojana run by government as well as private sectors like 'Sarathak Pariyojana Bhopal', 'Namo e-waste management Pvt. Ltd.' at Haryana, Harmony society Pune (Maharashtra). It also cover how to recover energy from wastes. Waste management in developing countries and cities, is an ongoing challenge and may struggle for rapid urbanization. All challenges, along with the lack of understanding of different factors that contribute to the hierarchy of waste management. This paper is based on secondary research, data are taken relevant for analysis like government accountability agency, consultants, key industry expert. It offer deep knowledge about the various waste management activities.

Keywords: Emerging issue; industrial revolution; biodegradable; waste management

INTRODUCTION

There are the few things in our day-to-day life that we can't stop and that is "To create waste" but there are no problems that does not have any solutions. Waste is nothing but basic conditions. In this paper we will talk about waste management, here waste is not any problem. Challenge is that how we manage waste systematically so that we can create a healthy, pollution free atmosphere and how we reuse and store energy from waste without creating any harmful effects. So the question is that what is waste? *Waste is unwanted or unusable material, that's any substance which is discarded after primary use and everything that has no longer use or purpose.* However truth is that there is nothing found waste in the world. Almost all the components of solid waste have some potential if it is treated or converted in scientific manner, that have lost their value for the first owner but which may be of great value to somebody else, to make that value again is waste management. Waste management is all the activities, process and action from its inception to its final disposal. The collection, transportation, and disposal of garbage, sewage, and other waste products is called as waste management. India is the most developing country with rapid Urbanizations, industrializations and Economic growth. And leading with most populated country in the world as ranked second most populated nation based on the latest United Nations estimates that current population of India is 1,349,431,812 as of Sunday, March 11, 2018. About 707 districts in india (as of 2016) and approximately 5000 towns. Due to this increasing

population India alone generate more than 1,00,000 metric tone of solid waste every day. In a just single day 377 million people living in urban India generates 62 million tonnes of garbage and now the world's third-largest garbage generator. The volume of waste generated in Indian towns and cities is increasing day-by-day, depending on its increasing population and increased GDP. In Today worlds use and throw concept becoming a trend that create revolutionary increasing in waste. In this paper we will briefly deal with waste management schemes and focusing in initiatives taken. Now a day e-waste becoming most problematic because the huge amount of developing new technologies day-by-day generates more and more waste. "It is notable that waste administration arrangements, as they exist now, are not reasonable in the long haul." Thus, waste management is undergoing drastic changes to offer more options that are more sustainable. We look at these options in the hope of offering more and more solutions, technique and system for current waste management dilemma. This paper outlines various advances and suggestions in the field of waste management. The aim of this paper is to gain knowledge about various initiatives in countries well as small cites. And locate the scope for improvement in the management of waste.

CLASSIFICATION OF WASTE

Wet Waste (Biodegradable Waste): These are the waste which is not harmful to the environment. Wastes that are collected from animals and plants can be easily broken down into useful fertilizers for crops.

Such examples are Garden sweeping or yard waste consisting of green/dry leaves, Green waste from vegetable & fruit shops, Waste from food & tea stalls/shops, Sanitary wastes etc.

Dry Waste (Non-Degradable Waste): These wastes are those which cannot be decomposed by biological process. Generally Most of the inorganic waste is non-biodegradable. In Non-biodegradable wastes, waste can be recycled are called as “Recyclable waste” and those which cannot be recycled are known as “Non-recyclable waste”. Such examples are Containers of

all kinds excluding those containing hazardous material ,Paper and plastic, Cardboard and cartons, Renounce electronic parts, electronic items from collages, colonies, computer diskettes, House, pouches, Discarded clothing.

Hazardous or Harmful Waste: Waste that potentially threaten public health or the environment. Such waste could be reactive (can easily fulminate), caustic (can easily eat through metal), or toxic (poisonous to human and animals).

