

# GREEN AUDIT

STUDY PERIOD (FIVE YEARS) 2016-21

Sustainability study

## AUDIT REPORT

Studied for

Viswambhara Educational Society's

**Vaagdevi Pharmacy College**

Bollikunta (Village), Khila Warangal (Mandal),  
Warangal (Dist.) - 506 005, Telangana, 506005



Studied by

**Greenenvia**  
Solutions

Issued on 31 May 2022

# Disclaimer

The Audit Team has prepared this report for the **Viswambhara Educational Society's Vaagdevi Pharmacy College** located at Bollikunta (Village), Khila Warangal (Mandal), Warangal (Dist.) - 506 005, Telangana based on input data submitted by the College and analyzed by the team to the best of their abilities.

The details have been consolidated and thoroughly studied as per the various guidelines for Green Buildings available in National and International Standards; the report has been generated based on a comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase-wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements, or forecasts in the report.

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The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm with the Project Head - Ar. Nahida Shaikh who is an Accredited and Certified Green Building Professional-Architect; I.A.(IMS) Green Building consultancy is her forte and she is one of the most sought-after names when it comes to providing excellent quality services within the stipulated time frame.

The Study is conducted incapacity of an Accredited & Certified Green Building Professional with extensive experience.

## Greenvio Solutions

*Developing Healthy and Sustainable Environments*

We are an Environmental and Architectural Design Consultancy firm

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## Acknowledgment

The Audit Assessment Team thanks the **Viswambhara Educational Society's Vaagdevi Pharmacy College** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Sri. C. Janga Reddy**, Chairman; **Sri. Ch. Narsimha Reddy**, Vice President; **Dr. Ch. Devender Reddy**, Secretary & Correspondent; **Sri Ch. Sudharshan Reddy**, Joint Secretary; **Dr. Ch. Rathnakar Reddy**, Treasurer; **Mr. C. Satyapal**, Member, and everyone from the Management.

Our heartfelt thanks to the Chairperson of the entire process **4. Dr. G. Kamal Yadav**, Principal, for the valuable input.

We are also thankful to **College's Taskforce and the faculty members** who have collected the data required by the Assistant Professor **Mr. S. Kumara Swamy** (*Special mention for the excellent coordination*), Associate Professors – **Dr. B. Chandra Shekar Reddy, Dr. T. Ravi Chander, Dr. M. Swapna Reddy, Dr. P. Vivek Sagar, Dr. Ch. Mahesh, Dr. P. Srikanth**, and the Assistant Professors – **Mr. R. Shiva Kumar, Mrs. D. Radhika, Mr. A. Nagaraju, Dr. A. Gouthami, and Mr. R. Vijay Kumar**.

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### Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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# 1. Introduction

## 1.1 About Viswambhara Educational Society

It was established in the year 1993 to provide technical and higher education. This society was formed by dynamic and well-educated persons **to impart standard higher education in the North region of Telangana state.** The society is directed by highly experienced senior citizens, excellent academicians, and dynamic youngsters on the board of directors.

## 1.2 The surrounding premises around the Institution

The Premises is situated amidst the landscape serene of the **Warangal district of Telangana State** with immense peace and calmness in the surroundings. The College is surrounded by Educational Buildings on the macro front from all sides.

**The college is situated in academia with several institutions under the same society. There are multiple shared facilities the colleges possess.**

The college is located in serene atmosphere and green surroundings away from the buzz of the city and is feasible of the nearby essential amenities such as Public Health Center, Fire Station, Civic body-Public administrative buildings, Recreational gardens, and Police Station.

## 1.3 About the Institution

**Vaagdevi Pharmacy College is the first Pharmacy College to be started in the Warangal region under JNTU, Hyderabad.**

It is one of the pioneered institutions in the region of Telangana to provide a good pharmacy education and to meet the needs of the present-day healthcare system where a pharmacist has to play important role in society. To impart the professional course effectively, the institution is located in a peaceful locality away from a busy, noisy, and pollution-free atmosphere.

**The premises are well equipped with a wide range of facilities that make life in academia comfortable and fulfilling. The academic life is vibrant and engaging.**

It is affiliated with the Jawaharlal Nehru Technological University Hyderabad and provides the following programs:

- **Graduation** – It offers the Bachelor of Pharmacy (B. Pharm) course.
- **Post Graduation – It offers the following courses as Masters of Pharmacy**
  - M.Pharm - Pharmaceutics
  - M.Pharm - Pharmaceutical Analysis
  - M.Pharm - Pharmaceutical Regulatory Affairs
- **Doctor** – It offers the Doctor of Pharmacy (Pharm.D.) course.

The College works towards training young men and women to be competent, committed, and compassionate, and lead in all walks of life.

## 1.4 Statements of the Institution

### 1.4.1 Vision

"The institute envisions ***"To create an educational environment in which students are geared up to meet the challenges of the modern Industry and Society."***

### 1.4.2 Mission

The College seeks to realize its Vision with a Mission to ***"To leverage the society reputation by an image composing of unique destination for standing out learning processes, success in profession and endow with a foundation towards research and development activities."***

## 1.5 Assessment of the College

### 1.5.1 Affiliations and approvals

The College has all its courses approved and is affiliated with the **Jawaharlal Nehru Technological University Hyderabad**, *a public university, located in Hyderabad, Telangana. Founded in 1965 as the Nagarjuna Sagar Engineering College, it was established as a university in 1972 by The Jawaharlal Nehru Technological University Act, 1972.*

### 1.5.2 Certification

**AISHE** – The College received the AISHE certification from the Department of Higher Education Statistics Division, New Delhi in 2022 and the code is C-19653-2019.

