

Solid Wastes Management in Sunderrao Solanke Mahavidyalaya, Majalgaon, District Beed, Maharashtra, India

Salunkhe IB¹, Pawar RT^{2*} and Gosavi SN¹

¹Department of Botany, Sunderrao Solanke Mahavidyalaya, Majalgaon, District Beed, Maharashtra- 431131

¹Department of Zoology, Sunderrao Solanke Mahavidyalaya, Majalgaon, District Beed, Maharashtra- 431131

*Correspondence Author: R.T. Pawar, Department of Zoology, Sunderrao Solanke Mahavidyalaya, Majalgaon, District Beed, Maharashtra- 431131: drrajtpawar@gmail.com and drrajtpawar@rediffmail.com
Mob. No. 91+9028700713

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ABSTRACT

The present communication deals with the study of solid waste management in Sunderrao Solanke Mahavidyalaya, Majalgaon, Dist Beed (Maharashtra). In order to reduce waste at College campus, recycling efforts must be improved and organic recycling services must be provided. Additionally, students, faculty, and staff must be properly educated on proper waste management practices. The constant production of new products and packaging means knowledge of recyclable and compostable materials has become a complex and confusing topic for many people. College students, staff, and faculty often lead busy lives and value convenience; as they go about their day rushing between activities and classes, the purchase of single-use products is often the most convenient choice. Solid waste management was undertaken from last five years (2012-2017) to assess the type and amount of waste generated in college campus. By this following proper management we tried to avoid impact of solid waste on health of student and Environment.

Key Word: - Solid waste, Waste management, hygienic, recyclable and non recyclable waste.

INTRODUCTION

Solid waste may be defined as useless, unused, unwanted, or discarded material available in solid form. In India, the urban local bodies, popularly known as the municipal corporations, councils are responsible for management of activities related to public health. 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. Waste management is all about how solid waste can be changed and used as a valuable resource. Solid waste management should be embraced by each and every household including the business owners across the world. Industrialization has brought a lot of good things and bad things as well. One of the negative effects of industrialization is the creation of solid waste. Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that nurtured the development of civilization. Some of solid waste also produced from agriculture field due to urban society. Royal Edward Williams et al., observed that dumping of agriculture solid waste and municipal solid waste will pollute soil and affect its fertility and contaminate the ground water [1].

Solid Waste management is the "generation, prevention, characterization, monitoring, treatment, handling, reuse and residual disposition of solid wastes" [2]. Solid waste management is a challenge for the cities' authorities in developing countries mainly due to the increasing generation of waste, the burden posed on the municipal budget as a result of the high costs associated to its management, the lack of understanding over a diversity of factors that affect the different stages of waste management and linkages necessary to enable the entire handling system functioning [3].

The primary goals of sustainable waste management are to protect human health and the environment and to conserve resources. A key precondition is affordable waste management costs. To reach these goals, decision makers apply integrated strategies that

consist of a multitude of connected processes, such as collection, transportation, treatment, recycling, and disposal [4]. There are several methods available to handle, treat and dispose of solid wastes [5]. Solid waste management can be distinguished by the following stages: Waste minimization/prevention, Waste separation at source, Waste collection and transportation by vehicles, Recycling and/or waste processing facilities like incineration or composting, waste disposal in Landfills.

However to reduce the effect of wastes on health and environment or aesthetics, with increasing public and political awareness as well as new possibilities opened by economic growth, solid waste management is starting to receive due attention, thus solid waste management should be undertaken due to suggestion of Internal Quality Assurance Cell (IQAC) of our College.

METHODOLOGY

M.S.P. Mandal's- Sunderrao Solanke Mahavidyalaya, Majalgaon, affiliated to Dr. B.A.M. University, Aurangabad and is offering 02 Post Graduate and 17 Graduate program with Arts, Commerce, Science faculty. The college campus is spared over 25 acres of land. College has well ventilated class rooms, staff rooms, with well furnished library with reading hall, conference hall, audio visual rooms, Indoor outdoor stadium, ladies hostels (named as Sinhgad and Raigad), Various departments, parking and canteen are the additional facilities.