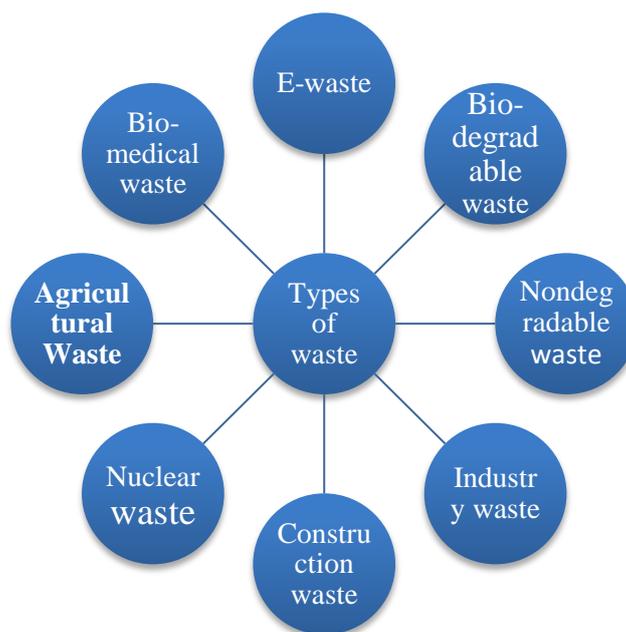


Figure 1: Types of waste

MANAGEMENT VERSES DISPOSAL

There are many common suggestions to dispose waste from ordinary people like dumping it, burning it, finding another use for it (reuse and recycling), and not creating the waste in the first place (waste prevention). But disposal of waste is not any solution yet because now a day it becoming a serious and vexing problem for human habitation all over the world. It indirectly increases the same manifold and at a certain point it goes beyond the control of everybody because disposal includes landfills (sanitary landfill) was invented in England in the 1920s. Open dumps or disposal have major disadvantages, however, especially in heavily populated areas. Toxic chemicals can filter down through a dump and contaminate ground water as well as rapidly increasing air pollution, effecting human and animal health. That's why it's became necessary to focus on proper management of waste. Subject of concern globally and nationally is now

waste management. The More advanced the human settlements, the more complex the waste management.

WASTE MANAGEMENT SYSTEM AND CHALLENGES IN INDIA

In India waste management practice depend upon actual waste generation, primary storage, primary collection, secondary collection, transportation, *Separation of waste* and disposal of garbage, recycling activity and Treatment. Municipality corporations play very important role in waste management in each city which is responsible for the management of the MSW generated in the city, along with its other duties and with the help of public health department which is responsible for sanitation, street cleansing, epidemic control and food adulteration. The cleansing and collection process are done by the public health department of city Municipality Corporation, and transportation and disposal of waste are carried out by the transportation department of city, Waste collection in India. In Delhi-MCD-Sophisticated DWM (Delhi Waste

Management) vehicle. There are distinctive sweepers utilized in road clearing.

In India challenges of waste management include lack of collection and segregation source, dumping of e-waste, distress of land, lack of awareness, etc. "The new Municipal Solid Waste Management Rules 2000", which happened from January 2004, flop, even to oversee squander in a cyclic procedure. Collection in India, waste is collected by garbage picker but that waste are in mix form. Segregation this is the most problematic challenge in India because without segregation waste are dumped into landfill. Scarcity of land in India people usually throws garbage in open area (rural as well as urban area).

MOST EMERGING & TRENDING ISSUE IN WASTE MANAGEMENT

The E-waste management is the system to manage all the components related to electrical and electronic waste. Electronic waste (e-waste) components are such as computers, monitors, servers, printers, scanners, calculators, fax-machines, phones, TVs, batteries, medical apparatus and all other electronic components. In the e-waste components have valuable materials such as gold, silver, copper and platinum. The recycling companies of the India situated in present in Mumbai, Delhi, Chennai, Bangalore and Hyderabad. According to the report top most e-waste production India rank is 5th position. In the year of 2017 e-waste produce amount are 17 lacks tones in Mumbai. The recycling companies said that the e-waste products are 100% recyclable. But, only 20% - 30% of e-waste is properly recycled.

INITIATIVES TAKEN BY INDIAN CORPORATIONS AND PRIVATE COMPANIES FOR WASTE MANAGEMENT

The CPCB is stand for the Central Pollution Control Board of India. It's come under the MEF&CC (Ministry of Environment Forest and Climate Change) which had its head office in New Delhi with seven zonal offices and five laboratories. The SPCB is stand for the State Pollution Control Board of India is work for control and protect the environment, having their different offices at various towns in states. The SPCB has their own team of scientists & also have their own laboratories for checking the quality of air, soil and different samples of water collected. Subhash Projects and Marketing Limited (SPML) is a rising Engineering and Infrastructure development organization with 26 years in Water, Power and Infrastructure. India become the world's second largest mobile market, rank of fifth largest producer of e-waste, leave about 18.5 lakh tonne of electronic waste each year. Namo E-Waste Pvt. Ltd, startup an e-waste recycling based