### 1.5.3 Approvals

The courses provided by the college are approved by the following bodies:

- **Pharmacy Council of India (PCI), New Delhi**
- **All India Council for Technical Education (AICTE), New Delhi**

## 2. Institution overview

### 2.1 Populace analysis for the Academic year 2020-21

#### 2.1.1 Students data

The student data (shared by the College) shows there were a total of **138 Boys and 306 students**, thus there were **a total of 444 students** on the premises.

#### 2.1.2 Staff data

Type	Male	Female	Total
Admin Staff	2	1	<b>3</b>
Teaching Staff	22	24	<b>46</b>
Non-Teaching Staff	11	12	<b>23</b>
<b>Total Staff Members</b>	<b>35</b>	<b>37</b>	<b>72</b>

*Table 1: Staff data of the Institution for 2020-21*

The staff data shows the premises had a total of **72** Staff Members.

### 2.2 Populace analysis for the Academic year 2019-20

#### 2.2.1 Students data

The student data (shared by the College) shows there were a total of **107 Boys and 289 Girls students**, thus there were **a total of 396 students** on the premises.

#### 2.2.2 Staff data

Type	Male	Female	Total
Admin Staff	2	1	<b>3</b>
Teaching Staff	21	19	<b>40</b>
Non-Teaching Staff	10	11	<b>21</b>
<b>Total Staff Members</b>	<b>33</b>	<b>31</b>	<b>64</b>

*Table 2: Staff data of the Institution for 2019-20*

The staff data shows the premises had a total of **64** Staff Members.



## 2.3 Populace analysis for the Academic year 2018-19

### 2.3.1 Students data

The student data (shared by the College) shows there were a total of **79 Boys and 235 Girls students**, thus there were **a total of 314 students** on the premises.

### 2.3.2 Staff data

Type	Male	Female	Total
Admin Staff	2	1	<b>3</b>
Teaching Staff	23	22	<b>45</b>
Non-Teaching Staff	11	11	<b>22</b>
<b>Total Staff Members</b>	<b>36</b>	<b>34</b>	<b>70</b>

*Table 3: Staff data of the Institution for 2018-19*

The staff data shows the premises had a total of **70** Staff Members.

## 2.4 Populace analysis for the Academic year 2017-18

### 2.4.1 Students data

The student data (shared by the College) shows there were a total of **94 Boys and 193 Girls students**, thus there were **a total of 287 students** on the premises.

### 2.4.2 Staff data

Type	Male	Female	Total
Admin Staff	2	1	<b>3</b>
Teaching Staff	22	20	<b>42</b>
Non-Teaching Staff	10	11	<b>21</b>
<b>Total Staff Members</b>	<b>34</b>	<b>32</b>	<b>66</b>

*Table 4: Staff data of the Institution for 2017-18*

The staff data shows the premises had a total of **66** Staff Members.

## 2.5 Populace analysis for the Academic year 2016-17

### 2.5.1 Students data

The student data (shared by the College) shows there were a total of **90 Boys and 165 Girls students**, thus there were **a total of 255 students** on the premises.

### 2.5.2 Staff data

Type	Male	Female	Total
Admin Staff	2	1	<b>3</b>
Teaching Staff	22	20	<b>42</b>
Non-Teaching Staff	10	10	<b>20</b>
<b>Total Staff Members</b>	<b>34</b>	<b>31</b>	<b>65</b>

*Table 5: Staff data of the Institution for 2016-17*

The staff data shows the premises had a total of **65 Staff Members**.

## 2.6 Total College Area & College Building Spread Area

The **total site area is 2 acres** and the **total Built-up area of the College is 79,068.5 sq. ft.** for **a total of 516 footfalls.**

## 2.7 College Infrastructure

### 2.7.1 Establishment

**The College was established in 2007.** The college is located pretty close to nature and hence has a very fresh environment which is absolutely pollution free and healthy. The Building is a Reinforced Cement Concrete (RCC) framework building.

### 2.7.2 Spatial Organisation

The overall ambiance of the College is warm and inviting. The classrooms and other spaces have ample natural ventilation in the form of clear glass windows with fresh air ventilation. The architecture of the building is quite well designed. The color palette not just helps the building to stand out but also provides an Institutional arena. There are

provisions for lifts and a staircase for accessibility on the premises, whereas there are amenities such as CCTV, Fire extinguishers, smoke detectors, a first aid box, etc.

### 2.7.3 Operation and Maintenance of the premises

The interview session was held with the staff regarding the operation and working hours. The Institution is open from Monday to Saturday. The first and third Saturdays are off. The schedule is mentioned below.

S. No.	Section	Spaces	Time	Hours/ day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	09:30 a.m. to 04:30 p.m.	7	280
2	General areas	Admin areas and library, Passage, staircase, toilet	09:00 a.m. to 04:30 p.m.	7.5	300

*Table 6: Schedule of the timings of the premises*

## 3. Green Building Study Audit

### 3.1 About the Green Building Study Audit

It is a systematic study of the aspects which make the Institution a sustainable and healthy premises for its inhabitants.

### 3.2 Analysis of the Green Building Study Audit

The procedure included detailed verification for the following:

#### Energy Audit

- Analysis of the Lights, Fans, AC, Equipment
- Renewable energy
- Scope for reducing the current energy bills if any
- Improvement in the thermal comfort of the campus

#### Green Audit

- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of campus; Scope to include Rainwater harvesting and Wastewater treatment on the premises.
- Waste Audit - Current waste produced, its segregation, and usage; Strategies to be adopted for waste management and awareness

#### Environmental Audit

- Analysis of the current landscape + hardscape of the premises
- Analysis of the flora and fauna of the premises
- Strategies adopted at present to enhance vegetation
- Measures that can be adopted for ecological improvement of the premises.

### 3.3 Strategy adopted for Green Building Study Audit

The strategies included data collection from the admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collection, and preparation of the Report.

