

GREEN AUDIT

STUDY PERIOD (TWO YEARS) 2020-2021 AND 2021-2022

Sustainability study

AUDIT REPORT

Studied for

Late Digambarrao Bindu Smarak Samiti's

**Digambarrao Bindu Arts,
Commerce & Science College**

Bhokar, Tamsa Road, Taluka Bhokar 431801,

Dist. Nanded, (MS.) India

Studied in the capacity of

An accredited & Certified Green Building Professional



Studied by

Greenenvia
Solutions

Valid till **August 2023**

Disclaimer

The Audit Team has prepared this report for the **Late Digambarrao Bindu Smarak Samiti's Digambarrao Bindu Arts, Commerce and Science College** located at *Bhokar, Tamsa Road, Taluka Bhokar 431801, Dist. Nanded, (MS.) India* 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 **Late Digambarrao Bindu Smarak Samiti's Digambarrao Bindu Arts, Commerce and Science College, Nanded** 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 **Dr. Madhavrao Patil Kinhalkar**, President; **Shri Apparao Taterao Deshmukh**, Vice-President; **Shaikh Muradsab Manjramkar**, Secretary; **Shri Narayanraoji Kundgulwar**, Joint Secretary; **Shri Rajeswarrao Deshmukh Deothankar**, Treasurer; **Shri Sunil Manoharrao Joshi**, Member and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Dr. Dr. Panjab Anandrao Chavan**, Principal, for the valuable inputs.

We are also thankful to **College's Task force the faculty members** who have collected data required **Dr. Arvind B. Chavan**, IQAC Coordinator (*Special mention for the excellent coordination*); **Dr. Sachin V. Tawade**, Head Department of Botany; **Dr. Jaywardhan V. Balkhande**, Assistant Professor, Dept. of Zoology; **Dr. Abhijit Ashok Kandlikar**, Assistant Professor, Dept. of Environmental Science; **Dr. Bhupesh G. Nemmaniwar**, Assistant Professor and Head Dept. of Physics;

We highly appreciate the assistance of **Shri. Amol A Lungare**, Clerk and 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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DETAILED REPORT

1. Introduction

1.1 About the founder

The Senior Freedom Fighter and social worker Shri. Bhujangrao Patil Kinhalkar founded it. His intention was to make the area as far as possible educationally self-contained. Nanded District in Marathwada region has been declared as educationally backward. Bhokar, one of the Talukas of the district is located on the boundaries of Maharashtra & Andhra Pradesh, it is most backward part of the district. Most of the population in the area belong to tribal & backward communities like SC/ST's who do not have much access even to primary education, then higher education in such a scenario was distant matter.

Therefore, being a visionary person, he laid the objective of Digambarrao Bindu Arts, Commerce and Science college to offer a sound, secular and moral education both for boys & girls. He always emphasized on girl's education. The key to the whole character of the college, therefore, is to produce tolerant, humane & magnanimous people.

1.2 Statements of the Institution

Vision - To Provide value based quality education & generate Human Resource Equipped with contemporary advance skills.

Mission – The College has formulated the following mission to achieve its vision.

- ⇒ To make the students aware about the career opportunities available through the programs offered to them.
- ⇒ To refine the personality of the students with positive approach and purposeful skills.
- ⇒ To mould the character of students through value based education.
- ⇒ To search the students in the area who are eligible but deprived of taking higher education.
- ⇒ To create environmental and social awareness by exposing students to various activities.
- ⇒ To contribute to the development of economically backward area by helping the rural students to get quality education and to facilitate them the global stream of course.

1.3 About the Institution

Digambarrao Bindu Arts, Commerce and Science college, Bhokar Dist. Nanded is run by the parent institution late Digambarrao Bindu Smarak Samiti, Bhokar Dist. Nanded has a glorious history of its own.

Digambarrao Bindu Arts, Commerce and Science college has maintained a dress code not only for students but for employees also. It helps to improve uniformity in diversity.

