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15. DISPOSAL OF HOUSEHOLD WASTE: PRACTICES, CHALLENGES & MANAGEMENT

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ABSTRACT

Household waste comprises of garbage and rubbish from individual home and flats/apartments. This waste consists of fruits and vegetables, food scrapes, papers, cans and bottles, clothes, chocolate wrappers, shampoo bottles and sachets etc. These are non-hazardous wastes generated by household and can be recycled. Hazardous wastes are those from pest control, home cleaners, batteries, garage oils which have adverse impact on the environment and threatens human life and other living organisms. The improper disposal of household hazardous waste by pouring waste oils and cleaners on the ground or disposing the containers along with other wastages affects the people living in that area and also affects the health of sewage cleaners. Dumping of solid wastes in the outskirts or open area has created huge landfills which pose serious threats on environment causing air pollution, contamination of ground water. Another serious problem in improper disposal of domestic waste is in regard to the process of collecting household waste. Lack of equipment and infrastructure for collection, inadequate number of bins and bin capacity, lack of manpower and technical skills and high rate of generation of waste from household sector. The present paper is intended to investigate the practices in the disposal of household waste, problems and challenges of improper disposal and measures for effective household waste management. The paper also highlights suggestions for proper disposal of household waste.

KEYWORDS: Household waste, practices of disposal, household waste management

INTRODUCTION

Generation of waste is unavoidable in all activities of life and in all sectors of production. Anything which cannot be used further and anything which has lost its value and purpose is termed to be waste. All human activities, be it household, commercial, industries generate waste i.e. certain things, commodities or materials which are not required by its owner or producer becomes waste. This study concentrates on solid waste generated by household sector. Household waste comprises of garbage and rubbish from individual household, flats/apartments. Household waste

can be classified as hazardous waste which includes pest control, home cleaners, garbage oil, batteries and non-hazardous waste are those from fruits and vegetables, flowers, food scrapes, animal slaughter, furniture, clothes, hair and plastic covers. The hazardous waste should be disposed carefully and safely so that it will not affect the living beings and also the environment.

The increase in generation of waste can be attributed to population explosion, urbanization, development of technology, changing life style and fashion and increase in income of the people. In particular, the transition from low income to middle/high income results in vast increase of solid waste. This is so because when income increases consumption level also increases and much income is diverted to the purchase of consumer durables. Similarly, people in urban spend large amount of their income on goods and this has resulted in mounting solid waste and landfills.

The improper disposal of household waste has adverse impact on human being, living organisms and environment. It affects the natural resources mainly air, soil and water. Dumping of solid waste in open area leads to landfills which results in air pollution, depletion of soil fertility and pollutes under ground water. This also generates many organisms and micro-organisms such as flies, mosquitoes, bacteria which cause various diseases and pose serious threat on human health.

REVIEW OF LITERATURE

Abraham Lingan and Poyyamoli (2014) investigated the status of municipal waste management in Cuddalore municipality. The study concluded that Cuddalore produced the high level of waste but the waste management technology adopted by the municipality was ineffective because the waste were discarded in street and improper disposal method was practiced. The collection and transportation was not updated and old equipment were used for this process. The study suggested that co-ordination between private sector, rag pickers, and people, individuals, NGOs and municipality would lead to effective and proper disposal of waste.

Indira et al (2015) focused their study on the attitude of the people about household solid

waste disposal in Kumbakkonam district and also to explain about the people's awareness on disposal of waste. The study concluded that people were using small bins of different colours and segregated the waste before disposal, wastes were disposed every day and people were satisfied with the work done by the sweepers.

Joshi and Ahmed (2016) had evaluated the parameters to study the municipal solid waste management system, generation of waste, collection and treatment methods adopted in India. The study concluded that decentralized solid waste units and formal recycling industry would lead to more effective and scientific method of waste management.

Niyati Mahajan (2016) explored the waste management process of informal sector particularly Exnora. Informal sector increases income of waste workers and also convert waste into valuable commodities. The study identified the strengths and challenges faced by Exnora and also the impact of civic awareness created by Exnora to the people. The study concluded that the Civic Exnora innovation had created awareness among the people and also the co-ordination of local governments, community and technical improvements had positive impact on disposal of solid waste by household sector.

Parvathamma (2014) examined the impact of geopolitical factors on waste management at global and local levels and also the effect of socio-economic factors on waste management. Significance was also given for studying the quantity of solid waste generated and its impact on environment and health of the people. The study concluded that the collection and transportation of waste were effective but few modifications were required for scientific collection and disposal of waste. Decentralized system of waste collection and holistic approaches in the generation of waste, recycle and reuse would reduce waste and produce energy.

