

GREEN AUDIT

STUDY PERIOD (TWO YEARS) 2019 – 2020 AND 2020-2021

Sustainability study

AUDIT REPORT

Studied for
Swami Shukdevanand College
Mumukshu Ashram, Shahjahanpur (U.P.) 242226

Studied in the capacity of
An accredited & Certified Green Building Professional



Valid till May 2023

Disclaimer

The Audit Team has prepared this report for the **Swami Shukdevanand College** located at Mumukshu Ashram, Shahjahanpur (U.P.) 242226 based on input data submitted by the College analysed 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 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.

The audit is a thorough study based on the inspection and investigation of data collected over a period of time and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

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 has completed audits of multiple Institutes including Technical, State University, Private University and Single Faculty Colleges for a total of more than 60 lakhs+ sq. ft. of Built-up area audited till date Pan India as an Accredited and Certified Green Building Professional-Architect; ISO Certified 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 in capacity of Accredited & Certified Green Building Professional with extensive experience.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

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Acknowledgement

The Audit Assessment Team thanks the **Swami Shukdevanand College, Shahjahanpur, Uttar Pradesh** for assigning this important work of Green Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are due to **Swami Chinmayanand Saraswati**, President; **Shri. Ramchandra Singhal**, Vice President; **Dr. A. K. Mishra**, Secretary; **Dr. A. Massey**, Joint Secretary and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Dr. Anurag Agarwal**, Principal for the valuable inputs.

We are also thankful to **College's Task force the faculty members** who have collected data required **Dr. Shaleen Kumar Singh**, Head, Dept. of English (*Special mention for the excellent coordination*); **Dr. Madhukar Shyam Shukla**, Head, Dept. of Economics (In-Charge, Green Audit Committee); **Dr. Deepak Singh**, Asst. Prof., Dept. of History (Co-incharge, Green Audit Committee); **Dr. K.K. Mishra**, Asst. Prof., Dept. of Teacher Education (Member, Green Audit Committee); **Shri. Mridul Patel**, Asst. Prof., Dept. of Sociology (Member, Green Audit Committee); **Dr. Manoj Kumar Mishra**, Head, Dept. of Education (Member, Green Audit Committee); **Dr. Mumutaz Husain**, Asst. Prof., Dept. of Botany (Member, Green Audit Committee); **Dr. Santosh Pratap Singh**, Asst. Prof., Dept. of Commerce (Member, Green Audit Committee); **Ms. Brij Lally**, Asst. Prof., Dept. of Commerce (Member, Green Audit Committee); **Ms. Aparna Tripathi**, Asst. Prof., Dept. of Commerce (Member, Green Audit Committee); **Dr. Prajjawal Pundir**, Asst. Prof., Dept. of Drawing & Painting (Member, Green Audit Committee); **Mr. Akhilesh Tiwari**, Asst. Prof., Dept. of Teacher Education (Member, Green Audit Committee); **Mr. Abhishek Kumar Bajpai**, Asst. Prof., Dept. of Teacher Education (Member, Green Audit Committee) and **Ms. Kumud**, Asst. Pro., Dept. of English (Member, Green Audit Committee).

We highly appreciate the assistance of the **entire Teaching, Non-teaching and Admin staff** for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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1. Introduction

1.1 About the Institution

Swami Shukdevanand College, started with BA first year classes, and within a short span of time it touched the great heights of development, the B. Ed classes were started in 1965 in the college.

The same year B. Sc. classes were also added to the institution. With the glorious talent show in the field of Arts, Science and Education, the institute continued its journey for years. The efforts of the new management committee bore fruits with the addition of B. Com courses in 1985. The college got the permission from the government to run M. Ed. and M. Com courses.

A complete new look was given to the library and reading room in 2003, when it was constructed with all the facilities. Various lecture halls, lecture theatres, and indoor stadium were built in the year 2004 and were inaugurated on February 26, 2006, by the ex-president of NCERT, Dr. J.S. Rajpoot, and the then director of higher education, Dr RK Baslas.

Administrative building of the college was renovated in 2004-2005. The college got the approval for botany and zoology subjects from the university and started its classes from 2006-2007. Staff room for arts and commerce faculties, 14 lecture halls on the second floor and other important halls were constructed in 2007-2008.

PGDCA and BCA classes were started from July 2008. BP Ed classes are also under proposal. New laboratories for Chemistry, Zoology and Botany have been constructed and other lecture halls are under construction.

Beautification work for the college remains constantly under progress. In the year 2009, BBA Program was commenced. Besides, B.Com (Finance) and B.Com. (Hons.) programs were also started in the year 2013. After two years in 2015, seven postgraduate courses in Arts streams and Five Postgraduate courses in Science stream were launched. And recently in the year 2016, one more self-financed unite of B.Ed. was started in the college.

The college takes pride in proclaiming that each year; many students of the college take Chancellor's medal.

1.2 Statements of the Institution

1.2.1 Vision

The College has envisioned “Being a dynamic organisation contributing to a transformed, equitable and quality higher education and training system in India.”

1.2.2 Mission

The College adheres and focuses to the following mission:

- ⇒ To Ensure and sustain high quality value based Education
- ⇒ To inculcate values of lifelong learning develop their unique and innovative ideas.
- ⇒ To mould the youth into a self-reliant and responsible citizen.