### 3.4 Timeline of the activities for the Green Building Study Audit

- 05 February 2022 – Discussion with the College
- 12 February 2022 – Allotment and Initiation by the College
- 18 February 2022 – Induction Meeting
- 03 March 2022 – Survey of students and staff completed
- 05 March 2022 – Site visit
- 22 March 2022 – Data submitted by College
- 31 May 2022 – Submission of the Report



# On-site investigation and physical verification

Site visit and interaction session





# Green practices

Background reference image Free photos on pixabay



## 4. Green Practices Audit

The increasing global warming and climate change have made us realise that apart from the enormous strategies the individual small efforts need to be taken by individuals and Educational Institutes as the younger generations are the future of the world and once they are taught about these practices only then can we assume a better future.

### 4.1 Green practices

We observed the following points during the Site investigation and data verification of the premises; these are common for all the Buildings on the premises.

- **Architecturally planned and designed landscaped garden spaces; Wide walkways and Sports facilities.**
- There is the **availability of open space on the premise in addition to the provision of multiple varieties of flora.**
- There is a common **Organic composting process carried out for the decomposition of organic matter of plants.**
- The NSS Team, College authorities **jointly conduct initiatives for upgrading the premises from an environmental view.**
- The fresh environment is maintained and upgraded by the presence of plants. **This vegetation benefits the users by providing shade.**
- **Lectures/workshops conducted on green practices and green infrastructure.**

### 4.2 Eco-friendly initiatives undertaken

The Institution has undertaken the following initiatives through **excellent efforts** toward saving environment measures. The data has been documented as presented below:

#### 4.2.1 Physical events

1. Agri Field Conclave 6, March 2022
2. Medicinal Plants Germplasm 15, March 2022

### 4.2.1 Virtual events

One Week E-Faculty Development Programme on Recent Advances in Herbal Medicine, 28, February 2022.

It is very much evident that the College takes full efforts to spread awareness and provide outreach for sections of events such as Health, Eco-efficiency, and National significance. However, due to the lockdown more social events could not take place.

### 4.3 NSS initiatives

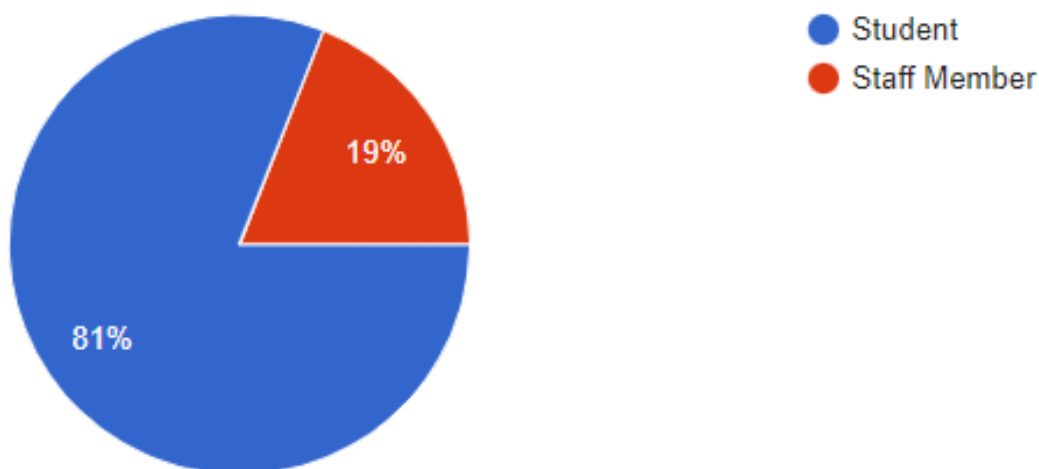
There are both scheme units in the College. The N.S.S Programme Officers of the College have been working as a team with dedication for the following activities.

- Blood donation.
- Health care survey and Health camp in Inavolu every year.
- Tree plantation along with Telangana government.
- Providing medicines to the illiterates and sugar plantation activities.
- Medicinal plant exhibition in the pharmacy week.

### 4.4 Survey Results

An online survey was conducted to analyze the student and staff views about the Energy management practices adopted in College, following is the result received.

#### 4.4.1 Participation



*Figure 1: Participation analysis in the survey*

A total of **21 responses** were received out of which 81% were students.

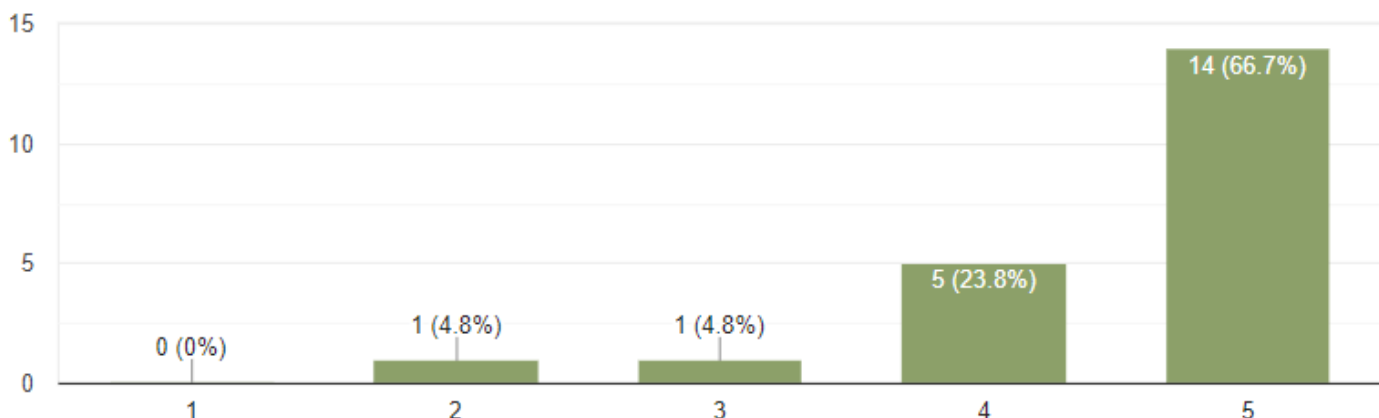
### Note about the review-rating survey

The Participants were asked to review the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of the graph depict the Number of participant's responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