out of Delhi has the solution to this staggering and piling problem of e-waste generation. The company picks up all kind of electronic waste and recycles them into different usable products. Apart of this, *HCL Info* system encourages and support the ongoing verge for separate e-waste legislation in India. HCL works for suitable and safe program for recycling of e-waste in India. Nokia promotes mobile phone users to give their used handsets and accessories such as charges and cell phones, regardless of the brand, at any of the recycling bins set up across Nokia Priority Dealers and *Nokia Care Centers*. Commenting on the benefit of safe recycling, the former President of India, *Dr. A.P.J. Abul Kalam* likewise said at the introduction of the Attero Recycling Plant in January 2010: "With metal costs rising, reusing will help in supporting our economy as it seems to be" much cheaper than extracting metals from its ore." Antony squanders taking care of cell, a branch of Antony gathering of organizations, Mumbai is one of the main players in the field of Solid waste administration benefits in the nation. We can also take some knowledge from a small village like Mamylynong is not only India's but Asia cleanest village. They even don't use plastic dustbin, use Bamboo dustbin. Another example like a small district Vellore in Tamil Nadu started zero waste management project with Exnora green cross program. They say that it is not waste management, it is resource management. They separate the organic and inorganic waste after than according to category it goes for composting and selling. Small districts like Ambikapur (area of 1983 sq km) of Chhattisgarh also create a great example for waste management. They smarty plan for garbage to gold. 401 women are employed under this project under the leadership of Shashikala sinha. And this scheme generates revenue of 8-9 lacks every month similarly a heritage town of West Bengal, within a span of two years it successfully sensitized residents for segregation at source and not littering in open area. If the entire country follows this city plan, zero waste management program it can generate a revenue of above 18 billion per year.

SUGGESTIONS FOR IMPROVEMENT

We will discuss about some techniques and points in the view of managing the waste management and got some way too. For manage e-wastage in India first of all we have to make a systematic good plans in this field. The honorable prime-minister of our country *Shri Narendra Modi* already said about e-waste that, it has the very dangerous role for our environment in the up-coming years. Because, the major reason is that most of the peoples have lack of awareness about e-wastage. In India, recycling companies are present in only some limited cities such as Mumbai, Delhi, Hy-

derabad, Chennai and Bangalore. In India the first recycle agency build in Mumbai. The vision of building this agency is framed under the clean and green India. In solid waste management, one thing became very clear that segregation at source is to be practiced. On the off chance that waste isolation is honed, the potential dangers can be limited specifically. Plastics squander is a critical part of the aggregate metropolitan strong waste (MSW). Recycling of plastics should be carried in such a manner to minimize the pollution level during the process and as a result to enhance the efficiency of the process and conserve the energy. To make Solid Waste Management an accomplishment in obvious sense, the arranging and additionally usage should begin from overall population level arranging took after by piece level arranging, region.

- Public awareness and participation can play a significant role. Public participation is necessary for a proper waste management system. Changes in the habits of segregation, littering, can change the approach towards wastes.
- All the peoples must have awareness about e-wastes. Civic agencies should take a proactive role in sensitizing people on sanitation and waste management.
- There should be a positive approach for a long time planning and implementation. Enactment and its compelling authorization is a key to maintainability for which the structure requires to be set up.
- The peoples must have to collect their e-wastage and other waste in different bucket.
- The entire city should have a factory for managing e-waste, which recycles the e-wastage in a systematic way.
- The workers can takes the e-wastage from every door-to-door, and send to factory.
- A culture of waste segregation in each household itself needs to be establishes.
- In our nations specialists rehearsing landfill do proclaim that they steadily actualize prerequisites for prescribed landfill to alleviate resident concern."

CONCLUSIONS

It is clearly analyzed than nothing is waste if we each person take it as a duty of own and contribute towards resource management and make strategic waste prevention framework to effectively address wastage related issues. For a healthy life, pollution free environment and beautiful nation. It is an urgent need for a well-defined strategic waste management plan and a strong implementation of the same in India. To achieve financial sustainability, socio-economic, there is a need to systematically analyze the strengths and

weaknesses of the community as well as the municipal corporation, according to that an effective waste management system can be developed. All these above said suggestions will be effective only when we individually feel the responsibility of making environment clean. As general public, we can't do much in policy and regulations formulation, adoption of newer technologies related to recycling and other waste management options but we can play a very important role in this process if we can take possession of only points to achieve this goal.

1. Always be informed and accept 4R [Refuse, Reduce, Reuse, Recycle].
2. Refuse plastic bags and to accept them. Instead, carry a cloth shopping bag with us.
3. Separate our own garbage in home.
4. Compost our organic waste and don't burn garbage.

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