1.3 The surrounding premises around the Institution

The Premises is situated amidst the landscape serene of **Shahjahanpur district of Uttar Pradesh** with immense peace and calmness in the surroundings. There is a frontal approach which provides quite a beautiful appreciation space while approaching the premises; this area is surrounded by huge trees which positively complement the background-foreground aspect in terms of Natural space and built-form Architecture. It also provides ample shade which enhances the micro climate of the region. The location of College is feasible to the nearby essential amenities such as Public Health Center, Fire Station, Civic body-Public administrative buildings, Recreational gardens and Police Station which are not too close but nearby.

1.4 Assessment of the College

1.4.1 Affiliations

The College has all its courses approved and affiliated to **the Mahatma Jyotiba Phule Rohilkhand University**, a government university in Uttar Pradesh, India and the premises is spread over 206 acres.

1.4.2 Certification

- ⇒ **AISHE** – The College has the AISHE Code C-13367-2020.

- **ISO** – The University is 9001:2015 Certified for Quality Management System from SP Certification Limited in March 2022.

1.4.3 Recognition

The College is recognised by **University Grant Commission (UGC)** under section 2 (f) and 12 (b) of the UGC Act, 1956 vide by University Grants Commission, New Delhi.

1.4.4 Accreditation

The College received 2.53 CGPA with a 'B+' Grade in its First cycle of NAAC in October 2006. The College is due for its second cycle of NAAC soon.

1.5 Achievements of the Institute

The College has a tremendous track record of excellence for the educational services provided; it received the **"Swachhta Action Plan Award for 2021-22"**

2. Institution overview

2.1 Populace analysis for Academic year 2020-2021

2.1.1 Students data

The student data (shared by the College) shows there were a total of **3,654 Boys and 2,226 Girl students**, thus there were **a total of 5,880 students** on the premises.

2.1.2 Staff data

Type	Male	Female	Total
Admin staff	13	1	14
Teaching staff	51	24	75
Non-Teaching staff	33	9	42
Total Staff Members	97	34	131

Table 1: Staff data of the Institution for 2020-2021

The staff data shows the premises had a total of **131** Staff Members.

2.2 Populace analysis for Academic year 2019-2020

2.2.1 Students data

The student data (shared by the College) shows there were a total of **3,117 Boys and 2,074 Girl students**, thus there were **a total of 5,191 students** on the premises.

2.2.2 Staff data

Type	Male	Female	Total
Admin staff	14	1	15
Teaching staff	51	24	75
Non-Teaching staff	33	9	42
Total Staff Members	98	34	132

Table 2: Staff data of the Institution for 2019-2020

The staff data shows the premises had a total of **132** Staff Members.

2.3 Total College Area & College Building Spread Area

The **total site area is 6.17 Acres** and the **total Built-up area of College is 1,87,260 sq. ft.** for a **total of 6,011 footfalls.**

2.4 College Infrastructure

2.4.1 Establishment

The College was established in 1964. The college is located pretty close to nature and hence has very fresh environment which is absolutely pollution free and healthy. The Building is a Reinforced Cement Concrete (RCC) framework building. **Overall the Infrastructure of the Building is excellent in terms of the Architecture Design and Green Building Design. The Premises covers quite a few of the requirements for a Green Habitat.**

2.4.2 Spatial Organisation

The overall ambience 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 colour palette not just helps the building to stand out but also provides an Institutional arena. It balances with the local architecture with the natural landscapes of huge trees all around. The design emphasis on providing calmness to the built form and gradually merges with the serene landscape. The floor to floor height is more than 11 feet. There is no provision for lifts in the premises, whereas there are amenities such as CCTV, Fire extinguishers, Library and first aid box.

2.4.3 Operation and maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarized in the table. The Institution is open from Monday to Saturday. The detail wise timing for each is mentioned below.

S. No.	Section	Days	Time	Hours/ day	Days in a year
1	Teaching	Monday to Saturday	09.00 am to 03.00 pm	6	280
2	Non-teaching	Monday to Saturday	10:00 am to 05:00 pm	7	280

Table 3: Schedule of the timings of the premises

On-site investigation and physical verification

Audit Team during the visit on 12 May 2022



Discussion session with the Management, Principal and College Faculties



On-site review with the Team

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 for 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 premises

Green Audit

- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of premises; Scope to include Rain water harvesting and Waste water treatment in 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 campus
- Analysis of the flora and fauna of campus
- 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 admin department, actual inventory, investigation to check the operation and maintenance, analysis of the data collected and preparation of the Report.

3.4 Timeline of the activities for Green Building Study Audit

- 11 April 2022 – Allotment and Initiation by the College
- 12 April 2022 – Induction meeting
- 05 May 2022 – Survey of the Student and staff submitted
- 12 May 2022 - Site visit at the Institute
- 12 May 2022 – Submission of the report

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 in the premises.