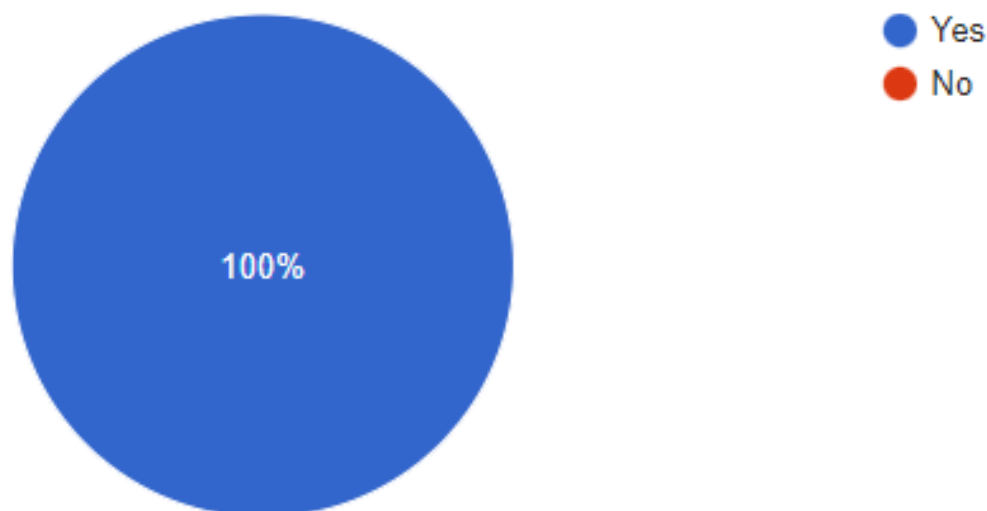
#### 4.4.2 Rate the Green awareness practices in College



*Figure 2: Green awareness practices in College*

There were mixed responses received the highest was for **rating 5 (Excellent) at 67%** followed by **24% for rating 4 (Very good)**.

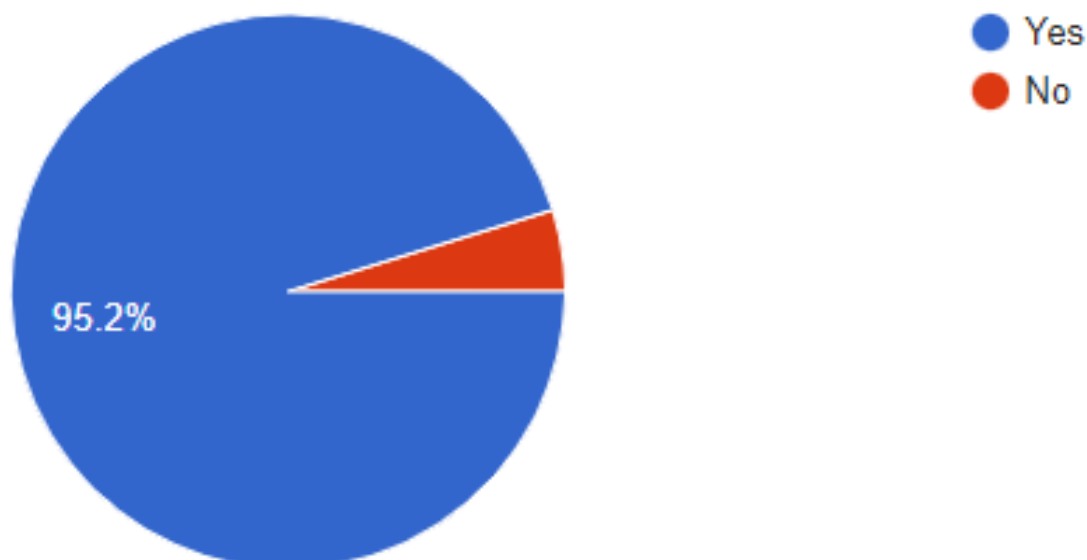
#### 4.4.3 Does your College conduct environment awareness programs/ webinars/ plantations/ cleanliness or similar programs?



*Figure 3: Confirmation of the environmental awareness programs/ webinars/ plantations/ cleanliness or similar programs conducted by the College*

Of the students and staff, **100%** of responses confirmed activities are conducted which is very excellent.

#### 4.4.4 Do you participate in such events?



*Figure 4: Participation in the environmental awareness programs/ webinars/ plantations/ cleanliness or similar programs conducted by the College*

The students, and staff **almost 95%** of the responses confirmed their participation, **this is excellent and the college should continue its efforts.**



#### 4.4.5 If yes, what has been your experience with the program?

Some of the key responses are listed below:

- Programs like *Swacha Bharath* and *Haritha Haram* were conducted excellently in our college.
- It made me realize the connection between nature and humankind.
- Such a beautiful program. I want more and more events and programs
- My experience in the plantation of trees. The program's name is haritha haram. every year our college conducts this program. We attend the program and we plant a tree that can help. for our future and nowadays.

### 4.5 Recommendations for a Sustainable Habitat by Greenvio Solutions

#### a) Plant as a gift

As a kind gesture, the guests visiting the premise can be asked to plant a small plant on the premise itself and they can be even given plants/bouquets from the flowers of the plants on the premise as a gift.

#### b) Environmental awareness

There can be various artworks on the compound wall giving the message of saving the environment through the joint efforts of the students and staff thereby making the student socially and environmentally responsible citizens.

#### c) Tree adoption scheme

The college can adopt the One Faculty – One tree adoption scheme which is one of its kind practice, this can be very beneficial, especially during the summer season.

#### d) No vehicle day

Once in a while, a No vehicle day can be adopted by students and staff to promote the use of eco-friendly vehicles on the premise.