The first step in waste management is to gain an understanding of the waste types being generated in order to design appropriate collection and disposal strategies [6]. The work started with the steps to identify the sources of waste generation in the college campus and then to assess the amount and types of waste generated in the college.

Waste characterization consists of collecting waste at its source and directly sorting it out into types of materials [7, 8]. The waste was collected on a daily basis from various sources in the college and was brought to the common area in the ground for further

segregation by category. The collected waste was separated into dry waste and wet waste. Dry waste was then segregated into recyclables (paper and cardboard; plastic and pet bottles; glass, metals) and non recyclables.

The different waste categories segregated were then weighed using a weighing machine and respective weights were noted down. The procedure was repeated on a daily basis for a month. The average per day weight of each category waste and total waste generated was calculated.

RESULT AND DISCUSSION

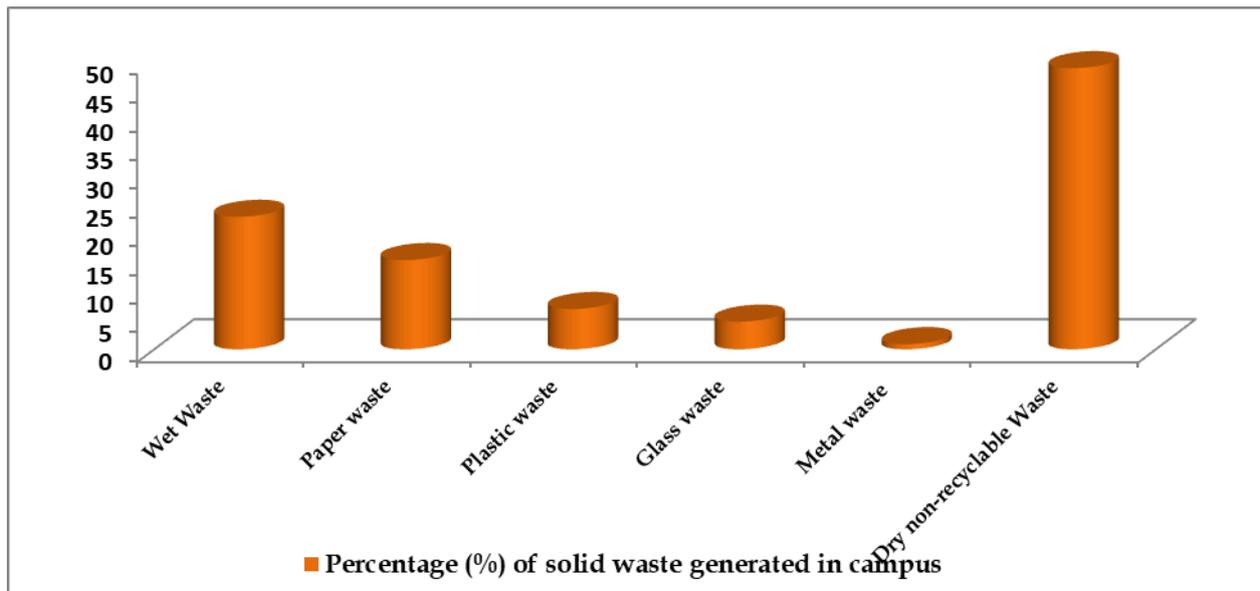
The various sources of waste generated in the campus and the type of waste generated were determined and tabulated in the table- 1. The different waste categories segregated were then weighed using a weighing machine and average per day weight of each category waste and total waste generated was calculated. The percentages of different categories of solid wastes generated in the college campus were then calculated and results are given in table-2 and figure-1.

Table 1 - Sources and type of waste generated from various sources.