- **The College uses water wastage treatment by releasing water in the field. So that the level of underground water is maintain.**
- **The College collects the overflow of the adjoining canal to protect the surrounding.**
- **Waste management** - *All the laboratories, classrooms, and cabin corridors are having dust bins. Laboratories are having dustbins wastage; Plastic bags are strictly banned on the college premises and canteen.*
- **Social awareness** - *The College has taken up awareness drives on various social issues for rural upliftment and regeneration in the college and surrounding villages.*
- **Cleanliness Campaign** - *The Swachha Bharat Abhiyan is carried out on college premises as well as off-premises.*
- **Fresh environment** – *The College provides an eco-friendly ambience with fresh air and soothing environment which helps to maintain a physical and mental balance. This kind of a space it a must for an educational specially technical institute which is inviting and gives the stakeholders an opportunity to explore indoor and outdoor learning to a great extent.*
- **Silent and peaceful atmosphere** – *The College is located amidst residential areas which are well designed thus these help to maintain the pollution under control and provide a healthy ambience.*
- **Universal design** – *The College premises has special provisions such as ramps, lifts for the specially abled.*

- **Team work** – *The best quality of the College which sets it apart from other institutes is its coordinating and cooperative staff members, as for a building the foundation plays the most important role for its future similarly for an educational institute its staff members do.*
- **Signages on the plants mentioning scientific names** - *The practice of having the names of each plant and tree is executed by the College and is very beneficial.*

4.2 Community Development

The various community development programs conducted include Tree Plantation, Life Learning, Employability Skill program introduced for the youth, Blood Donation Camp, Food Kit Distribution Program to the neighbourhood community, Relief fund programs.

A lot of efforts are involved right from planning to execution. The main motive behind these is social welfare. This kind of a tough process is highly admirable. We respect and congratulate the Institute for the same.

4.3 Eco-friendly initiatives undertaken

The Institution has undertaken the following initiatives through **excellent efforts** towards save environment measures.

- ➔ **Plantation Drive** (Vrihad Vriksharopan Abhiyaan), During Seven Day Special Camp, a rally was taken out in the adopted village Navada Indeypur, Shahjahanpur, 12 Feb 2019
- ➔ **Cleanliness Campaign Seven Day Special Camp**, During Seven Day Special Camp, A rally was taken out in the adopted village Navada Indeypur, Shahjahanpur, 12 Feb 2019
- ➔ **Hygiene and sanitation Awareness Campaign** During Seven Day Special Camp, During Seven Day Special Camp, a rally was taken out in the adopted village Navada Indeypur, Shahjahanpur, 14 Feb 2019
- ➔ **Anti-Drug Addiction Awareness Campaign** During Seven Day Special Camp, During Seven Day Special Camp, a drama titled "Nasha Chhodo Ghar ko Jodo" was staged by the NSS volunteers in the adopted village Navada Indeypur, 15 Feb 2019

- **Plantation (Under the campaign- Selfie with Sapling),** 500 saplings were planted in college campus of the college, 31 August 2019
- **World Hand Wash Day,** was celebrated and awareness for water conservation was highlighted, 15 October 2020
- **Nasha Mukh Bharat Abhiyan,** Many programs like Elocution Contest, Essay Writing Competition, Poster Competition, Signature Campaign Slogan Competition, and Debate Competition were organized. A play named "Kahani Ghar Ghar Ki" was staged by NSS volunteers at Khirni Bagh Chauraha, 4 April 2021 to 10 April 2021
- **World Environment Day,** NSS volunteers pledged to plant and take care of the saplings. 5 June 2021
- **Van Mahotsav Abhiyaan,** Plantation activity and various other programs were organized on the occasion of Netaji Shubhash Chandra Bose Jayanti, 05 July 2021
- **Ground Water Conservation Week,** An awareness program highlighting the importance of ground water conservation was organized. Saplings were also planted by the students, 16 July 2021 to 22 July 2021
- **Nasha Mukti (Anti-Drug Addiction) Abhiyaan** during Seven Day Special Camp of NSS, An awareness program highlighting the importance of ground water conservation was organized. Saplings were also planted by the students, 23 Feb 2022.

4.4 Survey Results

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

4.4.1 Participation

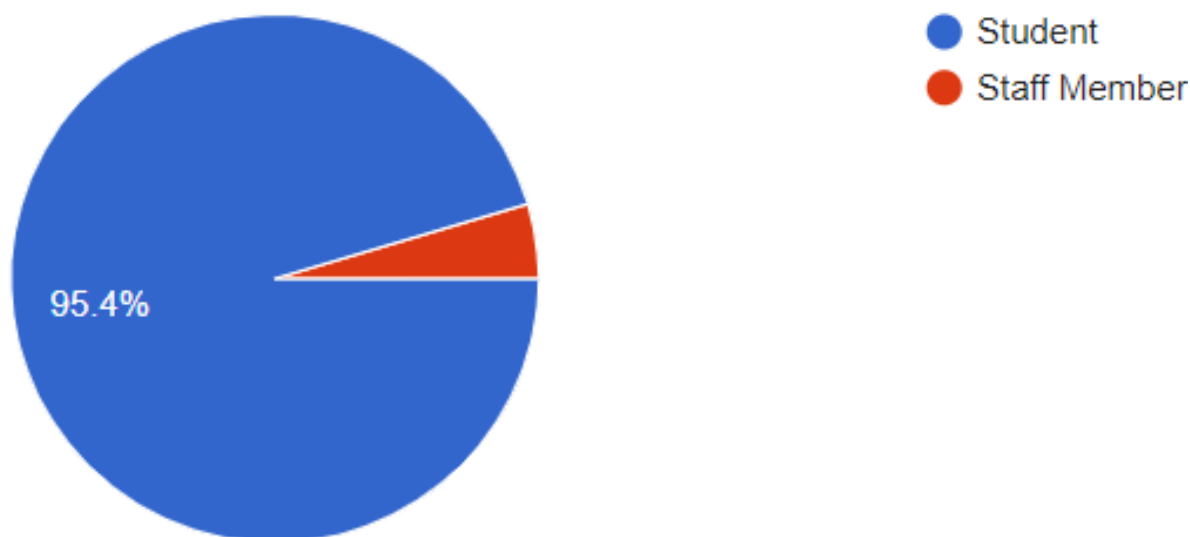


Figure 1: Participation analysis in the survey

A total of **1,094 responses** were received out of which 95% were students.

