

Source and Role of Women in Solid Waste Management

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Abstract

Solid waste management is a term that is used to refer to the process of collecting and treating solid wastes. It also offers solutions for recycling items that do not belong to garbage or trash. As long as people have been living in settlements and residential areas, garbage or solid waste has been an issue. In most developing societies, women are responsible for domestic work like shopping, cooking, cleaning and childcare and wellbeing of their husbands. Their multiple roles as mothers, homemakers, educators, entrepreneur and products place a heavy demand on them particularly the non-elite ones. As a result if household disposal practice is known it will be easy to introduce measures to reduce the amount of waste generated by the effected community. Also an understanding of the diversity of the local culture of home-owners can assist the planning of a domestic solid waste management system. Addressing social, economic and environmental issues require an in depth review of the existing situation and through planning in order to develop performance management plans. This can be achieved by involving affected communities especially women which is vital for the understanding of priority areas.

Introduction

Solid waste management is a term that is used to refer to the process of collecting and treating solid wastes. It also offers solutions for recycling items that do not belong to garbage or trash. As long as people have been living in settlements and residential areas, garbage or solid waste has been an issue.

Solid Waste

The sight of a dustbin overflowing and the stench rising from it are all too familiar sights and smells of a crowded City. You look away from it and hold your nose as you cross it. Have you ever thought that you also have a role to play in the creation of this stench? That you can also play a role in the lessening of this smell and making this waste bin look a little more attractive if you follow proper methods of disposal of the waste generated in the house?

Since the beginning, humankind has been generating waste, be it the bones and other parts of animals they slaughter for their food or

the wood they cut to make their carts. With the progress of civilization, the waste generated became of a more complex nature. At the end of the 19th century the industrial revolution saw the rise of the world of consumers.

Not only did the air get more and more polluted, but the earth itself became more polluted with the generation of non-biodegradable solid waste. The increase in population and urbanization was also largely responsible for the increase in solid waste. Management of municipal solid waste involves (a) development of an insight into the impact of waste generation, collection, transportation and disposal methods adopted by a society on the environment and (b) adoption of new methods to reduce this impact.

Solid Waste Management

Solid Waste Management is defined as the discipline associated with control of generation, storage, collection, transport or transfer, processing and disposal of solid waste materials in a way that best addresses the range of public health, conservation, economics, aesthetic, engineering and other environmental considerations.

In its scope, solid waste management includes planning, administrative, financial, engineering and legal functions. Solutions might include complex inter-disciplinary relations among fields such as public health, city and regional planning, political science, geography, sociology, economics, communication and conservation, demography, engineering and material sciences.

Solid waste management practices can differ for residential and industrial producers, for urban and rural areas, and for developed and developing nations. The administration of non-hazardous waste in metropolitan areas is the job of local government authorities. On the other hand, the management of hazardous waste materials is typically the job of the generator, subject to local, national and even international authorities.

Who Produces Waste?

Everybody Produces Waste!

Wherever people live, work or spend their leisure time they produce waste. The type of waste produced will vary depending on the demographics of the community - e.g. whether it is developed or undeveloped, formal or informal, urban or rural, etc. It is extremely important when managing waste to know the composition of the waste stream being handled.

How is Waste Managed?

Waste must be managed from the point of generation to the point of disposal through careful control of the following functional elements:

- Waste avoidance (not making waste in the first place)
- Waste minimization (reducing waste, reusing, sorting and recycling)
- Generation (when waste is made)
- On-site storage (where waste is stored temporarily when it is first produced)
- Collection (how waste is picked up)
- Transport and Transfer (how waste is moved)
- Processing and materials recovery (how waste is treated or made useful)
- Disposal (how waste is finally discarded)

Solid Waste Generation

An indication of how and where solid wastes are generated is depicted in a simplified. Both technological processes and consumptive processes result in the formation of solid wastes. Solid waste is generated, in the beginning, with the recovery of raw materials and thereafter at every step

in the technological process as the raw material is converted to a product for consumption. Solid waste during technological processes involving mining manufacturing and packaging are there showing. The process of consumption of products results in the formation of solid waste in urban areas as shown. In addition, other processes such as street cleaning, park cleaning, waste-water treatment, air pollution control measures etc. also produce solid waste in urban areas. A society receives energy and raw material as inputs from the environment and gives solid waste as output to the environment. In the long-term perspective, such an input-output imbalance degrades the environment.

Environmental Impact of Solid Waste Disposal on Land

When solid waste is disposed off on land in open dumps or in improperly designed landfills (e.g. in low lying areas), it causes the following impact on the environment.

1. Ground water contamination by the leachate generated by the waste dump
2. Surface water contamination by the run-off 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
9. Acidity to surrounding soil and
10. Release of green house gas

Objectives of Waste Management

The primary goal of solid waste management is reducing and eliminating adverse impacts of waste materials on human health and environment to support economic development and superior quality of life.