Ravesh Agarwal et al (2015) studied the practices of waste management in India, its impact on human being and also suggested measures for its improvement. The study concluded that proper strategic planning and implementation of such plan would protect human health and environment. The suggestions were creating awareness among people, inclusion of waste management methods in education for sensitizing people.

Sivaraman (2015) in his article concluded that incineration was the best method of solid waste disposal. The study conducted in Puducherry and outlined that the non-availability of land

was a major constraint in adopting landfilling and composting process. Incineration was the prime method of solid waste disposal and this does not affect human health and environment. Sunil Kumar et al (2017) made a descriptive analysis on waste management system in India. The authors opined that India has moved from waste dump to waste management. The analysis identified that population growth and development of cities were the major causes for increase in generation of waste in India and the quantity of waste depends on standard of living, eating habits of the people, type of commercial activity, etc. The study also explored the status of waste management in India, various legislations in waste management, recycling and reuse, role of informal sector, impacts of improper disposal of waste on human and environment, landfills and barriers to improved waste management. The analysis concluded that proper and safe disposal of waste, sustainable waste management system, waste-to-energy facilities, engineered landfills, trained persons in collection and management of waste would lead to protection of environment and effective disposal of waste.

METHODOLOGY

Scope of the Study

The present paper intends to make a descriptive analysis on the practices adopted in disposing household waste, impacts of such disposal, challenges faced while disposing waste, proper, scientific and effective methods of disposing and managing household waste.

Objectives of the Study

→ To study the present scenario in disposing the household waste and the impacts of such disposal.

→ To identify the challenges encountered while such disposal method.

→ To explore the effective methods of disposing household waste.

Source Of Information

The study uses secondary information collected from various books, journals, newspapers and websites.

Disposal of household waste - Present Scenario Presently, household waste are disposed unhazardly in an unscientific manner and these wastes are not treated or cleared which creates odour, release of airborne diseases, etc. The common way of disposing waste adopted by household sector is to collect all the waste, both biodegradable and non-biodegradable together in a plastic bag or small bin and throw it in the large bins or containers provided by the corporation. Many times these wastes are thrown on the roadside, streets or open area

nearby, causing severe health and environment issues. In some cases, waste from vegetables, fruits, egg shell are thrown in the garden or pots as fertilizer for plants. This method of disposal is improper and unscientific and destroys the growth of the plants.

IMPACT OF IMPROPER DISPOSAL OF HOUSEHOLD WASTE

- Affects health of the people and all living organisms.
- Reduces quality of life.
- Degrades environment and causes global warming.
- Deteriorates natural resources.
- Creates odour which leads to air pollution.
- Dumping on land affects ground water,
- Improper disposal causes premature death.
- Landfills blocks drainage and sewerage system causing water logging and floods.
- Insects, mosquitoes and flies are generated.
- Contaminates water resources which cannot be used for drinking and other purposes.
- Unscientific method of burning wastes creates smoke and emits pollutants that lead to breathing and lungs problems.

Challenges in unscientific method of disposing household waste

- Disposal of all types of waste together by household sector.
- No usage of proper dustbins at home.
- Lack of segregation between biodegradable and non-biodegradable waste.
- Inadequate number of dustbins on roads and also less capacity of dustbins.
- Lack of technology in the collection of garbage.
- Lack of infrastructure and equipment for collecting the garbage.
- Less number of sanitary workers and cleaners.
- Limited availability of trained and skilled manpower for strategic planning and framing policy for collection and management of waste.
- Shortage of funds to cover the cost required for collection, segregation. Transportation and treatment of waste.
- Lack of accountability and responsibility of the officials and workers.
- Non availability or limited availability of land for disposal of waste.
- Collection of all types of waste such as solid, liquid, e-waste, animal slaughter, construction waste, metal, medical waste together in the same bin/vehicle.

- Spillage of waste due to uncover and improper transportation.
- The collected wastes are dumped indiscriminately in unhygienic way.
- No proper monitoring and supervision during collection of waste.

EFFECTIVE METHODS OF DISPOSING HOUSEHOLD WASTE

Waste management encompasses all activities needed for managing waste, right from collection transportation, treatment, disposal and also proper supervision and regulation. This also includes the legal acts and provisions required for proper disposal of waste. Organized and well planned disposal of household waste requires the co-ordination and co-operation of public, private, individual households and NGOs. The public sector should initiate policies, regulations and measures for scientific disposal of waste which will protect human health, living organisms and environment. Advanced technology, provision of required equipment, vehicles, manpower, training the sanitary workers, monitoring and supervision would led to management of waste and also protect the environment. Following are some of the methods identified as effective for disposal of waste.

→ **Segregation:** Waste should be segregated as biodegradable and non-biodegradable at household level. Similarly, hazardous waste should also be disposed separately in different bins or bags. This will enable recycling and scientific disposal.

