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PUBLIC RESPONSE ON SMART SOLID WASTE MANAGEMENT

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ABSTRACT

Solid waste management (SWM) is a great concern for public health and environment of rural as well as urban parts of smart cities. Now-a-days solid waste management has become a major problem due to increase economic activities and rapid urbanization. We face many issues and difficulties associated with weakly managed solid waste operations. Government is also taking too much interest in these areas to resolve the issues in a safe, hygienic and productive manner. In that present time solid waste disposal in landfills and open dump sites was considered more economical and these methods are most widely used methods in smart cities. Using published data on solid waste management techniques, the paper has examined that there is high capability of composting in the solid waste stream from cities in developing countries. Municipal and industrial solid industrial waste management is an important issue worldwide .particularly there should be best practices for successful public participation and consultation on SWM projects (SWMPs). It is hoped that the paper has provided useful information and guidelines for wastes management policy decisions in developing countries.

Keywords: SWM, Urbanization, Hygienic, Composting, SWMPs.

I. INTRODUCTION

The waste sector traditionally refers to solid waste and excludes waste water. The scope of this bulletin is therefore limited to solid waste (SW). [1] Solid waste is generally composed of gadgets (such as discarded computers, printers and mobile phones), construction material, medical waste, and domestic waste, industries, and agricultural wastes. The content of solid waste creates a difference between developing and developed countries, and even between regions or cities in countries. For example, solid waste in developing countries has a much larger proportion of organic or domestic waste than in developed countries. A smart city is a urban development vision to extract multiple information and communication technology (ICT) solution in a secure manner to manage city's assets – the city's assets include, ,but not limited to, local departments information systems, schools, transportation systems, hospitals and power plants and other community services. The aim behind the idea of building a smart city is to improve quality of life of citizens by using advance technologies to improve the efficiency of services and meet citizen's needs. ICT allows city officials to interact directly with the community and to tell what the situation of city is, how the city is evolving, and how to enable a better life. Through the use of advance technology, system and sensors, data are collected from peoples and objects - then processed in real-time. The data, information and knowledge gathered are keys to tackle inefficiency.

Many types of businesses generate hazardous waste. For example, dry cleaners, automobile vehicles and photo processing centres may all generate hazardous waste. Some hazardous waste generate from larger companies such as chemical manufacturers, electroplating companies, and oil refineries. These wastes may be found in different states such as gaseous, liquids, or solids. Depending on the state of the waste, treatment of waste and solidification processes of waste might be required.

A. Discussion

The study indicates that increased domestic and household activities in urban environments are linked to the generation of high volumes of domestic wastes. It is also evident that some of this waste is dumped on the streets, gutters, holes and in nearby bushes. This has the potential of serving as breeding grounds for rodents and insects that could increase the risk of the spread of parasitic and zoonotic diseases. Moreover, food debris disposed of indiscriminately could give rise to choked drains and blocked waterways, which create the possibility of flooding during the wet season. The high level of plastic waste generated by households (64.3%) in this study supports the finding that plastic waste generation is increasing in Pune cities. This phenomenon of increased plastic waste is likely to have implications for disposal, since plastic is not biodegradable. Most often, waste is burnt in the open air at the final disposal sites. Burning of plastic waste will add to the toxic gaseous emissions in the atmosphere, polluting the air and destroying the ozone layer and its protective properties, thereby increasing the risk of health hazards, including cancers. Apart from that, the large quantity of plastic waste that is generated could create financial and socio-economic losses for governments at large when they try to manage it. It is estimated that over 77.9% of households' generated plastic waste as a component of their domestic waste. In addition, plastic wastes seem to be part of almost all the waste generated at home. This is consistent with earlier studies that suggested that the increased of use of plastics is due to changes in life style and industrialization in which plastic packages replace other forms of packaging.

The best practice is to store domestic waste in covered plastic bins. However, only 29.9% of the respondents used covered plastic bins to store their solid waste. The use of covered plastic bins protects the waste from direct exposure to flies, vermin, and scavengers, and they also prevent dour nuisances and unsightliness. The pre-1960s philosophy of disposal practices, which was governed by the thinking "out of sight out of mind", still exists in our waste disposal attitude today. Unfortunately, indiscriminate open dumping of wastes poses significant threats to public health and the environment if they are not stored, collected and disposed of properly. It also makes a travesty of solid waste regulations and defeats the national environmental sanitation policy of maintaining a clean, safe and pleasant physical environment for human settlements. To ensure adherence to the solid waste policies, district, municipal, and metropolitan assemblies will have to develop and strictly enforce regulations in communities.

This situation creates a suitable environment for breeding of disease vectors, such as mosquitoes and cockroaches, and the proliferation of rodents, such as rats and mice, which pose threats to public health. The use of colour coded containers to store different types of solid waste, which has been in practice in developed countries for over four decades, is reported to offer a more cost-effective waste management service, since it improves household waste separation and reduces the amount of waste in landfill. These dumping sites are major threats to human health and the environment. The perceptions of the respondents towards waste management generally seemed to be fairly low. Although 76.5% reported that waste management is important, 83.8% report that it is the responsibility of children to manage waste and not the authorities. Since these people did not see disposal as an important issue, it is not likely that they will improve their waste disposal practices and management practices. This finding, however, is not consistent with other studies that suggested that general waste management in Ghana is perceived as the responsibility of the Ministry of Local Government and Rural Development, which supervises the decentralized MMDAs.

