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MUNICIPAL SOLID WASTE MANAGEMENT

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Abstract:

Municipal Solid Waste generated from the household by the human activities must be treated and managed efficiently, otherwise leads to environmental degradation, not only threatens animals but also to human life, and has the greater hindrance to attain sustainable development. The changes in life style of the people, economic concentration, unpreparedness for urbanization, over-population and using Of hazardous materials like batteries, bulbs, paints, plastic bags, sanitary napkins, household cleaners and the waste generated from such usage results in Household Hazardous Waste (HHW) The research focuses on the MSWM in India by concentrating, cost efficient and suitable treatment of MSW by adopting the green techniques for reproducing the waste generated from the household are sometimes used as raw materials for industries and constructions. The research focuses on the MSWM in India, techniques adopted for treating, managing of MSW and HHW to achieve sustainable development in India

Keywords: *Municipal Solid Waste, Management, Household Hazardous Waste (HHW).*

INTRODUCTION:

Human beings, throughout the globe tend to use natural and man-made resources to meet their day- to- day necessities. After usage of resources, the waste disposed that cannot be

used again is thrown out in garbage which is degraded on long run. Initially, human beings crave just to meet their basic necessities that are of eco-friendly but due to the sudden rapid changes in life style of the people, while

urbanization, population growth and modernized goods consumption by using hazardous materials such as plastic, batteries, pesticides, household cleaners, paints and solvent and the waste from usage of such things became HHW. Mostly, MSW is biodegradable as it consists of food, papers, cloths, wood, and furniture, household cleaners which becomes hazardous only when it is made of non-organic substances and non-degradable even on long run. As this usage becomes practice, due to the lack of knowledge regarding impact on using such hazardous materials and non-proper treatment of waste generated by the people leads to mismanagement. The proper segregation, transportation, management, and disposal of MSW and HHW from household is necessary, otherwise, it creates larger adverse impact on human health and also in environment. To safeguard natural resources, human health and to attain environment sustainably, the disposal from the residential,

WHAT IS SOLID WASTE?

The waste may be of solid, liquid, and gaseous substance. Solid waste means unwanted or useless solid materials released out from the household, commercials, industries, mining, agricultural activities, community¹ activities, and institutions individually or collectively where such disposed materials are collected and treated by adopting proper techniques for its effective treatment considering the character, quality, size, nature, feature, or chemical reaction of the waste to reduce and eliminate adverse impact on environment and human health.

SOLID WASTE MANAGEMENT (SWM):

In India, principles of sustainable development, precautionary principle, and polluters pay principle that are applied in SWM that mandates municipality, commercial establishments, waste generators to impose fine on the violator and to work with environmental accountability, and responsible manner in restoring balance between urbanization and environmentⁱ The responsibility also lies on producers under

¹ 1EPA, (June 16, 2021), Criteria for the definition of solid waste and solid and hazardous waste exclusions,

<https://www.epa.gov/hw/criteria-definition-solid-waste-and-solid-and-hazardous-waste-exclusions>

Extended Producer Responsibility (EPR²). The key to attain effective management by ensuring proper collection, storage, transformation, recycling, segregation, and transport of the waste to different corresponding streams for recycling and resource recovery where the final residue is discarded in sanitary landfills³. Clause 15(a) of Solid Waste Management (SWM) Rules, 2016, state that local authorities shall “prepare a solid waste management plan as per state policy and strategy on solid waste management within six months from the date of notification of state policy and strategy and submit a copy to respective departments of State Government or Union territory Administration or agency authorized by the State Government or Union territory Administration.

DEFINITION OF MUNICIPAL SOLID WASTE (MSW):

MSW is defined under Section - 3 Clause XV of the Municipal Solid Waste (Management and Handling) Rules, 2000, as "Municipal

Solid Waste" includes commercial, and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial, hazardous wastes but including treated bio-medical waste. In other words, Municipal waste is a waste that is released from household, it may be bulk waste or similar waste from commerce, trade, office, buildings, institutions, and small businesses, as well as agricultural waste, yard waste, and garden waste, street waste that went uncollected. It also includes the contents of litter, and market cleansing waste that is managed as household which is collected and treated by municipalities, waste pickers, or informal sectors.