Sr. No.	Source	Number	Type of waste generated
1	Class rooms	38	Paper, Plastic (Polythene covers, PET bottles. (Wrappers' -chocolate and chips), aluminum foil, pens, disposable cups, metal cans, Charts, Cardboards, thermo cols.
2	Laboratories	12	Paper, plastic, (Polythene covers, plastic bottles) Glass slides, cover slips, glass bottles, blotting papers, tissue syringes.
3	Staff rooms	1	Paper plastic (Polythene covers, plastic bottles, disposable containers)
4	Office	4	Paper and plastic
5	Canteen	1	Paper, Plastic, wrappers, paper boxes, disposal cups, PET bottles, metal cans, glass bottles.
6	Library	1	Paper and Plastics
7	Toilets	11	Paper, plastic, and sanitary napkins.
8	Mess	1	Vegetable waste, food waste, fruit waste etc.
9	Hostel	2	Paper, Plastic (Wrappers Chocolate and chips), fruit waste, food waste.
10	Outdoor/Indoor stadium	1	Paper, Plastic Polythene covers, plastic bottles, disposable cup.
11	Seminar Hall	3	Paper, Plastic polythene covers, plastic bottles, disposable Cup.
12	Auditorium	1	Paper, plastic polythene covers, plastic bottles, disposable Cup

Table 2- Percentages of various categories of solid waste generated in the college campus.

Types of solid waste	Percentage (%)
Wet Waste	23
Dry Recyclables i) Paper waste	15.5
ii) Plastic waste	7
iii) Glass waste	4.8
iv) Metal waste	0.9
Dry non-recyclable Waste	48.8



As per the data most of the recyclable waste was wet waste, paper and plastic waste. Therefore it was suggested to employ colour coded dustbins at main sources of waste generation in the college campus

The suggestion was made by Internal Quality Assurance Cell (IQAC) of our college and initiatives taken by college administration to ensure student and staff to segregate waste by using different dust bins. This was made possible via continuous awareness program through conference, workshop, rally, advertisement on notice boards and displaying slogan board in campus. However these proper waste management strategies, we ensure a hygienic, clean and beautiful college campus.

1. Green dust bin - These dustbins used for wet wastage i.e. the leaves, twigs, vegetable waste, fruit waste, food waste are used for vermiculture project.

2. Blue dust bin: These dust bins used for dry wastage in the form of paper waste i.e. news paper pages, magazine, light paper, paper board carton, out of them some of the used for vermiculture remaining waste gave to municipal garbage vehicle.

3. Red dustbin - These dust bin used for dry wastage in the form of plastic waste plastic bags, plastic bottles, wrapper of chocolate, biscuit, chips,

glass, metal etc. some of them sold to recycle industry and other gave to municipal garbage vehicle.

Non recyclable waste which collected from class room, staff room, office, hostel etc. and we gave to municipal garbage vehicle.

According to Sreedevi S. the similar study was assess the type and amount of waste generated in St. Pious X Degree and PG College for Women, Hyderabad and suggests the possible ways of managing the solid waste generated in the college campus. The waste was collected on a daily basis from various sources in the college and was separated into dry waste and wet waste. Dry waste was then segregated into recyclables (paper, plastic, glass, metals) and non recyclables and weighed [9].

Although the introduction of more recycling bins on campus may help increase recycling rates, a study noted that any recycling or waste management system depends not only on technical factors and availability, but also the motivation of the users to participate in the process. Salhofer & Isaac stated that if these systems relied solely on installation, with no education or motivation for users, the system would likely fail [10]. By observing this, it can be understood that waste management education and study of the campus is essential in reducing waste, increasing

diversion rates and encouraging environmentally friendly behavior.

CONCLUSION

Solid waste is any garbage or rubbish which includes domestic, commercial and industrial wastes. Improper handling of solid waste and indiscriminate disposal in open spaces give rise to numerous potential risks to the environment and to human health. To reduce their effect on health, the environment or aesthetics Solid waste management should be undertaken.

The solid waste management of M.S.P. Mandal's Sunderrao Solanke Mahavidyalaya, Majalgaon has been studied with a particular focus on hygienic, recyclable and non recyclable awareness among various stakeholders of campus and society of Majalgaon tahesil. The recycling efforts must be improved and organic recycling services must be provided. Additionally, students, faculty, and staff must be properly educated on proper waste management practices.

Conflicts of interest: The authors stated that no conflicts of interest.

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