Apart from the regular curricular activities since its opening it has always attempted to foster and maintain a healthy atmosphere of academic and social discipline and sound education through organizing number of co-curricular, extra-curricular and extension activities to develop students in all round way. Like the students our teaching & Non-teaching staff in their corporate life participates in number of activities to update and upgrade themselves.

From its opening to still today Digambarrao Bindu Arts, Commerce and Science college prepared number of students to meet the challenges of the millennium and acquires better career opportunities both in private, government & public sectors. The credit of it goes directly to the disciplined administration, hardworking teaching & non-teaching staff, healthy support in the form of text, reference books, journals, subject periodicals, magazines from the central library.

As a result of its continuous efforts and smooth conduct Digambarrao Bindu Arts, Commerce and Science college has been accredited and assessed in January-2004 for first cycle and Reaccredited in 2016 with B grade with CGPA 2.40 for second cycle by NAAC, Bengaluru.

The Aim of the College "To Provide value based quality education & generates Human Resource Equipped with contemporary advance skills."

The Objectives (Goals) of the College are as follows:

1. To provide quality education by offering the skill base course in rural area.
2. To mould and shape the rural students for their all-round development according to demands of local, state and national level and to instil self confidence in them.
3. To inculcate patriotism and the realization of their responsibility towards their environment and society.

The Institution offers the following courses.

- **Junior College**
 - ⇒ Arts
 - ⇒ Science
- **Senior College**
 - ⇒ Commerce
 - ⇒ Science
- **UGC Course**
 - ⇒ M. Com – BIS
 - ⇒ COC/ COP
 - ⇒ Study centre
 - ⇒ HRE
 - ⇒ M.R.P./ F.I.P./ F.D.P.
- **Distance Education courses**
 - ⇒ Undergraduate courses
 - ⇒ Post-graduate courses
 - ⇒ HRE
 - ⇒ CPCT

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

1.4 The surrounding premises around the Institution

The Premises is situated amidst the landscape serene of **Nanded district of Maharashtra** 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.

1.5 Assessment of the College

1.5.1 Affiliations

The College has all its courses approved and affiliated to **the S.R.T.M.U. Nanded, Maharashtra state.**

1.5.2 Certification

- **AISHE** – The College has the AISHE Code since 2015-16
- **ISO** – The College is ISO 9001:2015 Certified.

1.5.3 Accreditation

NAAC - The following are details of the reaccreditation of the College.

Cycle	First	Second
CGPA	-	2.40
Grade	C	B
Year	2004	2016

Table 1: NAAC Accreditation details of the Institute

The College is due to enter its Third cycle of NAAC.

1.5.4 Recognitions

The College has achieved the following recognition from **University Grant Commission (UGC) under section 2 (f) and 12 (b) of the UGC Act by University Grants Commission, New Delhi.**

1.6 Achievements of the College

The College has a tremendous track record of excellence in Built form and educational services provided, below are some of the achievements of the prestigious Institute.

- ⇒ **Best College Award** by SRTM University, Nanded
- ⇒ **Jagar Janivancha Award** for Vedan an Annual magazine of College by State Government of Maharashtra.
- ⇒ **Best Annual Magazine Awards** by SRTM University, Nanded consecutively.

2. Institution overview

2.1 Populace analysis for Academic year 2021-2022

2.1.1 Students data

The student data (shared by the College) shows there were a total of **588 Boys and 416 Girls, thus a total of 1,004 students** in the premises.

2.1.2 Staff data

Type	Male	Female	Total
Admin Staff	01	00	01
Teaching Staff	30	01	31
Non-Teaching Staff	11	01	12
Total Staff Members	42	02	44

Table 2: Staff data of the Institution for 2021-2022

The staff data shows the premises had a total of **44** Staff Members.

2.2 Populace analysis for Academic year 2020-2021

2.2.1 Students data

The student data (shared by the College) shows there were a total of **594 Boys and 489 Girls, thus a total of 1,083 students** in the premises.

2.2.2 Staff data

Type	Male	Female	Total
Admin Staff	01	00	01
Teaching Staff	30	01	31
Non-Teaching Staff	11	01	12
Total Staff Members	42	02	44

Table 3: Staff data of the Institution for 2020-21

The staff data shows the premises had a total of **44** Staff Members.