The compound houses were densely populated, which may set the pace for the generation of more waste in the community, so the attitudes of a few about waste disposal could result in the whole compound house practicing similar disposal styles or behaviours. Dense populations and increased consumption have been shown to increase more waste and increase disposal problems.

About 84% of the respondents were aware that improper waste management leads to sicknesses or diseases. This high level of knowledge on the effects of waste management does not correspond with the observed practices. The household heads who educate the occupants of the home have several reasons for properly disposing of waste, including cleanliness, fear of diseases, and odor. The solid waste generated at home was

largely food debris and plastic, which are disposed without separation and stored in uncovered plastic bins. Some of the waste is disposed appropriately at communal sites, while some of it is disposed by the practice of crude dumping in gutters, holes, streets, and bushes. Most respondents said they would be happier if more collecting bins were provided and there was regular collection of solid waste for the disposal sites, and some were willing to pay more if the charges were increased. The majority of the households were aware of the health implication of waste, although some had no basic education. Many perceived that children should be responsible for waste management. Most of the respondents thought that improper waste management could lead to malaria and diarrhea. Proper waste management can lead to improvement in the quality of the environment while, on the other hand, poor waste management can lead to air pollution and breeding of mosquitos, thus causing disease.

II. HUMAN RESPONSE FOR USE OF THE SMART SOLID WASTE MANAGEMENT SYSTEM

Generally, in India the human nature for the solid waste collection is traditional .The approach of the human and the government agencies are very poor towards the solid waste. In India the public throws the waste anywhere in the society causes the unhygienic. They do not want to bear any responsibility towards their job of proper waste collection. Due to this approach the dustbin are overrunning in societies. Due to improper education and lack of awareness about waste management the public don't know about what to do with their garbage. For that purpose we initiated smart solid waste management system to collect segregate and disposal of waste in proper way. Along with smart solid waste management we also started too aware and educate peoples about our system.

Method:-

The working of our model is based on basic principle that the segregation of solid waste should be done by using automation. The peoples can put the waste on the box.it will pass the waste to the swinging rod having base for collecting waste.

This base will sense the waste and convey it to required pipes having function of accepting the waste dry; wet or miscellaneous.

Advantages:-

1. The model is easy to use
2. No limitation of building height
3. No need to have a skilled person to use it

4. Compact design
5. No harmful effects
6. Maintenance is less and quick

Scope:-

1. To collect organic waste
2. To establish decomposing plant and
3. To produce biogas by using organic waste

Working of sensors:-

Depending on the characteristics of waste the sensors will detect the waste i.e. dry wet or other.

General sensors used are moisture detecting and temperature detecting sensors.

Why to use this model:

1. To reduce dustbin overrunning
2. To avoid conflicts of waste segregation at processing unit
3. To avoid public confusions of segregating waste at home
4. To recycle the waste and to avoid dumping problems
5. To save land quality by reducing land use (no leachate formation)

Revenue from project

To save landfill time and cost of municipalities by segregating waste at source and recycling it to produce independent source of eco-friendly energy i.e. biogas.

III. EFFECTS OF THROWING WASTE ANYWHERE.

The improper disposal of hazardous waste can result in release of toxins, eco-system imbalance, human health issues and environmental pollution. Some of the effect that we are facing now-a-days is listed below:-

1. **Soil Pollution:**

Soil contamination or soil pollution as part of land degradation is caused by the presence of (human-made) chemicals in the natural soil environment. For Example: industrial activity, agricultural chemicals, or improper disposal of waste. The reason why the soil becomes contaminated is due to the presence of manmade waste.

Air pollution:

Air pollution is the introduction of particulates, biological molecules, or other harmful materials into Earth's atmosphere, causing diseases, damage to other living organisms such as animals and food crops, or the natural or built environment.

As some waste decomposes, it releases greenhouse gases into the atmosphere which harms our environment.

Water Pollution

Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans, aquifers and groundwater). This form of environmental degradation occurs when pollutants are directly or indirectly discharged into water bodies without adequate treatment to remove harmful compounds

Human Health Issues

Improperly disposed of waste has both direct and indirect health effects. The health effects arise from flies and mosquitoes that transmit disease

Long Term Vision:

The Movement's long term goal is to ensure that more and more cities adopt this movement and Urban India becomes cleaner, greener, healthier and happier.

VII. CONCLUSION

1. The peoples are not aware and uneducated about waste disposal.
2. The peoples do not have any system for proper collection of waste
3. There is no any strict implementation of laws to penalize the peoples
3. There is very bad hygienic and environmental effect due to waste throwing.
4. It is our responsibility to avoid throwing of waste and making our city clean and clear.

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