

ENVIRONMENT AUDIT

2019-21

AUDIT REPORT

Studied for

Ashti Taluka Shikshan Prasarak Mandal' s

Adv. B. D. Hambarde Mahavidyalaya

MH SH 142, Ashti – 414203

Analysed by



23 November 2021

Disclaimer

Green Audit Team has prepared this report for **Ashti Taluka Shikshan Prasarak Mandal's Adv. B. D. Hambarde Mahavidyalaya, MH SH 142, Ashti – 414203** 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.

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The Report is prepared by the Team of Greenvio Solutions under their brand and department – Sustainable Academe as Consultancy firm along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments

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Acknowledgement

Green Audit Assessment Team thanks the **Ashti Taluka Shikshan Prasarak Mandal's Adv. B. D. Hambarde Mahavidyalaya Ashti** 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 **Er. Kishor B. Hambarde**, Chairperson; **Shri. Atul. M. Meher Sir**, Secretary and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Prin. Dr. Sopan Raosaheb Nimbore Sir**, Member Secretary and **Mr. Niwrutti Narayan Nanwate Sir**, Coordinator, IQAC for their valuable inputs.

We are also thankful to **College's Task force the faculty members** who have collected data required.

The kind gesture for the inventory and data collection of the Administrative Members is quite commendable.

We highly appreciate the assistance of Supervisor; Electrical Department and College Team 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 Ashti Taluka Shikshan Prasarak Mandal

The Society has implemented the goal of educating the students in the best way possible by uplifting the academic status of the students through quality education and adopting the local village for overall community development. Meticulous joint efforts of the students and staff have made the institution one of the most sustainable premises in the locality.

1.2 Vision and Mission Statement of College

Our Vision

- **A strong free minded and capable youth with social bonding**
- Excellence in higher education
- Empowerment through knowledge
- Inclusive growth for socio-economic change

Our Mission –

- A dynamic approach with firm belief in efficiency and hard work
- To empower students with relevant knowledge
- To achieve innovation in teaching, learning and research
- To facilitate optimum use of human and natural resources
- To create awareness on human rights, value system.

1.3 Institution and the surrounding premises

Ashti Taluka Shikshan Prasarak Mandal' s Adv. B. D. Hambarde Mahavidyalaya is located in rural area at Ashti, Tai. Ashti, Dist. Beed. It is one of the most socio-economically, educationally backward and drought affected regions in Beed district of Marathwada region. Agriculture is the prime occupation of people in the locality. The financial capacity and per capita income of the people is remarkably low. Irregular and less rainfall renders the masses to migrate to sugar factories for sugarcane cutting.

The Premises is situated amidst the landscape serene with immense peace and calmness in the surroundings. The college is surrounded by Residential areas on all sides. There is a frontal approach which provides quite a beautiful appreciation space while approaching the premise. 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.

The aim of the college is to continuously enhance the teaching methods in order to provide students with an opportunity for their all-round development. **It strives for excellence in Holistic development for Students..** It makes an effort to induce passion for learning along with the inspiration for decisive thinking and assessment, thereby helping them to become the best professionals in life.

The institution offers the following courses affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

- **Graduation** - Bachelor of Arts (B.A.), Bachelor of Commerce (B. Com), Bachelor of Science (B. Sc), Bachelor of Computer Applications (B.C.A.)
- **Post-Graduation** – Masters of Arts (M.A. in Marathi, Hindi, History) and Masters of Science (M.Sc. in Organic Chemistry), M .Sc. in Mathematics and M.Sc. in Computer Science
- **Vocational** – B. Voc (Beauty and Wellness)
- **Preparatory – B. A. and M.A. (Marathi and English)**
- **Study Center** – Affiliated to Yashwanterao Chavan Maharashtra Open Universirt , Nashik B.A. and M.A (Marathi and English)
- **Diploma courses** – Under N.S.Q.F. related to Skill development
 - Automobile techonology
 - Accounting & Taxtion
 - Web page designing & development
 - ICT
 - Organic Farming
- **Cerificate courses** – There are following courses are offered
 - E-Commerce
 - Tourism

- Spoken English
- **Classes** – Civil Service Exam preparation
- **Interviews in the premise for jobs**

The College aspires at training young women and men to be competent, committed and compassionate and lead in all walks of life. It has the following objectives.