2.3 Total College Area & College Building Spread Area

The **total site area is 9 Acres** and the **total Built-up area of College is 40,659 sq. ft.** for a **total of 1,048 footfalls.**

2.4 College Infrastructure

2.4.1 Establishment

The College was established in 1989. 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 10 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	All Lectures and Library	Monday to Saturday Except Holidays	10.00 am to 4.20 pm	6.5	280
2	Administration	Monday to Saturday Except Holidays	10 am to 5 pm	7	300

Table 4: Schedule of the timings of the premises

DETAILED REPORT

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 campus

Green Audit

- Green initiatives
- Hygiene audit
- Water Audit - Analysis of the current water consumption of campus; 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

- 08 August 2022 – Allotment and Initiation by the College
- 08 August 2022 – Induction Meeting
- 08 August 2022 – Survey of the Student and staff submitted
- 10 August 2022 – Data submitted by College
- 13 August 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.

- There is **availability of open space in the premise in addition to the provision of the multiple varieties of flora.**
- The NSS, College authorities **jointly conduct initiatives for upgrading of the premises from environmental view.**
- Fresh environment is maintained and upgraded by the presence plants. **This vegetation benefits the users by providing shade.**
- **Lectures/workshops conducted on green practices and green infrastructure.**

4.2 Community Development

The various community development programs conducted including the following:

- Tree Plantation
- Life Learning and 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.

- Tree Plantation Programmes conducted by College on the occasion of Birth anniversary of late Vasant Rao Naik, Ex Chief Minister of Maharashtra on 01 July every year as Krushi Din.
- No Vehicle Day followed by all the Faculty Members and Students on every Thursday.
- Plastic Free premises.
- Water bowls kept under the tree in the premises for Birds and other animals in summer season.

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

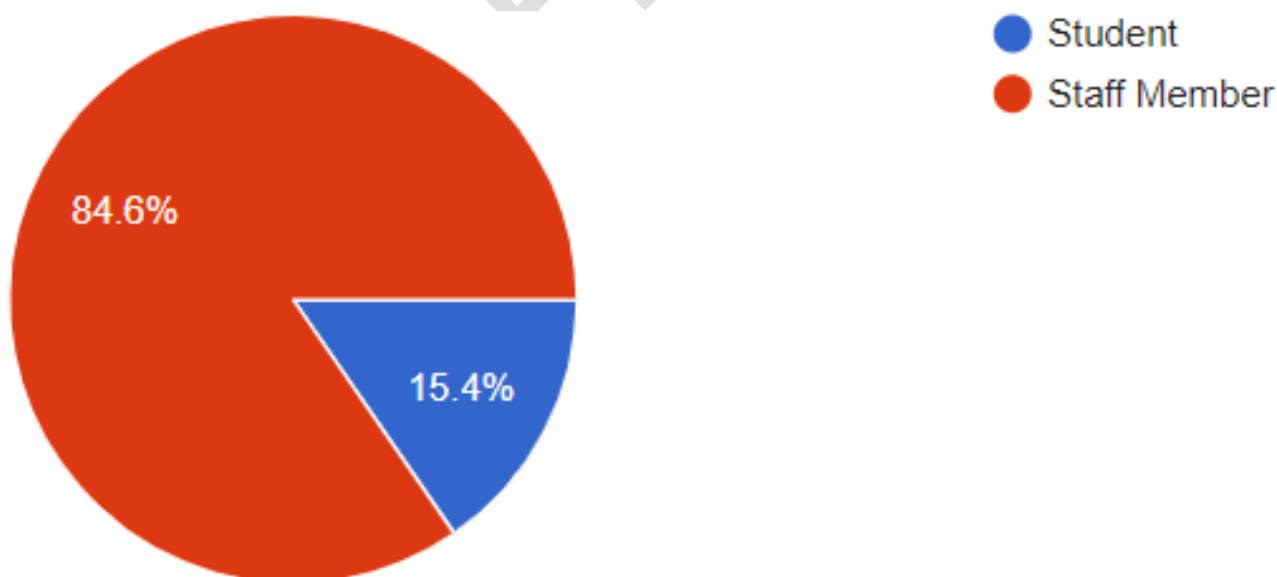


Figure 1: Participation analysis in the survey

A total of **26 responses** were received out of which 15% 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

