

**Vignan's Foundation for Science,
Technology & Research
(Deemed to be University)**

**WASTE MANAGEMENT
POLICY**



VIGNAN'S

Foundation for Science, Technology & Research

(Deemed to be UNIVERSITY)

-Estd. u/s 3 of UGC Act 1956

Vadlamudi, Guntur District - 522213

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1. Introduction

Waste Management Policy is an important component of Vignan's Foundation for Science Technology & Research (deemed to be University) Sustainability Strategy to achieve the Sustainable Development Goals. This policy aims to promote responsible waste production and disposal practices on campus. The Institution is committed to promoting waste as a resource and encourage re-use and recycling to reduce the quantity of waste generated in campus. This policy ensures that generation of all types of waste viz., liquid waste, solid waste, etc. are minimized and disposed in a responsible manner without affecting the land and aquatic ecosystem.

2. Waste Management

2.1 Solid Waste Management

Solid waste often includes wasted material resources that could otherwise be channelized into better service through recycling and reuse. Several processes are involved in effectively managing waste generated in an Institution. These include monitoring, collection, transport, processing, recycling, and disposal. Proper solid waste management in the campus reduces or eliminates the adverse impact on the environment. Thus, the minimization of solid waste being generated, and their effective management is essential for maintaining a sustainable environment inside the campus. Solid waste generated in the Institution comprises of both organic and inorganic waste materials produced by various activities in the Institution. These wastes have the potential to pollute all the vital components of living environment - air, land, and water. The total solid waste generated on campus is approximately 2 tons/day which comprises organic waste, recyclables, sanitary, e-waste and hazardous wastes, which is judiciously processed and managed on the university premises.

2.1.1 Strategies adopted to handle solid waste in campus

- ❖ The average quantity of biodegradable wastes generated (Paper, dried leaves, vegetation, garden waste, except food waste) is 1 ton/year. Paper Waste like Newspaper, Magazines, Cardboard, Box

Board. They can be disposed by selling it to vendors in exchange of recycled papers.

- ❖ Metal waste including Steel chairs, scrap cupboards, racks generated can be disposed by selling to Scrap dealers.
- ❖ Glass waste generated can be recycled and reused, non-recyclable glass waste can be disposed through the City's waste disposal.
- ❖ Landfill is used for leaf wastes and paper waste disposal.
- ❖ sanitary and medical waste management is carried out. Three incinerators are there on campus. First, at girl hostel for disposal of sanitary pads. Second, at medical Centre for medical waste and third, at animal house facility for bio waste dead animal incinerator.

2.2 Food Waste Management

Effective measures to be taken to minimize food wastage in the campus.

Food waste generated in the Institution's kitchen to be disposed in a responsible manner or can be used for alternative purpose like use as cattle feed or other research purpose of the Centre for Wastage Management.

2.3 Liquid Waste Management

The major liquid waste generated in campus is

- i) Sewage from all buildings in campus

Measures have been taken to handle both the waste by establishing a Sewage Treatment Plant in campus to handle the wastewater and obtain treated water for toilet flushing and gardening.

The campus has storm water drainage channels that collect the storm water and divert it to rainwater harvesting pits. The Institution has also made facilities for roof to rainwater harvesting structures and rain water harvesting pits which is highly appreciable. Institution has own RO unit catering to drinking water requirement of the entire campus.

2.3.1 Strategies adopted to handle Liquid waste in campus

- ❖ The rain water run-off is controlled and collected into water pond to improve ground water recharging.
- ❖ Roof-top rain water management system is in place.

- ❖ The sewerage lines are regularly cleaned and bleached for maintaining hygiene and environment.
- ❖ Any liquid disposal from laboratories into sewerage lines is monitored to check that no hazardous chemicals are released through pipelines.
- ❖ Waste water is also used for gardening purposes.
- ❖ A Sewage Treatment Plant with a new wet lands concept is established with a 600KL sewage treatment capacity.

2.4 Waste Audit

Waste audit is a valuable step in managing an organization's waste in a more environmentally friendly manner, while helping in the reduction of waste disposal costs. The institution with the active involvement of Centre for Waste Management shall go for Waste audit. Waste Audit to be done by an authorized Auditor who is involved in the assessment of the waste generated by the Institution with the support of his team and an Internal Waste Audit Committee.