Note about the review-rating survey

The Participants were asked to review (Though an online mode) 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 graph depict the Number of participants responses in numerical (Percentage of the participant response) – For example 101 responses (44.5%)

4.4.2 Rate the Green awareness practices in College

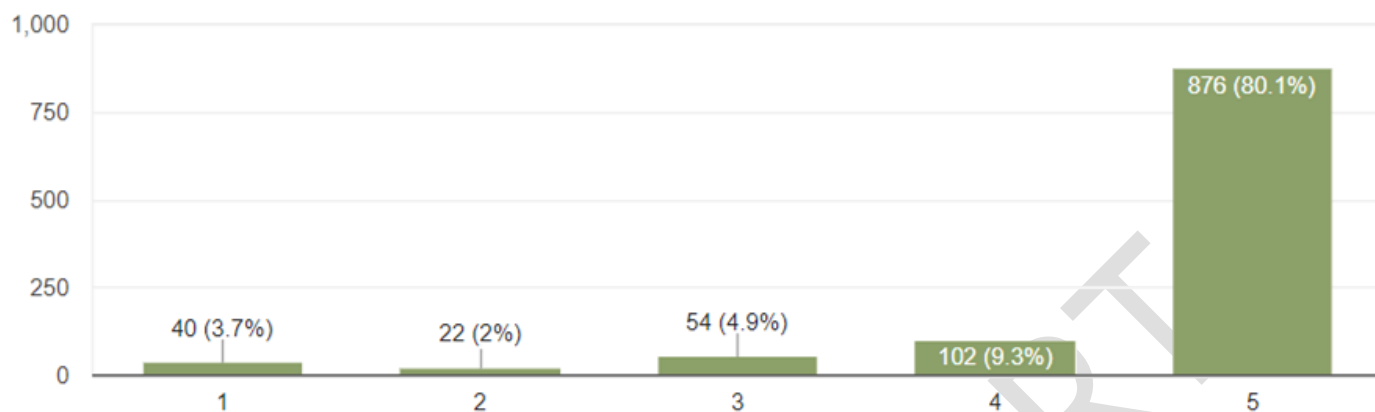


Figure 2: Green awareness practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 80%** followed by **9% for rating 4 (Very good)**.

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

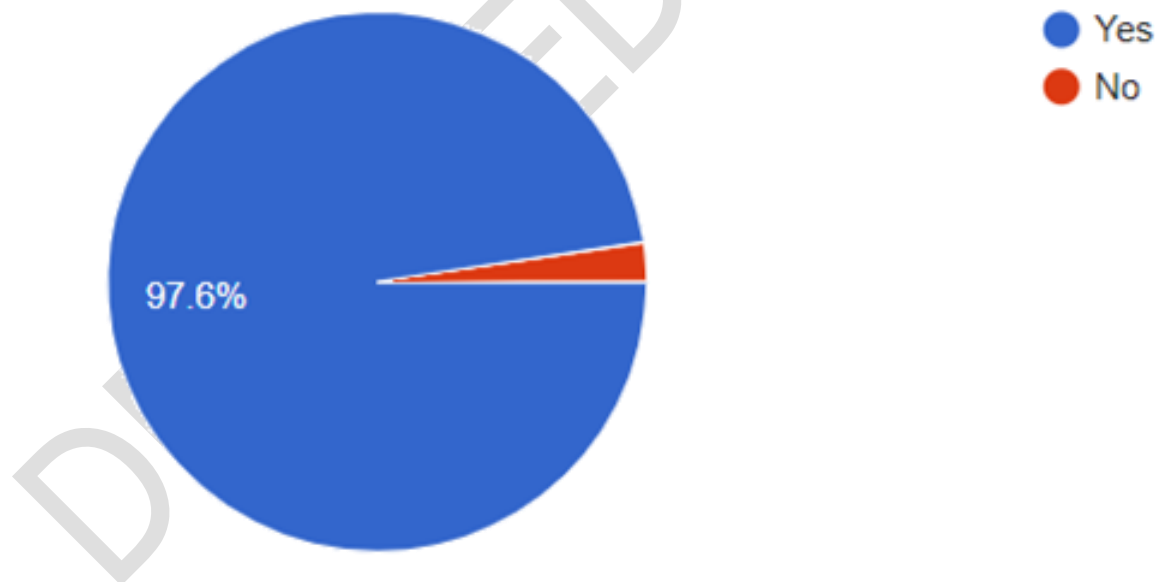


Figure 3: Confirmation of the environment awareness programs/ webinars/ plantations/ cleanliness or similar programs conducted by the College

The students, staff **98%** of responses confirmed activities are conducted which is very excellent.