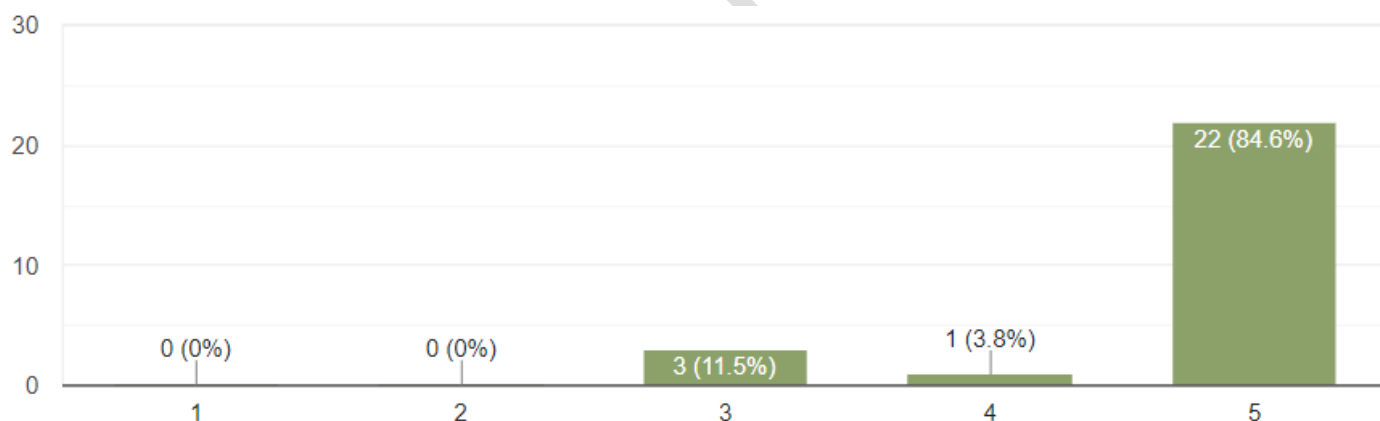


Figure 2: Green awareness practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 85%** followed by **4% for rating 4 (Very good)**.

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

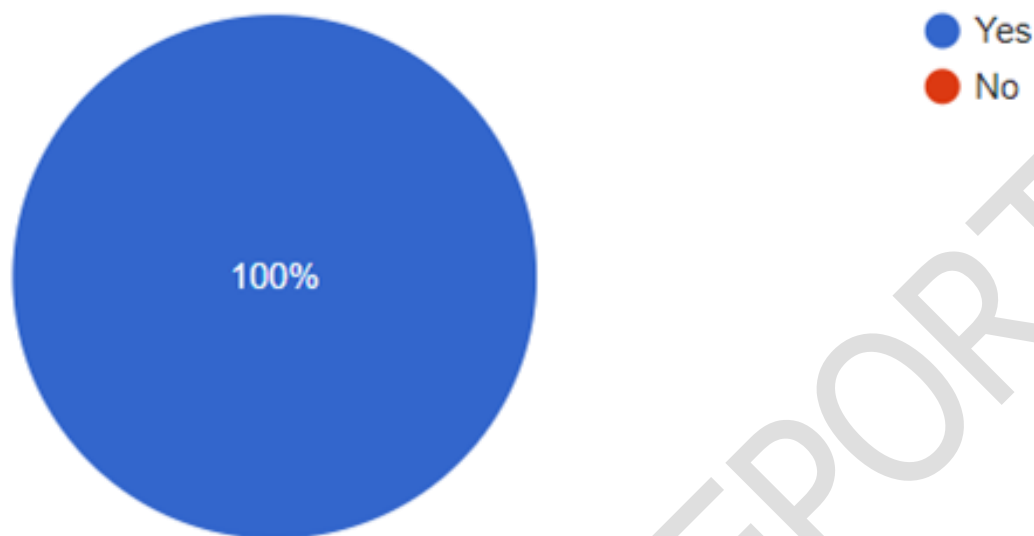


Figure 3: Confirmation of the environment awareness programs/ webinars/ plantations/ cleanliness or similar programs conducted by the College