#### e) Signages on the plants mentioning scientific names

The practice of having the names of each plant and tree will provide awareness among the staff and students.

# Waste Audit



Background reference image Polina Tankilevitch on pexels

## 5. Waste Audit

Waste is an inevitable part of our lives. Over the years the awareness about waste management techniques has given a rise to rethink how the waste can be avoided being sent to the landfills. The audit provides an approximation of the types of waste generated, location of waste collections, disposal techniques used, waste segregation methodologies adopted, and waste management strategies that are implemented in addition to the newer ways that can be adopted aiming to make the premise clean and sustainable. Here sustainability refers to a broader aspect to analyse whether the current techniques are having a positive or negative effect on the stakeholders of the premises.

### 5.1 Waste produced

#### 5.1.1 Types and disposal of waste on-premises

The types of waste and their current practice are summarised below:

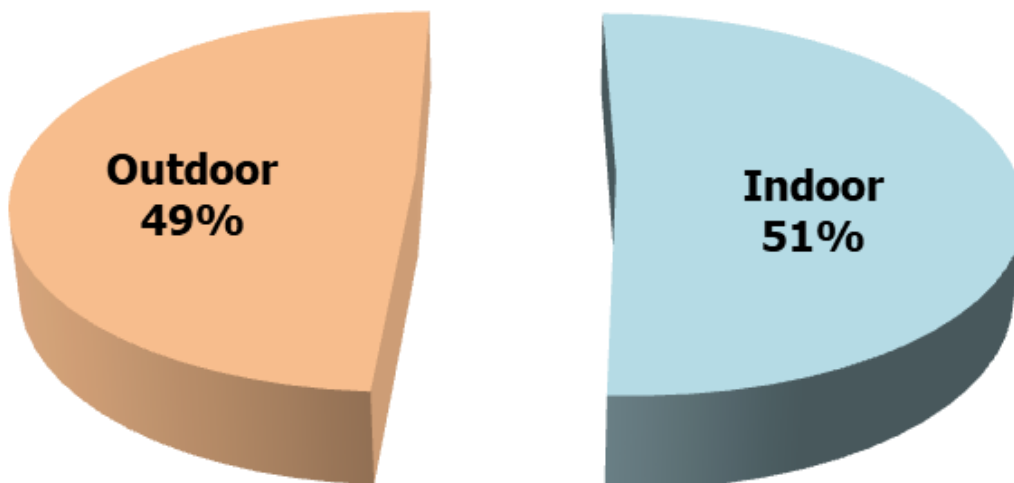
S. No.	Type of waste	Source and quantity	Current Disposal method	Can be treated/ recycled?	Methodology
1	Solid waste	Toilets–Biodegradable waste of 15-20 kg per week	Led in the stormwater drains	Yes	TREATED - Small biogas plant can be proposed in open space
2	Paper waste	Newspaper and other paper	Sold to vendor	Yes	CONTINUE - with the current practice
3	E-waste	Computers - Non-biodegradable waste as per the annual year usage	Given to vendor	Yes	CONTINUE - with the current practice
4	Dry waste in form of leaves	Open space & plantations, papers - Non-biodegradable waste of 8-10 kg per week	Common compost area	Yes	CONTINUE - with the current practice
5	Liquid waste (Black-grey)	Toilets, washbasins – Around 100 – 120 liters per week during general times and 50 liters at present	Led into the stormwater drain	Yes	TREATED – A common WTP can be setup
6	Organic regular waste	Dust, and dirt usually dry waste from Canteen and all sources – approx. 3 to 5 kg	Common Compost Area, Municipality	Yes	CONTINUE - with the current practice
7	Bio-waste	Sanitary pads	Regular municipality	Yes	TREATED – Provision for Vending, Incinerator

*Table 7: Summary of the types of waste produced on the premises*



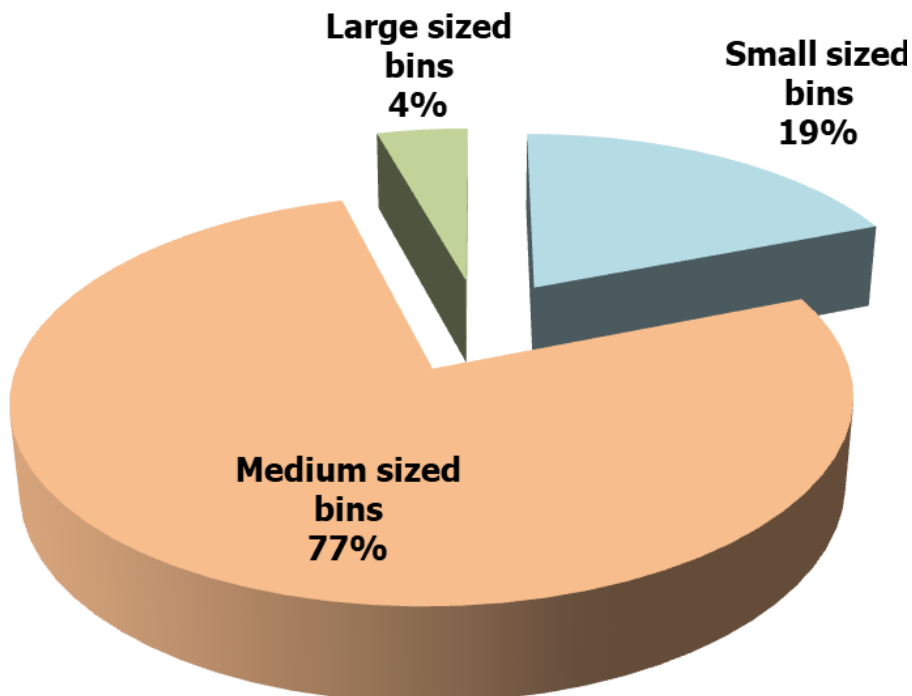
### 5.1.2 Bins summary

There are 163 Dustbins on the premises with a volume of 7 liters (small), 15 liters (medium), and more than 30 liters (large-sized). The material of the bins is plastic. The analysis of dustbins is presented below.