4.4.4 Do you participate in such events?

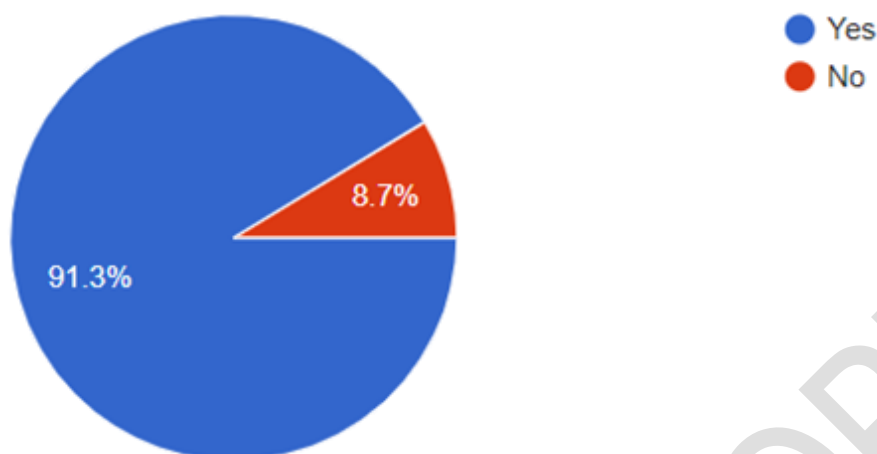


Figure 4: Participation in the environment awareness programs/ webinars/ plantations/ cleanliness or similar programs conducted by the College

The students, staff **almost 91%** 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 about the program?

We have listed some of the key responses below.

- ➔ Wonderful and suggestive. Great Experience
- ➔ Programs are conducted by the college for the students; it's almost all about environment to keep clean and hygiene...!
- ➔ Very nicely conducted, very coordinating teachers. Very good program. It was nice.
- ➔ Great approach to deliver the awareness and information in society through us.
- ➔ It's been a good experience as I learnt a lot more new things. They used to be student friendly, sweet speaking. Webinar didn't take a heavy time so it's good for us.
- ➔ I get to learn new things by participating in the program, my confidence in participating further increases and I get a chance to interact and stay with the teachers.
- ➔ We visited near areas to aware of water waste and keep clean their home and surrounding. People cooperated and helped us to clean their surroundings "
- ➔ It was great; I have learnt many new and innovative ways about saving natural resources, and maintaining a clean and green environment.

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.

Waste Audit



Background reference image Polina Tankilevitch on pexels

5. Waste Audit

Waste is an inevitable part of our lives. Over the years as the awareness about waste management techniques has given a rise to rethink how the waste can be avoided from 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, waste management strategies that are and implemented in addition to the newer ways the can be adopted aiming to make the premise clean and sustainable. Here sustainable refers to a broader aspect to analyse whether the current techniques are having positive or negative effect on the stakeholders of the premises.

5.1 Waste produced

5.1.1 Types and disposal of waste in Premises

The types of waste collected in the premises are as follows, these are separated before processing.

S. No.	Type of waste	Source and quantity	Current Disposal method	Can be treated/ recycled?	Methodology
1	Solid waste	Toilets–Biodegradable waste	TREATED - Sewage treatment plant	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	TREATED – Organic composting is undertaken	Yes	TREATED – Organic composting can be undertaken
5	Liquid waste	Toilets, washbasins – Around 100 – 120 litres per week during general times and 50 litres at present	TREATED - Sewage treatment plant	Yes	CONTINUE - with the current practice
6	Organic regular waste	Dust, dirt usually dry waste from Canteen and all sources – approx. 3 to 5 kg	TREATED – Organic composting is undertaken	Yes	TREATED – Organic composting can be undertaken

Table 4: Summary of the types of waste produced in the premises

5.1.2 Bins summary

There are 121 Dustbins in the premises with volume of 7 litres (small), 15 litres (medium) and 30 litres (large). The analysis of dustbins is presented below.

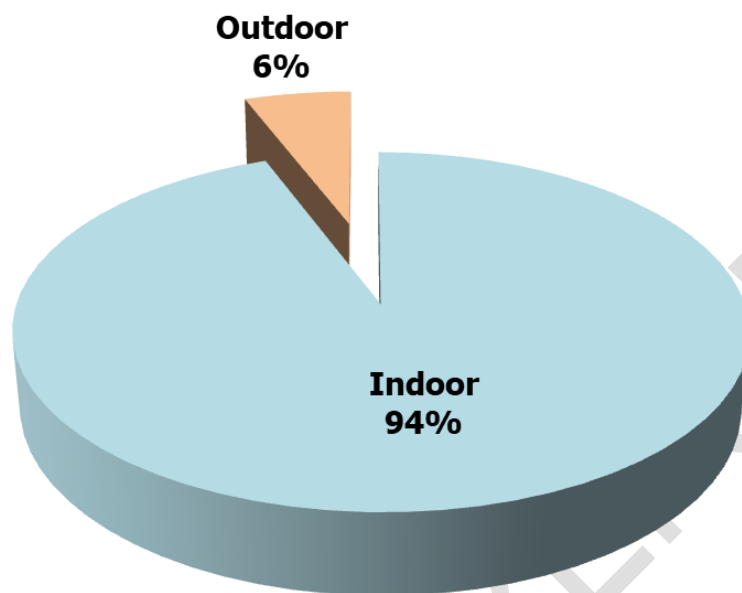


Figure 5: Analysis of dustbins location wise in the premises

The above analysis shows **94%** are present in the **Indoor** areas and **6%** in the **outdoor** areas.