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

4.4.4 Do you participate in such events?

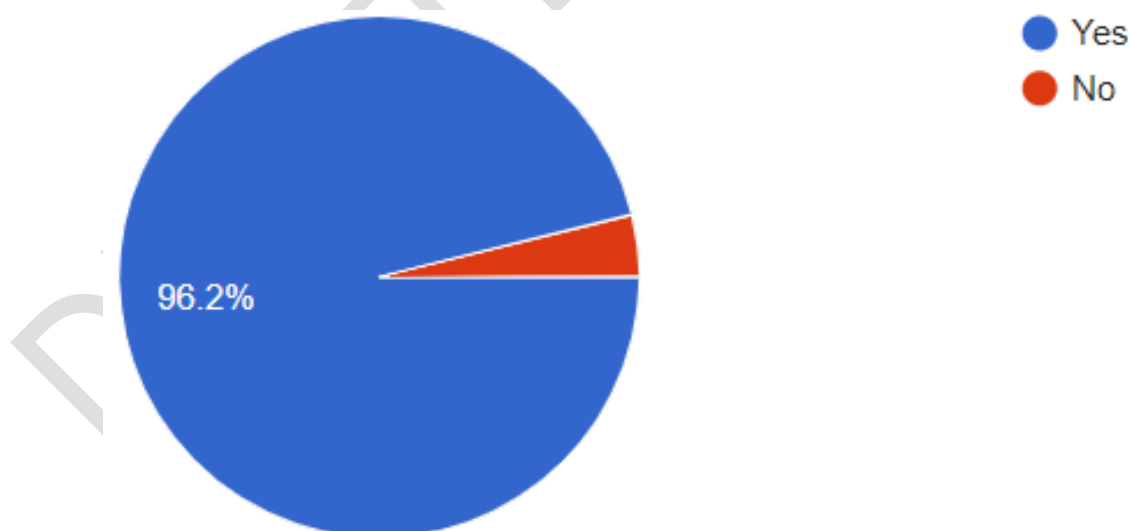


Figure 4: Participation in the environment awareness programs/ webinars/ plantations/ cleanliness or similar programs conducted by the College

The students, staff **almost 96%** 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.

- The scientific and sustainable development programs
- Very informative & motivational programs.
- Every year we do programmed of tree plantain and tree conservation, in summer we take lot of effort for tree water
- All programs of organizes our college. All students participate in that programs. All professors give us valuable information about it.
- Good practices are conducted by this college throughout the year and awareness is bring into the students and society
- Awareness Program arranged for the students so they can deploy such initiative in their locality and nearby society.
- Program have been always good and you have opportunity to provide a solid foundation for your candidacy
- My college teachers also conduct awareness program, webinars, plantation, cleanliness our college campus.me also participate in program.
- My college in mission green land awareness in the premises.
- Me also attend webinar in educational, motivation, management, some are the lecture are other colleges manage my teacher.

4.5 Recommendations for a Sustainable Habitat by Greenvio Solutions

a) Increase the plantations on the premise

There can be provision for more plantations on the premise maybe even a Kitchen garden facility.

b) 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.

c) 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.

d) 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.

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 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 of 15-20 kg per week	Led in the storm water 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	Vermicompost	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	Led to the storm water drain and garden	Yes	TREATED - Waste water treatment plant a well as continue with current practice of reuse in garden
6	Organic regular waste	Dust, dirt usually dry waste from Canteen and all sources – approx. 3 to 5 kg	Vermicompost	Yes	CONTINUE - with the current practice

Table 5: Summary of the types of waste produced in the premises

5.1.2 Bins summary

There are 62 Dustbins in the premises with volume of different litres. The analysis of dustbins is presented below.