Importance of Waste Management

The most important reason for waste collection is the protection of the environment and the health of the population. Rubbish and waste can cause air and water pollution. Rotting garbage is also known to produce harmful gases that mix with the air and can cause breathing problems in people.

Methods of Waste Management

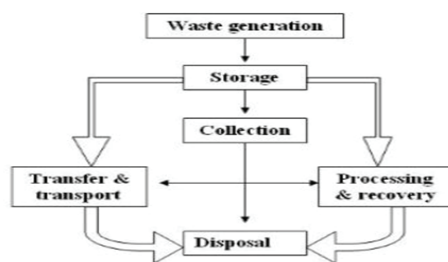
The methods of waste management involve proper dumping, recycling, transportation and collection, and the creation of awareness.

- Dumping methods. The most common waste dumping methods include landfill and incineration. ...
- Recycling methods. ...
- Collection and transportation. ...
- Creation of awareness.

The functional elements of solid waste management are as follows:

1. **Waste Generation:** Those activities in which materials are identified as no longer being of value and are either thrown away or gathered for disposal.
2. **Onsite Handling, Storage and Processing:** Those activities associated with the handling, storage and processing of solid waste wastes at or near the point of generation.

3. **Collection:** Those activities associated with the gathering of solid wastes and the hauling wastes after collection to the location where the collection vehicle is emptied.
4. **Transfer and Transport:** Those activities associated with the transfer of wastes from the smaller collection vehicle to the larger transport equipment and the subsequent transport of the wastes, usually over long distance to the disposal site.
5. **Processing and Recovery:** Those techniques, equipments and facilities used both to improve the efficiency of the other functional elements and to recover usable materials, conversion products or energy from solid wastes.
6. **Disposal:** Those activities associated with ultimate disposal of solid wastes including those waste collected and transported directly to the landfill site, semisolid waste from waste water treatment plants, incinerator residue, compost or other substances from various solid waste processing plants that are of no further use.



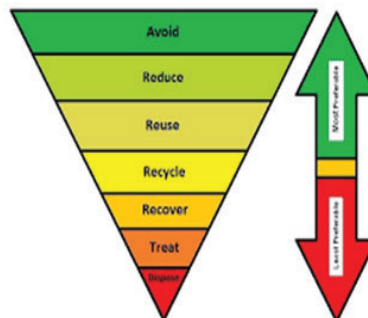
The 4 Rs - Reduction, Reuse, Recycling and Recovery

Businesses are being forced to change the way they manage waste. Faced with regulations, public pressure, landfill shortages and the need for increased resource efficiency, companies are moving away from the waste treatment approach and towards waste prevention.

A number of waste prevention techniques are available, and they are commonly summarized as the so-called 4Rs: reduction, reuse, recycling and recovery.

Reduction, reuse and recycling are known in the industry as the 3Rs. Companies sometimes focus only on the first three in resolving waste management problems. In more innovative companies, 4Rs solutions often emerge as a result of industry benchmarking or technological breakthroughs.

Waste Hierarchy



Empirical evidence suggests that by practising waste prevention, reusing products, recycling, and making environmentally conscious purchases, businesses can cut costs and increase profits. Cost savings take the form of:

- Lower waste disposal costs;
- Lower waste treatment costs;
- Lower energy costs;
- Savings on materials and supplies;
- A reduction in regulatory compliance costs;
- Lower storage costs;
- Cost recovery through the sale of recyclable materials;
- Cost recovery through sales of 4Rs technologies.

State-Wise Solid Waste Generation in Urban Areas, As On November 2017

S.No.	State	Total Waste Generation (MT/D)	Total Waste Generation (in Lakh MT/Annum)
1.	Andhra Pradesh	6,525	23.82
2.	Andaman & Nicobar Islands	115	0.42
3.	Arunachal Pradesh	181	0.66
4.	Assam	1,134	4.14
5.	Bihar	1,192	4.35
6.	Chandigarh UT	340	1.24
7.	Chhattisgarh	1,959	7.15
8.	Daman & Diu	23	0.08
9.	Dadra & Nagar Haveli	58	0.21
10.	NCT of Delhi	10,500	38.33
11.	Goa	240	0.88
12.	Gujarat	10,145	37.03
13.	Haryana	4,514	16.48
14.	Himachal Pradesh	342	1.25
15.	Jammu & Kashmir	1,792	6.54
16.	Jharkhand	2,451	8.95
17.	Karnataka	10,000	36.50
18.	Kerala	1,576	5.75
19.	Madhya Pradesh	6,424	23.45
20.	Maharashtra	22,570	82.38
21.	Manipur	176	0.64
22.	Meghalaya	268	0.98
23.	Mizoram	201	0.73
24.	Nagaland	342	1.25
25.	Odisha	2,460	8.98
26.	Puducherry UT	495	1.81
27.	Punjab	4,100	14.97
28.	Rajasthan	6,500	23.73
29.	Sikkim	89	0.32
30.	Tamil Nadu	15,547	56.75