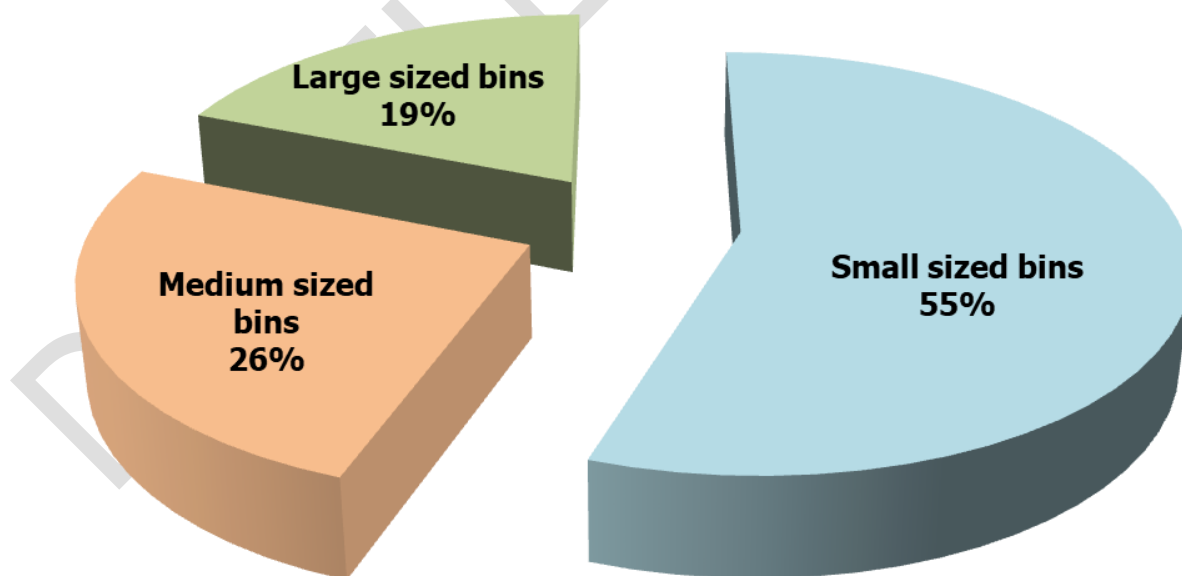


Figure 6: Analysis of dustbins size wise in the premises

Among the dustbins that are present in the premises, **55%** are **small sized bins**, **whereas 26%** are **medium sized bins** and **19%** are **large sized dustbins**.

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, Unused Equipment waste is collected. The waste produced on premises is segregated. It is collected on a weekly basis. The waste is not handed over to the local municipality van. There is a dumping pit in the garden which should not be there.

5.3 Waste management

The College reuses the papers. Ample measures are taken to maintain hygiene. No smell problem or health related issues due to the waste are there. There are adequate numbers of bins present in all parts of 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.

5.4 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) 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 graph depict the Number of participants 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, following is the result received.

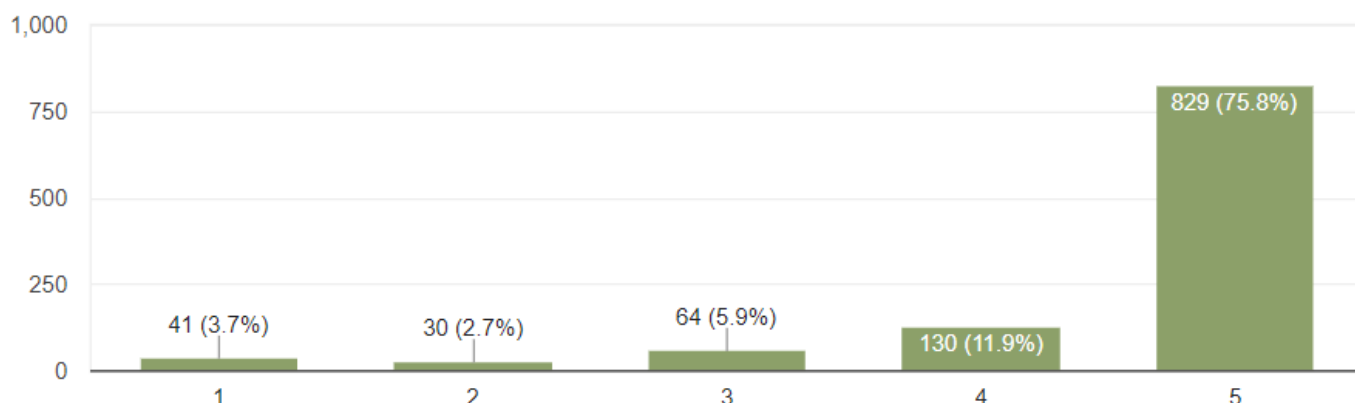


Figure 7: Waste management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 76%** followed by **12% for rating 4 (Very good)**.