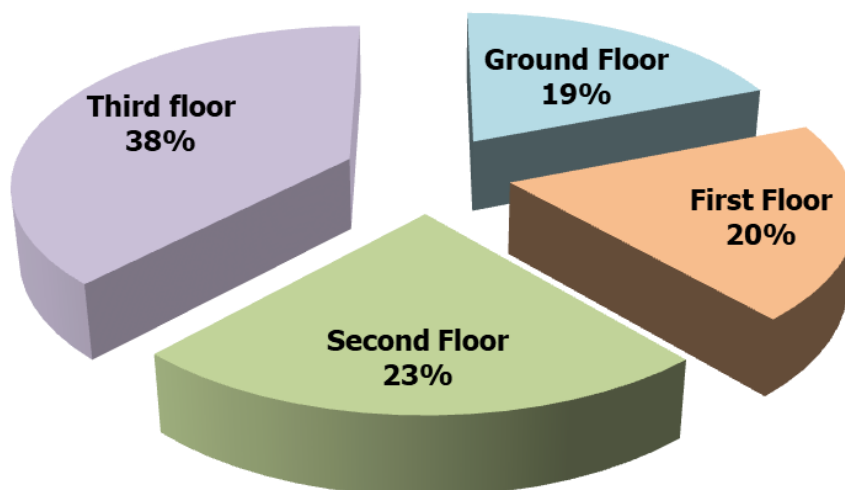
*Figure 5: Analysis of dustbins location wise in the premises*

The above analysis shows that **51% are present indoors & 49% outdoors.**



*Figure 6: Analysis of dustbins size-wise in the premises*

Among the dustbins that are present on the premises, **77% are medium-sized dustbins** around **19% are small-sized bins** and **7% are large-sized bins.**



*Figure 7: Analysis of dustbins floor-wise in the premises*

Among the dustbins that are present on the premises **38% are present on the third floor, 23% on the second floor, 20% on the first floor, and 19% on the ground floor.**

## 5.2 Waste handling

Quantification wise as per Interview and survey it was found the following type of waste is Solid, Liquid, Hazardous Waste, Dry leaves, E-Waste, Canteen waste, Bio-waste, and Unused Equipment waste is collected. The waste produced on-premises is segregated. It is collected every week. The waste is handed over to the local municipality van.

## 5.3 Waste management

The following practices are adopted on the premises at present.

- The College reuses the papers. Ample measures are taken to maintain hygiene.
- No smell problems or health-related issues due to the waste are there.
- There are adequate numbers of bins present in all parts of the building.
- The waste does not pollute the ground or surface water.
- There is no problem of air pollution from waste as informed.
- The wastes from toilets are discharged to main drains through underground covered channels (Safety Tanks) thus avoiding any incident.



- **The efforts of the institution in water usage are satisfactory.**
- **No unnecessary water wastage is noticed on the premises.**

As per our analysis, the current practices are good.

## 5.4 Survey Results

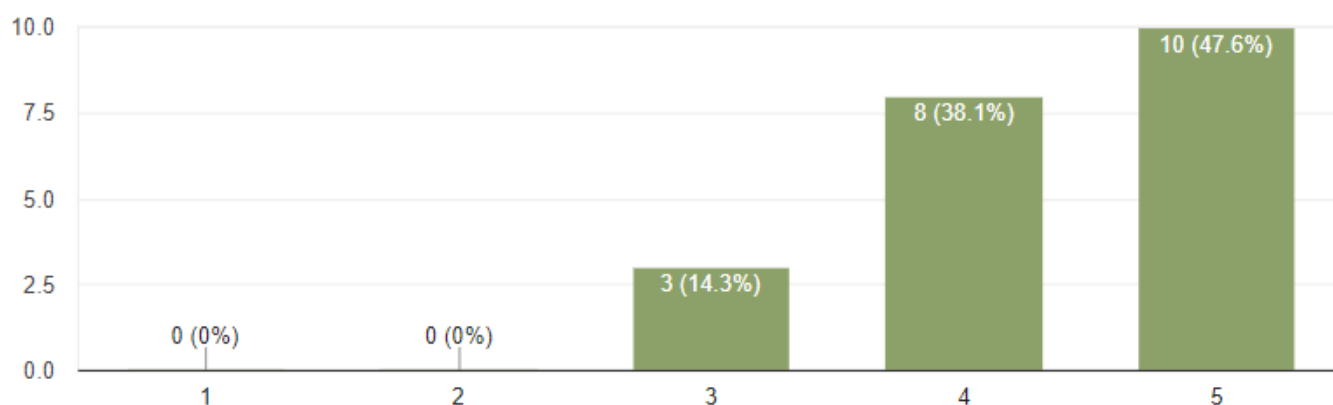
### Note about the review-rating survey

The Participants were asked to review the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of the graph depict the Number of participant's responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

**Rating for the views regarding the Waste management practices adopted in College, the following is the result received.**



*Figure 8: Waste management practices in College*

There were mixed responses received; the highest was for **rating 5 (Excellent) for 48%** and **rating 4 (Very good) at 38%**

## 5.5 Recommendations for a Sustainable Habitat

### a) Zero Waste practice adoption

The college can undertake a zero organic waste protocol. The following practices can be adopted as part of the same.

- The food waste generated by the students and staff is taken by them to their own homes, so that, minimum waste is generated inside the premises.
- The organic waste generated in the canteen is used as feed for a biogas plant and the biogas is used as fuel in the college canteen.
- Vegetable waste and other leaf litter can be used to feed in the vermicompost pit and the resulting vermin cast is used as manure in the garden.
- The chemicals from the laboratories are disposed of in a sealed tank along with water so that the chemicals undergo neutralization with the water.