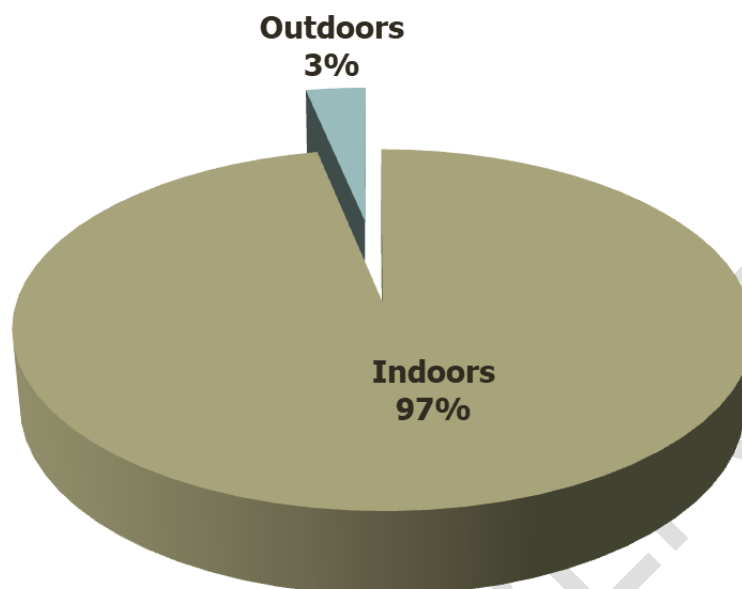


Figure 5: Analysis of dustbins location wise in the premises

The above analysis shows **97% are present in the indoors & 3% in the outdoors.**

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.

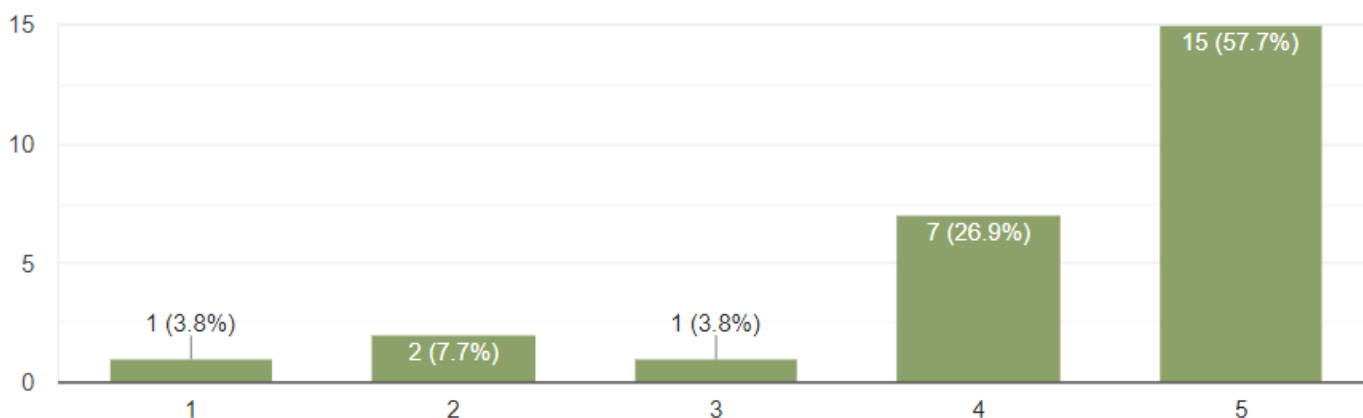


Figure 6: Waste management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 58%** followed by **27% for rating 4 (Very Good)**.

5.5 Recommendations for a Sustainable Habitat

The following practice can be adopted for further up gradation.

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 staffs are taken by them to their own home, 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 College canteen.
- Vegetable waste and other leaf litters can be used to fed in the vermi-compost pit and the resulting vermin-cast is used as manure in the garden.
- The chemicals from the laboratories be disposed 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 waste water from chemical laboratory.

b) 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.

c) Signages

Message about avoiding wastage should be placed at appropriate locations.

d) Dustbins at every 100m

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

e) 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 20,000 litres.