5.5 Recommendations for a Sustainable Habitat

The following practice can be adopted for further up gradation.

a) Twin Dual Litter Dustbin Bins

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

b) 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 which needs to be preserved efficiently. Water audit helps to identify the sources of water consumption, the water requirement by the campus met by these sources. The points and effective usage of 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 main source of water is through Municipality. The College requires water from the Local Municipality for drinking purpose. The total water consumption through the tanks on site, these are available in a quantity of 1 tank with a capacity of 25,000 litres.

6.1.2 Sources of Secondary water supply

Well – There are 2 wells available on the site which is used as underground water facility with daily water being pumped for using submersible pumps. On a daily basis water is pumped from per well for usage depending on the need.

6.2 Water requirement

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

- **Drinking water** – Consumption of around 850-950 litres of water through Aquaguard like system available in the premise, the taps and water cooler.
- **Toilet blocks**– General usage by occupants in toilets, urinals, bathrooms, wash basins using approx. 400-600 litres of water daily
- **Cleaning of the premises** – The entire Institution is very well maintained with respect to hygiene and cleaning is one of the major uses of water requirement. The toilet areas are cleaned twice on a daily basis.
- **Garden and surrounding open space** – Cleaning, watering the plants requires approximately more than good amount of water, keeping in mind the scale of the open spaces there is supply system connected directly and the plants, trees are hardly watered regularly. The sprinkler system is practiced at present.

6.3 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 – 18 Nos.
- Toilets – 67 Nos.
- Wash basins – 76 Nos.
- Taps (Indoors) – 178 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.

6.4 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 an efficient water management in terms of operations and maintenance.** The toilets are kept very tidy and are cleaned every day.
- The **waste water does not mix with ground water and gets directed to storm water drains.** There are sufficient numbers of taps in the premise.

6.5 Survey Results

Note about the review-rating survey

The Participants were asked to review (Though an online mode) 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

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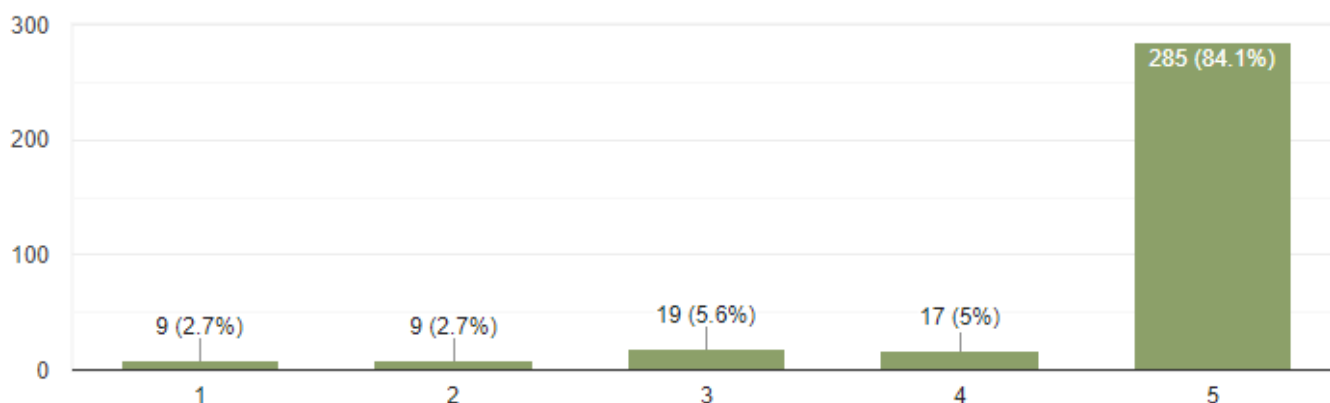


Figure 8: Water management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 84%** followed by **5% for rating 4 (Very Good)**.

6.6 Recommendations for a Sustainable Habitat

Since there are already multiple steps undertaken only one suggestion has been put forth as follows:

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

Health & Hygiene Audit



Background reference image Curology on unsplash

7. Health and Hygiene Audit

The 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 in order to affect the young minds in the positive manner 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 Building.
- Hand wash facility
- Drinking water facility in the form of Water coolers and taps
- Ample number of dustbins in 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.
- Canteen uses Gas cylinders for cooking, there is no utilisation of fire wood. Thus **there is no smoke from burning of fire wood and any health issues related to the same.**
- The **garbage in premise is not burnt** and there is not 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 slight issue of dust owing to the same but it is **balanced with the good vegetation in the premise.**

7.3 Hygiene

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

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

maintained. **The entire premises are cleaned twice on a daily basis. It is very appreciating that there are only 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 about the operation and maintenance of the equipments each floor.
- Water management initiative with appropriate hygiene is undertaken. The areas of water tanks in site on ground floor are clean and no mosquito breeding spots are there.
- There are pest controls program practiced with appropriate sanitation facilities and Annual Maintenance Contract for pest control is done once a year by professional Pest control units
- The food premises and equipments 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 Tree Plantation programme the initiative of **Swachh Bharat Abhiyan of Govt. of India** is undertaken during various occasions.
- There are appropriate storage areas which 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 on a daily basis.
- The Maintenance staffs are allotted the responsibility of the washroom hygiene and they do a very commendable and excellent job to maintain 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, the college should practice pest control programs with appropriate sanitation facilities through an appropriate agency and install additional Sanitary vending machines and incinerators at appropriate locations.