As part of the above, there will be a requirement for a Biogas plant, vermin-compost pit, awareness signages, sealed tank for wastewater from the chemical laboratory.

### b) Incinerators

The Incinerators should be installed in Girl's toilets for disposal of sanitary napkins

### c) Twin Dual Litter Dustbin Bins

There should be more number of dual litter dustbins at various locations in areas such as Canteen, and open spaces. This would inculcate the awareness of waste segregation among students.

### d) Signages

Messages about avoiding wastage should be placed at appropriate locations.

### e) Dustbins at every 100m

There should be a dustbin at every 50-100 in the open spaces

### f) Material of the dustbin

The current plastic dustbins should be replaced with eco-friendly material.

# Water Audit



*Background reference image Vlad Chetan on pexels*

## 6. Water Audit

Water is one of the basic needs. Pure drinking water is a resource that needs to be preserved efficiently. A water audit helps to identify the sources of water consumption, and the water requirement by the premises is met by these sources. The points and effective usage without any wastage. Understanding the techniques which are best suited to the site to increase water conservation in terms of awareness and practice.

### 6.1 Water availability and consumption

#### 6.1.1 Sources of Primary water supply

The College requires water from the Local Municipality for drinking water purposes. The total water consumption for drinking water is through the tank on the terrace with a capacity of 2,000 liters.

#### 6.1.2 Sources of Secondary water supply

The college uses the following sources of water supply for secondary usage such as watering plants, kitchen, toilets, and washbasins connected to the labs and other spaces.

**The specific sources are 2 borewells available on the site.**

Daily water is pumped from the well and river as per the requirement. However, the water for a secondary purpose is stored in tanks as follows:

### 6.2 Water requirement

The main areas of water requirement and type of usage are as follows

- **Drinking water** – Consumption of around 2,000 liters of water through RO water plant available on the premise, the taps, and water cooler.
- **Toilet blocks**– General usage by occupants in toilets, urinals, bathrooms, and washbasins using approx. 1,000 liters of water daily
- **Cleaning of the premises** – The entire Institution is very well maintained concerning hygiene and cleaning is one of the major uses of water requirement. The toilet areas are cleaned twice daily.
- **Garden and surrounding open space** – Cleaning, and watering the plants require approximately more than a good amount of water, keeping in mind the



scale of the open spaces there is a supply system connected directly, and the plants and trees are hardly watered regularly. Though they are watered on alternate days in the winter season and about 2-3 times a day in the summer season on a regular climate day it is watered 3 days a week and in the rainy season, it is dependent on the monsoon showers. The regular tap and a pipe system are practiced at present.

### 6.3 Survey Results

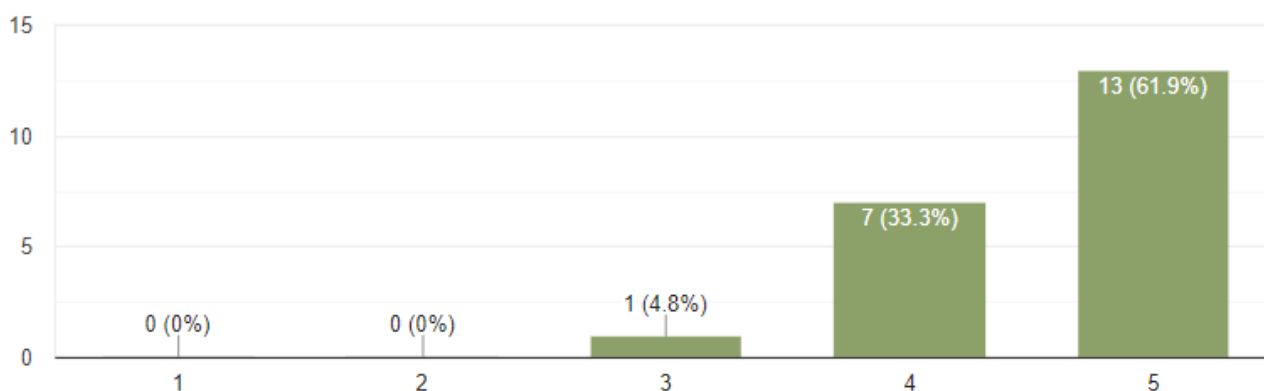
#### Note about the review-rating survey

The Participants were asked to review the practice on a scale of 1-5 with scale components as follows:

- Scale 1 – Poor
- Scale 2 – Satisfactory
- Scale 3 – Good
- Scale 4 – Very good
- Scale 5 – Excellent

The figures in each of the columns of the graph depict the Number of participant's responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

**Rating for the views regarding the water management practices adopted in College, following is the result received.**



*Figure 9: Water management practices in College*

There were mixed responses received the equal also the highest was for **rating 5 (Excellent) at 62% and rating 4 (Very good) at 33%.**

## 6.4 Areas of water usage

Based on the inventory done and data shared by the staff it was found that the premise has the following facilities:

- Urinals – 40 Nos.
- Toilets – 28 Nos.
- Washbasins – 17 Nos.
- Taps (Indoors) – 8 Nos.
- Taps (Outdoors) – 8 Nos.

**As per the data shared by the College and on-site observation, it was noted that there is no water wastage of water in the form of Cleanliness of toilets.**

## 6.5 Site investigation about water management.

**The College has an excellent management system which is very appreciable. We have observed the following points.**

- There is **no water leakage in the entire premise**; the pipes are well maintained with adequate hygiene.
- **The premise has efficient water management in terms of operations and maintenance.**
- The toilets are kept very tidy and are cleaned every day. The **wastewater does not mix with groundwater and gets directed to storm-water drains.**
- There is a sufficient number of taps on the premise.

## 6.6 Recommendations for a Sustainable Habitat

Below mentioned are a few suggestions for better water management practices in the premise.