- To improve personality of the student.
- To inculcate civic responsibilities and social awareness among students.
- To identify and improve the potential inculture, sports and work to uplift them.
- To create national integration among the students.
- To create professional attitude.
- To create social awareness among the students.
- To inculcate discipline and moral values.
- To pursue the social and democratic values.
- To make them aware of national and socio.economic problems.
- To inculcate the values of patriotism, humanism, secuJarism and communal harmony for national integration.
- Communication of vision and mission of the Institution:
 - The vision, mission and objectives of the institution are communicated to the students,teachers and other stakeholders through the college prospectus, college magazine "Yuvaspandan".
 - The goals and objectives are made known to the stakeholders through the meetings with Students, Parents, Alumni, Extension Service, Placement Cell and the Media.
 - The display of Vision Statement and Mission Statement in prominent places on the campus helps the stakeholders identify the goals and objectives of the college.
 - Activities planned and conducted by the Students Union and various subject societies and clubs alsosetve to reiterate the mission and vision of the college.

1.4 Assessment of the College

The College is recognised as a Research Centre in Physical Education Institute, below mentioned are the administrative details of the Institute.

Affiliations - The institution is affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

Recognitions - University Grant Commission (UGC) by 2(f) 12(b)

Certification – The institute as received the following Certifications

- ISO 9001:2015
- NIRF
- AISHE

Accreditation

The following are details of the reaccreditation of the Institute.

Cycle	First	Second
CGPA		2.78
Grade	B	B++
Year	2001	2016

Table 1: NAAC Accreditation details of the Institute

The college is due to enter its Third cycle of NAAC soon.

2. Institution overview

2.1 Populace analysis for Academic year 2019-20

2.1.1 Students data

The student data (shared by the College) shows there are total of **1,659** students occupying the premises out of which Boys form the majority of **1,142** in numbers.

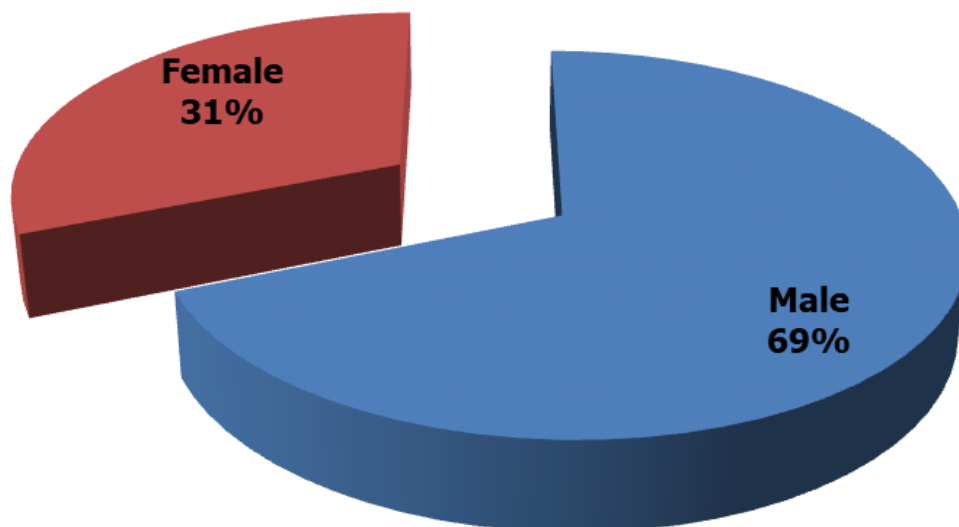


Figure 1: Summary of the students in Academic year 2019-20

The above graph shows **boys occupied 69%** as compared to **girls 31%**

2.1.2 Staff data

Type	Male	Female	Total
Teaching Staff	44	8	52
Admin Staff- office/library	9	3	12
Non-teaching & support staff/housekeeping	6	2	8
Total	59	13	72

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

The staff data shows the premise has a total of **72** staff members.

2.2 Populace analysis for Academic year 2020-21

2.2.1 Students data

The student data (shared by the College) shows there are total of **1,903** students occupying the premises out of which Boys form the majority of **1,332** in numbers.