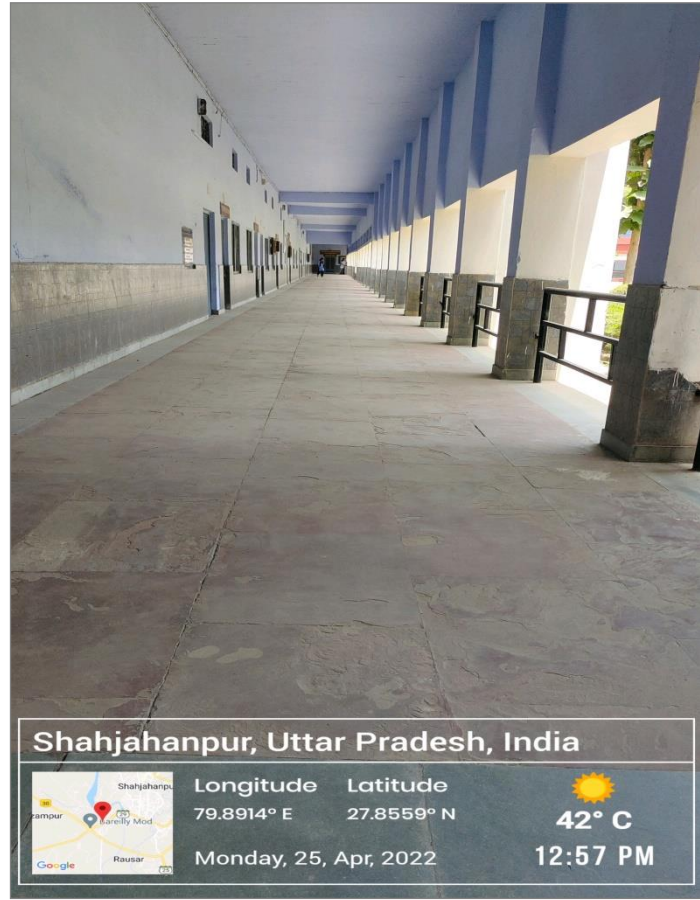
8. Site visit Audit inferences

As the College had an offline audit and the report has been prepared based on the inputs provided for immediate action for improvement in this subject. The aspects are listed below.

- **Signing of a MoU for improvement w.r.t. to Green Building aspects of premises** – The same has been suggested before the visit.
- **Articles and Documentation** – The premises has multiple features which add to the beauty of the nature and improve the environment in the premises, it is thus suggested to have an article written every month as guided by the Team.
- **Carbon sequestration study** – This study will have to under taken in two phases; one for the dense forest in the premises and the second phase will be for all the plants in the premises.
- **Determination of plastic zones** – The study and execution can be undertaken through a pilot project where the waste plastic can be collected through areas within 5 km of the premises and a product can be developed with experts who has conducted the audit.
- **Net zero carbon reduction projects** – This is a pilot project where each student will plant at least 6 projects, the scope and detailed plan of action will be informed by the team as per the MoU with experts who has conducted the audit.
- **Scientific name plates as QR codes** – The NSS and UBA team should undertake a project to have QR code name plates on every plant of the premises. It can be undertaken with an expert who has conducted the audit.

On-site investigation and physical verification

Facilities related to water and cleanliness, hygiene practices in the premises



Shahjahanpur, Uttar Pradesh, India



Longitude 79.8914° E Latitude 27.8559° N

42° C

Monday, 25, Apr, 2022

12:57 PM



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Longitude 79.892° E Latitude 27.8551° N

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Monday, 25, Apr, 2022

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Shahjahanpur, Uttar Pradesh, India



Longitude 79.8915° E Latitude 27.8559° N

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Monday, 25, Apr, 2022

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9. Towards a Healthy & Sustainable Institution

9.1 Inputs by Greenvio Solutions

Based on the analysis of the study of premises in addition to the recommendations provided in each section of Ecological, Water, Waste, and Energy Audit the University can adopt the following strategies for a Healthy and Sustainable Institution practices.

- a) Cutlery in the Canteen** – The regular plastic and steel plates, and spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straws, disposable plates, edible spoons, and tables made out of sugarcane waste or bamboo. This will be the first of its kind initiative to be adopted and practiced thus also inculcating healthy practices in students.
- b) Environment Certificate Courses** – The College could begin courses such as Bachelor's, Diploma, or Certificate courses with National and International Collaboration related to Environment as part of the courses provided. Though, this is not a requirement or compulsion.
- c) 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 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.
- d) Signages** – In addition to the signages being in regular language there can be additional signages in braille language for the specially-abled students.

9.2 Survey Results

An online survey was conducted to analyse the student and staff views about what changes according to you can be undertaken for Green audit improvement in College premise and activity. **Some of the suggestions are listed below:**

- Awareness program for stopping the single use plastic and stopping the misuse of water and energy among students and society should be run regularly.
- According to me, the best improvement is to try to preserve the greenery that is available.
- Plant more carbon dioxide absorbing plants like Pine, Neem, Peepal, Bamboo, Banyan which will help in Carbon Neutralising.
- Ozone conservation and more activities
- Shady tree cover should be increased and flowering plants should be used at appropriate places.
- A special team for sustainable development.
- There can be join the student to other government green programme.

However, it should be noted that the College has taken up multiple initiatives and because of Pandemic the students have not practically visited the premises so many of these points are not mandatory at the moment.

10. 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 centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.

DETAILED REPORT