### a) Universal Toilet

At least 1 toilet should be made specially-abled as per universal design norms.

### b) Signages

Messages about avoiding water wastage should be placed at appropriate locations.

**c) Waterless urinals**

There can be the provision of waterless urinals as a Green Building initiative in the premise, either the existing ones can be replaced with such a facility or new toilets can be constructed in this manner.

**d) Water flow stopper**

The water flow stopper should be installed to avoid overflow and smart use of the system. Install water-saving showerheads or flow restrictors. No leakage anywhere on-premises. Water lawn only when it needs it.

# Health & Hygiene Audit



*Background reference image Curology on unsplash*



## 7. Health and Hygiene Audit

Hygiene is a part and parcel of our daily life. It is extremely essential to keep the surroundings clean in the same manner as we would want our houses to be. Educational Institutes have a bigger role to play to affect the young minds positively through better hygienic practices.

### 7.1 Facilities available

The Institution has the following facilities as part of the premise.

- Washroom facility in each of the buildings.
- Hand wash facility
- Drinking water facility in the form of Water coolers and taps
- Ample number of dustbins on the premise

### 7.2 Smoke Exposure

As per the Site visit, the following analysis **has a positive impact on-premises.**

- The College has No Smoking on its compound wall as part of the awareness.
- The canteen uses Gas cylinders for cooking, there is no utilization of firewood. Thus **there is no smoke from the burning of firewood and any health issues related to the same.**
- The **garbage on-premise is not burnt** and there is no air pollution because of it.
- The Institution is a tobacco and smoke-free campus which helps in adapting to a Healthy Institution
- There is parking provision inside the campus there is a slight issue of dust owing to the same but it is **balanced with the good vegetation on the premise.**

### 7.3 Hygiene

As per the Site visit, the following analysis **has a positive impact on-premises.**

- For the overall hygiene of the students and staff, there are facilities such as a Washroom facility on the ground floor and hand washing. The hygiene of the toilet

areas is well maintained. **The entire premises are cleaned twice daily. It is very appreciative that there is only a few Maintenance staff who strive their best to take care of the entire premise in the most excellent way possible.**

- The staffs keep a regular check on the operation and maintenance of the equipment on each floor.
- Water management initiative with appropriate hygiene is undertaken. The areas of water tanks on-site on the ground floor are clean and no mosquito breeding spots are there.
- There is a pest controls program practiced with appropriate sanitation facilities done by a local municipality on a seasonal basis to avoid seasonal diseases.
- The food premises and equipment are cleaned as per schedule with special care taken to avoid any water stagnation. The food waste and other refuse are removed periodically from food handling areas to avoid accumulation.
- As part of the Tree Plantation program, the initiative of **Swachh Bharat Abhiyan of Govt. of India** is undertaken on various occasions.
- There are appropriate storage areas that are well maintained.

#### **7.4 On-site investigation**

During the physical verification of the site, the following points were noted.

- All the facilities are cleaned daily.
- The Maintenance staff is allotted the responsibility of the washroom hygiene and they do a very commendable and excellent job to maintain the hygiene of the premise.

#### **7.5 Recommendations for a sustainable habitat**

As per site verification for this audit, the efforts of the College are highly appreciable as they are very well maintained, **however, there should be provision for sanitary vending and incinerator machine.**

**On-site investigation and physical verification**  
Facilities related to water, clean premises and waste practices in the premises



## 8. Towards a Healthy & Sustainable Institution

### 8.1 Recommendations based on the study

In addition to the recommendations provided in each section; the College can adopt the following strategies for Healthy and Sustainable Institution practices.

- a) **Terrace farming** - There can be the provision of terrace farming in a designated area of the open space this would enhance the biodiversity and be useful in training students and staff about the healthy practices and food grown which would be used in Canteen. It helps in capacity building as well as the smaller steps are taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, and terrace garden there will be a long term benefit for the environment as a whole.
- b) **Cutlery in the Canteen** – The regular plastic and steel plates, and spoons used in the Canteen can be replaced with eco-friendly/ organic leaves, paper straws, disposable plates, and edible spoons made out of sugarcane waste or bamboo.
- c) **Signages** – In addition to the signages being in regular language there can be additional signages in braille language for the specially-abled students.
- d) **Amphitheatre cum open learning space** - The College can create an open space amphitheater in the open area and include open space learning and activities there providing a holistic approach to education and being one of its kind Institute to adopt this practice.
- e) **Waste vio** – College can tie up with our organization and students can be encouraged to collect dry waste and electronic waste such as newspapers, old laptops, and others and hand them over on a weekly or monthly basis thereby making a waste reduction approach in the community. This has benefits such as awareness, and eco-friendly habits in becoming a responsible citizen.
- f) **Eco clubs** – In addition to the NSS, there can be an eco-club with school and college students operating together which will help the collaboration to yield results right from the micro-level.
- g) **Additional fire safety** – The measures such as a Hose reel, signages, fire-fighting



tank, fire alarm, and sprinkler system should be adopted. There should be a fire extinguisher minimum of two per floor on every staircase, immediately outside the lifts, and in every lab with appropriate signages and layouts for exit plans in case of an emergency.

## 8.2 Survey Results

An online survey was conducted to analyze the student and staff views about changes for Green audit improvement. **Some of the suggestions are listed below:**

- Planting more plants at different places on the premises is required.
- Improvement in plantation and take care of plants every day by watering plants.

**However, it should be noted that because of the pandemic the students have not visited the premises physically so some of these points are not mandatory.**

## 9. References

1. Uniform Plumbing Code – India, 2008
2. IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
3. IGBC Green Landscape Rating system, March 2013
4. BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST – Canada
5. Used only for understanding Universal design - Universal Accessibility Guidelines for Pedestrian, Non-motorized vehicle and Public Transport Infrastructure – Report guidelines by Samarthyam (National center for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