THE MUNICIPAL SOLID WASTE INCLUDES⁴,

1. Durable goods like automobile, furniture, household appliances, and mobile phones.
2. Non-durable goods like cosmetics, cleaning products, food, fuel, beer,

² Shailshree Tewari, (25 Feb, 2021), Why India's Solid Waste Management System Needs a Digital Overhaul, <https://www.downtoearth.org.in/blog/waste/why-india-s-solid-waste-management-system-needs-a-digital-overhaul-75671>

³ Samar Lahiry, (January 9, 2017), India's Challenge in Waste Management, <https://www.downtoearth.org.in/blog/waste/india-s-challenges-in-waste-management-56753>

⁴ Rohtak,, Handbook on Waste Management, Municipal Corporation, <http://mrohtak.gov.in/SWMRSN/Solid%20Waste%20Management%20Rule.PDF>, 5 Ministry of Environment and Forest, Municipal Solid Wastes (Management and Handling) Rules, 2000, April 4, 2022 at 08.46 <https://www.mpcb.gov.in/sites/default/files/solid-waste/MSWrules200002032020.pdf>

cigarettes, paper products, rubber, textiles, clothing and footwear.

3. Organic waste that is biodegradable which comes from plants or animal includes agricultural waste household activities.⁵,

4. Non-organic waste that is aluminium cans, spoons, plastics, and glass.

MUNICIPAL SOLID WASTE MANAGEMENT:

MSW is a waste generated from household, office, schools, hotels, shops, commercials, institutions, including, rubbish, ashes, street cleanings, medical waste, and all other hazardous and non-industrial solid waste⁶ where the disposal of such waste is made in trash or garbage, irrespective of its discharge from urban or rural area, as it also includes the waste disposed in streets by the activities of the human beings after it served its purpose and no longer useful⁷. Such waste is collected by municipality, waste pickers, or informal sectors in local area for its treatment

and for further transportation. Waste from kitchen and bathroom or organic waste which becomes garbage and all other refuse from the house is trash. MSWM means the management of waste by adopting adequate and necessary techniques such as recycling, incineration, compositing, land filling, open dumping which are collected, segregated, transported, recycled, and reused by knowing its nature, specifications, chemical reaction, physical and chemical characteristics, and its result while treating MSW waste by using techniques adopted⁸. Inefficient ways in handling, storing, collecting, and disposing of Municipal waste created by human beings is turn out to be huge impact on public health, and environment. MSWM includes all activities that is carried out to minimize health hazardous, environmental impact due to solid waste, to protect public health and to achieve sustainable development.⁹

The term MSW includes, control of waste generation, efficient collection,

⁵ OECD (2022), Municipal waste (indicator),(March 28,2022 at 11.20 AM) doi: 10.1787/89d5679a-en

⁶ M.S.Rao,, Sri Harsha Kota, (2015), Municipal Solid Waste,
<https://www.sciencedirect.com/topics/engineering/municipal-solid-waste>

⁷ Jerry A.Nathanson, (2020, November 10), Solid Waste Management, Encyclopedia Britannica, (March 26, 2022 at 09.32),
<https://www.britannica.com/technology/solid-wastemanagement> MUNICIPALSOLID_WASTE_M

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⁹ Zhu, Da; Asnani, P. U. Zurbrügg, Chris; Anapolsky, Sebastian; Mani, Shyamala, (2008), Improving Municipal Solid Waste Management in India : A Sourcebook for Policy Makers and Practitioners,(March 25, 2022 at 08.45 AM),
<https://openknowledge.worldbank.org/handle/10986/6916>

storage, transportation, recycle, and disposal of waste by considering the best interest towards the society in the aspects of economy, environment, and public health. The Municipal Solid Waste (Management and Handling) Rules, 2000 deals with functions, rights, liabilities of Local Administrative Body (LAB), Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCB), and emphasized the state governments for enforcing the provisions of rules by District Magistrates, Deputy Commissioners of the districts who are responsible for enforcing the provisions within their jurisdiction¹⁰.