6.1.2 Sources of Secondary water supply

Well – There is 1 well 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 regular tap and pipe 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 – 11 Nos.
- Toilets – 24 Nos.
- Wash basins – 15 Nos.
- Taps (Indoors) – 46 Nos.
- Taps (Outdoors) – 02 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 number 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

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%)

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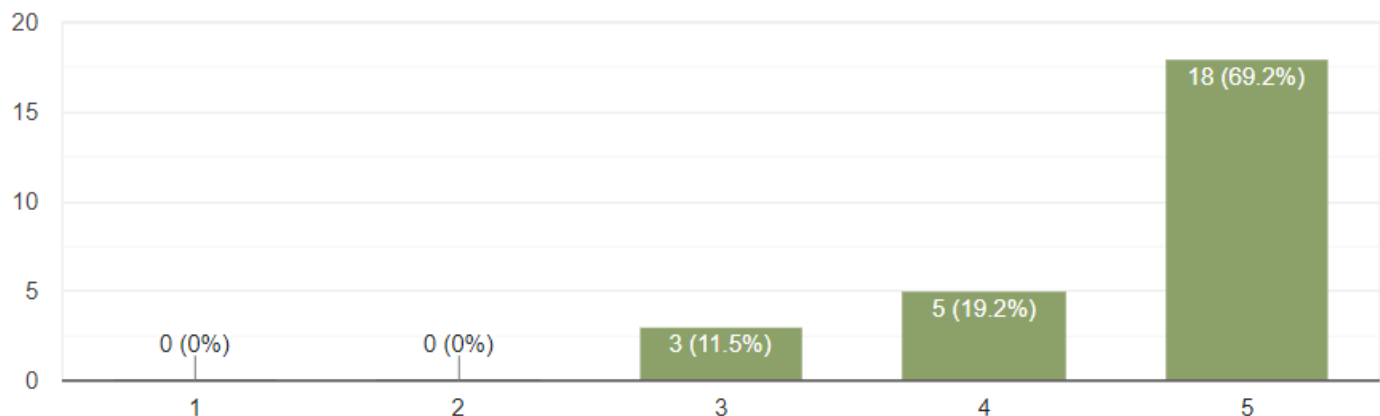


Figure 7: Water management practices in College

There were mixed responses received the highest was for **rating 5 (Excellent) at 69%** followed by **19% for rating 4 (Very Good)**.

6.6 Recommendations for a Sustainable Habitat

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

a) Waste water from toilets

This should be collected and a waste water treatment plant can be installed in the open space wherein this water can be treated and reused for gardening and toilet flushing.

b) Signages

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

c) 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 is 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 Sanitary vending machines and incinerators at appropriate locations.



8. Towards a Healthy & Sustainable Institution

8.1 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 College can adopt the following strategies towards a Healthy and Sustainable Institution practices.

- a) **Cutlery in the Canteen** – The regular plastic and steel plates, spoons used in Canteen can be replaced with eco-friendly and organic leaves, paper straw, disposable plates, edible spoons and tables made out of sugarcane waste or bamboo. This will be first of its kind initiative to be adopted and practiced thus also inculcating the healthy practices in students.
- b) **Additional fire safety** - Measures such as Hose reel, signages, fire-fighting tank, fire alarm and sprinkler system should be adopted.
- c) **Signages** – In addition to the signages being in regular language there can be additional signages in braille language for the especially abled students.

8.2 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 by the Students and staff are listed below:

- Require Improvement in rain water harvesting. Conduct more activity based awareness programs. By planting some flower plants to be attractive that attracts the attention towards hygiene.
- To keep the classrooms dust free, maintain drinking water (normal & cool), Labs have hard smell as they have laboratory equipments so maintain some fragrance.

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.

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 centre for Accessible Environments) – an initiative supported by Shakti Sustainable Energy Foundation.
6. Climate data <https://www.besttimetovisit.co.in/india/bhokar-1882445/>

DETAILED REPORT

