Solid Waste Management a need of Time

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Abstract

The solid waste management term deals with collection and treating and disposal of the solid waste. Day by day the quantity of waste generation is increasing rapidly. Creation of waste is natural by human being but being human it needs proper disposal. The solid waste is ugly in appearance, creates foul odor, creates nuisance and ultimately creates unhygienic conditions. Improper management of solid waste leads to unhygienic conditions which results in spread of diseases. Nobody wants to discuss and care about solid waste. We should come forward for the discussions and finding appropriate solution for proper and effective management of the waste nowadays it is a duty of everybody to monitor the rate of generation of waste. Not only the concerned local body should be responsible for waste management, but it is our responsibility too. We may contribute in minimizing the waste. So to prevent the public health it is necessary to start the waste management from own. This article discusses the origin, varieties, per capita generation of the waste, role of individual and proper management of the waste. Coordination of local body, social organizations and the public will result in proper management of the waste and helps in achieving the goals like clean city, smart city, and ‘Swachcha Bharat’.

Keywords- Solid Waste, Segregation, Per Capita

I. INTRODUCTION

The solid waste mean the waste that originates from single and multi-family household activities, the refused material by any activity, the discarded materials from medical, electrical, commercial establishments in solid form is called as solid waste. These wastes are generated from household activities such as cooking, cleaning, repairs, hobbies, redecoration, empty containers, packaging, clothing, old books, writing/new paper etc. In earlier days when population was limited the problem of solid waste was not so serious but over the years due to ever-increasing population, rapid urbanization and industrialization, the volume of solid waste is increased tremendously. This has been a problem in the households too since we have become a modern generation. Domestic waste generation at household levels has shot up over the years and mostly the urban parts of our country are responsible for this. On an average an individual generally produces about 0.5 kg of solid waste a day by his various activities. Due to this problem in urban cities, city corporations have an additional task of managing such waste and hence requires a separate department of solid waste management under Environmental division.

II. VARIETIES OF WASTE

There are different types of waste viz domestic waste, commercial waste, E-waste, biomedical waste, agricultural waste industrial waste etc. Let us see immediate steps to be followed after generation of waste. The domestic waste is separated into wet waste, and dry waste. Due to separation it become easy for transportation and proceeding and disposal.

Wet waste is that waste which is organic in nature and can be easily biodegrade e.g. food waste.

Dry waste is the waste which is inorganic in nature and not easily degradable e.g. Wood and its product, metal and glass. Wood and its product, metal and glass.

Commercial waste can collected and stored in a bin as per the directive by local authority.

Biomedical waste may be collected by using different colour bags and bins and transported by mean of special vehicles according to the biomedical waste rule 1998.

Among all these type of waste the most important for an individual is domestic waste.

Recyclable waste is that waste from which the recovery of materials can be done e.g. electronic circuit board. Many items like mercury, cadmium, barium can be recovered from printed circuit boards.

III. APPROXIMATION OF VOLUME OF SOLD WASTE

Let us know about the approximate waste generation per capita in our country.

<table>
<thead>
<tr>
<th>Population size</th>
<th>Waste generation* (kg/capita/day)</th>
<th>Waste generation** (kg/capita/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;2000000</td>
<td>0.43</td>
<td>0.55</td>
</tr>
<tr>
<td>1000000–2000000</td>
<td>0.39</td>
<td>0.46</td>
</tr>
<tr>
<td>500000–1000000</td>
<td>0.38</td>
<td>0.48</td>
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<table>
<thead>
<tr>
<th>Sr No</th>
<th>City</th>
<th>% Increase</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Ahmadabad</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Bangalore</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Chennai</td>
<td>35</td>
<td>Highest Waste Generation</td>
</tr>
<tr>
<td>04</td>
<td>Delhi</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>05</td>
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<td>33</td>
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</tr>
<tr>
<td>06</td>
<td>Indore</td>
<td>40</td>
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</tr>
<tr>
<td>07</td>
<td>Kolkata</td>
<td>1</td>
<td>Highest Waste Generation</td>
</tr>
<tr>
<td>08</td>
<td>Ludhiana</td>
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</tr>
<tr>
<td>09</td>
<td>Vadodara</td>
<td>26</td>
<td></td>
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<tr>
<td>10</td>
<td>Pune</td>
<td>60</td>
<td>Highest % Increase Waste Generation</td>
</tr>
<tr>
<td>11</td>
<td>Madurai</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Nagpur</td>
<td>28</td>
<td>Lowest Waste Generation</td>
</tr>
</tbody>
</table>

IV. IMPACT OF IMPROPER MANAGEMENT OF SOLID WASTE

1) Ground water contamination by the leachate generated by the waste dump.
2) Surface water contamination by the run-off water from the waste dump.
3) Bad odour, pests, rodents and wind-blown litter in and around the waste dump.
4) Generation of inflammable gas (e.g. methane) within the waste dump.
5) Bird menace above the waste dump which affects flight of aircraft.
6) Fires within the waste dump.
7) Erosion and stability problems relating to slopes of the waste dump.
8) Epidemics through stray animals.

Fig. 1(a): Per capita generation of MSW selected Indian cities in 2000 and 2011
Fig. 1(b): Per capita generation of MSW in selected Indian states in 2000 and 2011

The above graph shows us per capita generation of the waste in various cities from 2000 to 2011.
The following table shows the % increase in waste generation per decade in various cities.

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V. STEPS FOR PROPER MANAGEMENT OF SOLID WASTE

Segregation of domestic waste deals with everyone. The segregation at the source may be done. The two dust bins must be maintained by everybody; one is for wet waste and other is for dry waste so that the collection and disposal becomes easy.

We should develop the habit of not to throw away the waste on road sides or empty spaces nearby us. The community bins must be provided along roadsides for the collection of the waste.

VI. PUBLIC INVOLVEMENT IN WASTE MANAGEMENT

The public is a key factor of waste management. Since the waste generation starts from households. The public participation is most important to increase the awareness of solid waste management among the people, to increase the efficiency and effectiveness of planning process and implementation, to improve the waste management strategies, negotiations with municipal authorities for better involvement in decision making.

VII. DIAGRAM SHOWING PUBLIC INVOLVEMENT IN WASTE MANAGEMENT

Fig. 2: Steps for Proper Management of Solid Waste

Fig. 3: Public Involvement in Waste Management
VIII. SUGGESTIONS TO REDUCE THE SOLID WASTE

1) Do not use plastic bags, use cloth bags, paper bag.
2) Segregate the waste at source immediately after generation
3) Develop good practices of waste management like reuse of materials, segregation, etc.
4) Compost the waste at your own house and produce quality manure.
5) Do not throw away the waste anywhere.
6) Discharge the waste into the road side waste containers so that it could be collected properly
7) Attend the lectures and seminars on waste reduction.
8) Read the articles about the solid waste management in newspapers.

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