The institution practices a step-by-step process to conduct Waste Audit and monitors waste generated within campus prioritizing it as an important policy. Various records and documents are verified several times to clarify the waste data received through survey and discussions. Following measures shall be taken by the institution to manage the Waste.

- Involvement of Student Eco Clubs supervised by the Internal Waste Audit Committee (WAC)
- Waste Source/ Site inspection pursued by the members of the WAC dividing the student members into groups led by the members of the WAC to audit the various types of waste generated inside the institution.
- Interviews held and Questionnaire responses collected from the in-charges of different waste generation locations. For example, mess supervisor for food waste, STP Head for waste water data.
- Creating Awareness on the importance of waste segregation at the source among the students, teaching, non-teaching, and research faculties in the Institution.

- Generating and Maintaining Waste Records in duly available forms published in Solid Waste Management Rules by the Central Pollution Control Board governed by the Ministry of Environment Forest and Climate Change.
- The audit process seeks, on a sampled basis, to track past actions, activities, events, and procedures to ensure that they are carried out according to systems requirements and in the correct manner.
- The real value of Auditing is when they are carried out at defined intervals, and their results and recommendations can bring improvement or change over time. Hence Periodic Review of Documents and Records by Internal Waste Audit Committee and Annual Waste Audit conducted at the end of every financial year by the Authorized External Waste Audit Committee.



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1. Waste Management Practices at VFSTR

The campus employs an efficient waste management system to manage the generated waste on campus which starts from segregation at source.

1.1 Solid Waste Management:

In case of solid waste, while food-waste from hostels is collected directly from the hostel and taken to further treatment, coded bins are distributed throughout the campus for the collection of wet waste, dry waste, (plastic, papers etc.), sanitary waste (sanitary pads, masks, gloves), metal wastes (cans, containers, metal parts etc.) The institution is a green campus that adopts eco-friendly practices for waste management (applying the 3R principle). The total solid waste generated on campus is approximately 1.5 ton/ day which comprises organic waste, recyclables, sanitary, e-waste and hazardous wastes, which is judiciously processed and managed on the university premises.



Figure 1: Color-coded bins at VFSTR

1.2 Liquid waste management (Sewage Treatment Plant (STP))

The generated liquid waste at VFSTR collected from the drainage systems is treated under a sewage treatment plant (STP). A 600 KLD capacity sewage treatment plant system was set up at VFSTR campus by Bluedrop enviro Pvt. Ltd. which uses the technology of artificially constructed wetland system (Figure 9). This technology uses phytoremediation and microbial remediation techniques for sewage water treatment. This STP is engineered systems to use the natural functions vegetation, soil, and organism to provide wastewater treatment to wastewater. After treatment this water will be reused for gardening and car-washing purposes.



Figure 2: Sewage Treatment Plant

1.3 Biomedical and sanitary waste management

Incineration of biomedical solid wastes is one of the safest disposal methods and it reduces solid volume by 80-85%. Thus, such safe solid waste management practices are carried out on campus. VFSTR has three incinerators for disposal of biomedical and sanitary solid wastes VFSTR has installed an electrically heated incinerator of 30ltr capacity and having 7-9 KW electricity consumption at the animal house facility on VFSTR campus for incinerating animal wastes and other biotechnological and biomedical laboratory wastes on campus. VFSTR campus has a sanitary napkin incinerator was installed at the girl's hostel premises for hygienic disposal of sanitary wastes. This incinerator had the capacity of burning 750 napkins per day. Another incinerator was established at VFSTR at its medical centre which had a 3 KW single stage combustion chamber with a holding capacity of 5kg. The biohazardous wastes which included biological fluids, cotton, gauge pieces and sanitary napkins are safely incinerated here.



Figure 3 & 4: Incinerators at VFSTR campus

1.4 E-waste management

E-waste or Electronic waste is one of the fastest growing components of solid waste. E-waste includes discarded computer equipment and variety of electronic devices. VFSTR electrical equipment maintenance team is regularly monitoring E-waste generation and it routinely collects the electrical wastes and store and segregate them in the electrical storeroom before disposing them periodically using eco-friendly methods through third party mediation.



Figure 5: Collection of E-waste at VFSTR