ROLE OF WOMEN IN MSWM IN INDIA:

Women in household who taught home about the discipline, morality, education, etc, also dedicated their work towards family health, cleaning, food preparation, and domestic maintenance which leads to municipal waste. Historically, kitchen is the place where women belong to have their rule and there

starts the environmental responsibility. Primarily, women being engaged in taking care of the family, also have their role not only in family management but also in waste management by promptly collecting and segregating the waste discharged in the family, as part of their day-to-day work that is necessarily released out from their house¹¹. Since waste management is mostly informal and hence, the participation of women left informal, not recognized, even treated as untouchables, and also kept undervalued because it is done by women and also considered as women works. Women role in cleaning both home and society starting from sweeping the streets, collection of waste, community bin that are kept in every streets, and door to door collection and helping their partners in carrying and disposal of trash in the bins for their livelihood. Majorly, women have been forced to do pick up the waste on the road side because of their financial needs, by engaging in waste collection results in exploitation, as they work under or without payment. Mostly, the unskilled or uneducated

¹⁰ Srinivasaroa Meka, (Feb 2014), Municipal Solid Waste Management in India: A review and some new results
<https://www.researchgate.net/publication/260230170>

¹¹ Lavanya. R, (July 9, 2021), Waste Management: How Women Do all the Work Yet Remained Undervalued, (April 19, 2022 at 08.42AM),
<https://feminisminindia.com/2021/07/09/waste->

management-how-women-do-all-the-work-yet-remain-undervalued/ 12 Subhalaxmi Borah, What's the Connection Between Gender and Waste Management?, (April 19, 2022 at 08.52),
<https://inbreakthrough.org/link-gender-waste-management/>

women are employing for cleaning purpose in household, office, restaurants, schools, institution and all other places in India. Women participation in the process of waste management is predominant but their work remain silent, unheard, and pretended to be unnoticed and treated as untouchable by the community that stays without any changes which has also caste impact and remains as the taboo. It is the untold and unspoken dark side of the society that cannot be acceptable. Waste management is nothing to do with the gender or caste, but the phenomena of being employing only women and certain people belonging to specified community in such works keeps them underestimated by the males and other peoples. It makes them to feel hesitant towards the work resulting in losing interest for the sanitation works. Women and men have different perspective and responsibilities towards waste management. Every human being, irrespective of the gender, it is not only the responsibility but also the duty of every individual or citizen to promptly dispose the waste in appropriate methods in household as well as outside that is kept for collection as per the nature of the

waste is helpful for recycling, and treatment to achieve sustainable development¹².

CONCLUSION:

India is diverse in nature. natural resources are given by the god that is existed in the earth before the creation of human beings. Initially, there is surplus of natural resources available in the earth are sufficient to meet the present and future needs of the human beings. Later, it becomes satisfactory, now it is not only deficit but also becomes hazardous and threat to human beings, wildlife, and all other living and resources. Due to continuous usage of natural resources, the pressure on the earth increases while the human beings are consuming from the resources to meet day to day necessities leads to stress the environment, as people increased their consumption from the natural resources, despite working on revamping it. Subsequently, changes in lifestyle of the people, changed their consumption behaviour that generated several types of waste leads from households, industries, commercials, institutions, constructions, hospitals, clinics, etc. The MSW is not less than other waste, that also consist of all types of waste which may be biodegradable, households,

¹²Lavanya. R, (July 9, 2021), Waste Management: How Women Do all the Work Yet Remained

Undervalued, (April 19, 2022 at 08.42AM), <https://feminisinindia.com/2021/07/09/waste->

industries, commercials, institutions, constructions, hospitals, clinics, etc. The MSW is not less than other waste, that also consist of all types of waste which may be biodegradable, non-biodegradable, organic, and inorganic, that needs disposal and management.

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