31.	Telangana	7,371	26.90
32.	Tripura	421	1.54
33.	Uttar Pradesh	15,500	56.58
34.	Uttarakhand	1,400	5.11
35.	West Bengal	8,675	31.66
	Total / Average	1,45,626	531.53

Source: Minister of State for Power and New & Renewable Energy

The Effects of Waste Management

On the quality of life in my community could be divided (a) Environmental effect (b) Health effect (c) Social effect (d) Economic effects

Women in SWM

The United Nations (2012) observed that the failure to take cognizance of the crucial role of women in the management of modern society results in a serious loss of efficiency and productivity. A wide range of development programmes and projects that have involved women have been successfully implemented in recent decades. Many studies have been made on women situations and position in the control of urban environment. However urban managers in the developing countries are yet to accept women as active actors instead of victims and passive objects on which various approaches to women and development are being applied. The fact that men and women often play different roles in the society, suggests that we should start to recognize the need and importance of disaggregating solid waste management issues on the basis of gender.

In Zimbabwe it is well documented that women have been in the frontline of most household socio-economic activities. Throughout the history of human civilization, the role of women is particularly pronounced in domestic activities. Existing literatures on women and environment in African scene show that women activities that were related to solid waste management. These are:

- Women are identified as managers of traditional environment (working to maintain the environment as it already exists).
- Women as rehabilitators of the domestic environment (repairing and taking preventive action).
- Women as innovators in the use of new more appropriate technology in the creation of clean and healthy domestic environments and
- Women as protectors and caretakers of domestic environment.

Source of Generation of Waste Plastics

Household

- Carry bags
- Bottles
- Containers
- Trash bags
- Packages

Health and Medicare

- Disposable syringes
- Glucose bottles
- Blood and urine bags

- Intravenous tubes
- Catheters
- Surgical gloves

Hotel and Catering

- Packaging items
- Mineral water bottles
- Plastic plates, glasses, spoons

Air/Rail Travel

- Mineral water bottles
- Plastic plates, glasses, spoons
- Plastic bags

The following gives you an idea about the type of litter we generate and the approximate time it takes to degenerate

Organic waste such as vegetable and fruit peels, leftover foodstuff, etc.: A week or two

- Paper: 10-30 days
- Cotton cloth: 2-5 months
- Wood: 10-15 years
- Woolen items: 1 year
- Tin, aluminium, and other metal items such as cans: 100-500 years
- Plastic bags: One million years?
- Glass bottles: Undetermined

What You can do to Reduce Solid Waste?

- Carry your own cloth or jute bag when you go shopping
- Say no to all plastic bags as far as possible
- Reduce the use of paper bags also.
- Reuse the soft drinks poly bottles for storing water.
- Segregate biodegradable and the non biodegradable are put into separate bins and disposed off separately.
- Dig a compost pit in your garden and put all the biodegradable materials into it.
- See to it that all garbage is thrown into the municipal bin as the collection is generally done from there.
- When you go out do not throw paper and other wrappings or even leftover food here and there, make sure that it is put in the correct place, which is into a dustbin.

What you should not do?

- Do not litter. If we drop litter it will encourage others to litter.
- Do not put out garbage too early, especially garbage that contains meat and fish scraps.
- Do not dump or litter illegally at the sides of the roads or in gullies, it is not only unsightly but dangerous and hazardous to health.
- Do not allow water to collect in your garbage bin. Do not place your old stoves, refrigerators, or other big or bulky items at the side of the road.
- Do not use an oversize bin (e.g. 50 gallons (190L) drum) to contain your garbage. They are generally too heavy to lift.

- Do not overload your garbage bags; they may burst as a result of excessive weight or bulk.
- Do not throw broken objects (e.g. glass, ceramic, etc.) into the garbage without wrapping them first.
- Do not place needles and syringes in the garbage or leave them lying around.
- Do not overload your waste bin or put out loosely tied or untied bags for collection.
- Do not compact waste in the waste bin. This makes it difficult to extract the waste.

Conclusion

The current regulation system is not perfect and the existing management system and the collection facilities do not fit the present requirements. Municipal solid wastes are still collected without separation at the source, treatment facilities are limited and the collected wastes are mostly dumped haphazardly in open areas. Government, NGOs, CBOs and private sectors are working hard in this field but still much needs to be done. The main management strategies to remedy this should include amendment of current laws and regulations, improve current management systems and introduce classified collections. The effective implementation of these strategies will help to solve the environmental pollution problems to a large extent. It is also important to observe that there are possibilities for research implementation and collaboration among other cities having similar climatic and solid waste characteristic.

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