→ **Collection:** Waste from different sectors such as household, industry, agriculture, construction, medical, commercial, complex should be collected separately. This is because some sectors contain hazardous and non-biodegradable waste.

→ **Reduce, Reuse, Recycle:** Reduce the usage of plastic and general wastage of food items, fruits and vegetables. Use the amount required for the family. Recycling and reusing of waste generated is the best method of disposal of waste. Waste water recycling and reusing for flush and gardening are gaining popularity.

→ **Transportation:** The collected waste should be transported safely to the place of landfill and incineration. Open transport leads to spilling of waste carried in vehicles all over the streets. Covered and closed tempos, mobile compactors should be used for transportation of waste.

→ **Landfilling:** This method is dumping of waste in a low lying open area outskirts of residential area. But landfilling leads to production of methane and carbon dioxide

gases which has serious effects on human and environment. This also leads to greenhouse effect and affects the ozone layer. But the effect of landfilling can be reduced through waste minimization, reuse, recycle, etc.

Incineration: This is method adopted for disposing solid waste. Here the solid wastes are set on fire or combustions and are converted into heat, steam or ash form.

→ **Plastic recycling:** Plastic wastes are segregated from other type of waste and formed as thread and cut into small pieces. Separate plastic moulding machines are used for moulding to make different products.

→ **Kitchen garden/Terrace garden:** The vacant land within the home premises can be utilized for growing spinach and all vegetables by converting kitchen waste into organic manure.

→ **Shed :**Construction of common Shed in each area separately for dumping the waste and also a common compost pit for composting wastes.

→ **Cloth bag:**Using cloth bag will minimize the waste gradually. Cloth bags can be used for shopping and this is reusable.

→ **Composting:** this is a method of converting biodegradable waste into organic manure and fertilizers that can be used in agriculture. This organic manure is high in nutrition content required for plants and vegetables. Much of composting are labour intensive.

→ **Vermicomposting:** In this method the biodegradable organic wastes are decomposed by introducing earthworms on them and these can be used for plantation.

→ **Anaerobic digestion:** Also known as biomethanation process and is a sustainable process of biodegradable wastes. Through stabilization, organic waste is converted as biogas which can be used as energy.

SUGGESTIONS FOR EFFECTIVE DISPOSAL OF HOUSEHOLD WASTE.

- Provision of different colour bins in each street or area for segregating the waste as biodegradable and non-biodegradable.
- Creating awareness among people about the significance of segregation of waste for disposal.
- Awareness through pamphlets, street plays, hoardings, cartoons in television, small play in theatres before starting the movie can be displayed.
- Educational institutions can encourage the habit of separating the wastes like food items, papers, plastic, waste from stationery in different bins.
- Orientation on solid waste disposal can

be given to children at school and briefing about the impact of improper disposal of waste.

- The sanitation workers and cleaners can demonstrate how to segregate waste effectively and also the difficulties of collecting the waste thrown just like that.

- Fine/penalty can be collected from household which violate the disposal laws and regulations.

- The authorities can send messages on cleanliness, proper and scientific method of disposal, impact of proper disposal on health and environment in social media.

- Corporation/Municipality can organize competitions like essay writing, poster painting, collage, rangoli, poetry writing, debate, quiz at school and college level to create awareness among the students.

- Prize/awards can be given to the area which abides to the rules of disposal of waste.

- Government should enlighten knowledge on recycling and reusing. This paves way for minimization of waste.

- Provision of proper equipment and vehicles required for collection and transportation of waste and also employing adequate manpower.

- Installation of decentralized composting units to reduce landfilling and dumping of waste in open area.

- Course in waste management should be mandatory at school/college level irrespective of discipline/stream.

- Manufacture and use of plastic bags and other non-biodegradable items should be banned by the government. The law should be very stringent and strict action should be taken against those violating the law.

- Awareness should be created on the significance of service rendered by sanitary workers, cleaners and sweepers. People should change their attitude towards these people and respect them.

- Appropriate water treatment technology should be adopted to preserve the contaminated water by dumping the waste.

CONCLUSION

Population growth, urbanization, transition to high income and change in the life style of the people have resulted in the increased the generation of household waste in our country. The improper and unscientific method of disposal of waste had adverse impact on human life and environment. The need of the hour is to develop the existing method of waste disposal and also monitor that the household strictly adheres to law of disposal. This can be achieved through the co-ordination and co-operation of general public, government, private sector,

NGOs. One effective measure of sensitizing people is creating awareness on segregation, composting, vermicomposting, kitchen gardening, recycle and reuse through street plays, propoganda, pamphlets, demonstration, hoardings and banners. Hence, waste disposal and management will be more effective through the combined efforts of the entire nation and this will pave way for sustainable development of our country.

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