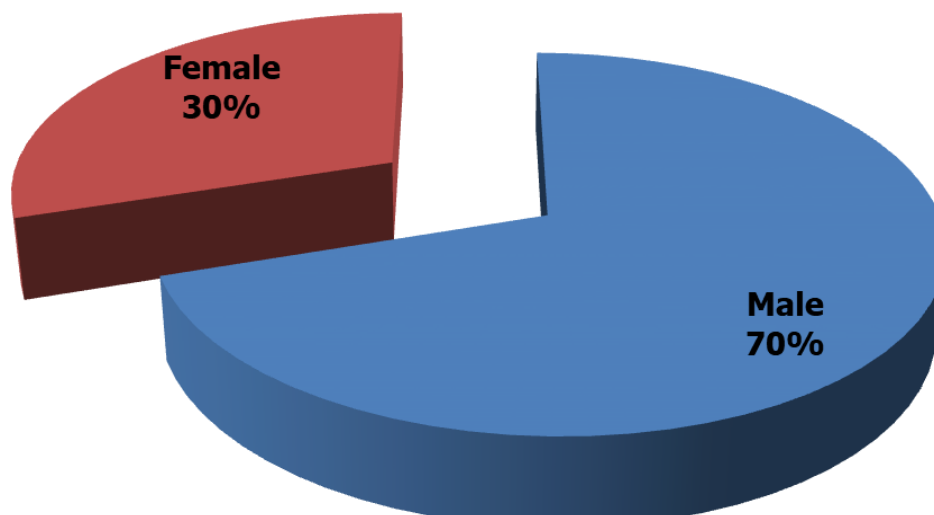


Figure 2: Summary of the students in Academic year 2020-21

The above graph shows **boys occupied 70%** as compared to **girls 30%**

2.2.2 Staff data

Type	Male	Female	Total
Teaching Staff	44	8	52
Admin Staff- office/library	9	3	12
Non-teaching & support staff/housekeeping	6	2	8
Total	59	13	72

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

The staff data shows the premise has a total of **72** staff members.

2.3 Total Institute Area & College Building Spread Area

The total site area is 11.60 acres and total built-up area is 71,318 sq. ft. for approx. 1974+ footfalls.

2.4 Institute Infrastructure

2.4.1 Establishment

The College was formed in 1972. 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 Premise 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 premise, there are with CCTV, Fire extinguishers, first aid box and amenities such as courtyards, libraries, serene landscape, open areas, gardens.

2.4.2.1 Building wise details

The Building wise details on the Ashti Taluka Shikshan Prasarak Mandal' s Adv. B. D. Hambarde Mahavidyalaya, Ashti premise (Segregated into various blocks) are mentioned below:

Block Name	Building Name	Floor
A	Administrative Building	Ground Floor
	Principal Office	Ground Floor
	Administrative Office	Ground Floor
	Vice Principal Office	Ground Floor
B	Library Building	Ground Floor
	Library	Ground Floor
	Network Reasearch Centre	Ground Floor
C	Library Store Room	Ground Floor
	Life Long Learning & Extension	Ground Floor

D	Class Room	Ground Floor
	Class Room	Ground Floor
	Dept. of mathematics	Ground Floor
	Gents Toilet	Ground Floor
E	Dept. of Chemistry	Ground Floor
	Dept. of Biology	Ground Floor
	Class Rooms	Ground Floor
	F.F. Class Rooms	First Floor
F	Y.C.M.O.U.Study Centre	Ground Floor
	Ladies Common Room	
	Computer Lab	First Floor
	Class Room	
	Sanstha Office	
	Departments	Second Floor
	Departments	
	Examination Section	
G	Volley Ball Ground	Open Space
	Hand Ball Ground	
	Single Bar	
	Botanical Garden	
	Play Ground	
	Wrestling Ground	
	Kabaddi Ground	
	Volley Ball Ground	
	Kho - Kho Ground	
	Garden	
H	Flag Post	Open Space
I	Janseva College Canteen	Ground Floor
J	Womens Hostel	Ground Floor
K	Staff Room	Ground Floor
L	Proposed Administrative Building	Ground Floor
M	Water Tank	Entire Premise
N	Dept.Of Physical Education &	Ground Floor
	Gymnasium Hall	Ground Floor

O	Monument of Late Adv. B.D. Hambarde (Founder President)	Open Space
P	Parking	Open Space
	Gents Parking	Open Space
	Ladies Parking	Open Space
Q	Farm Pond	Open Space
R	Proposed Indoor Stadium	Ground Floor
S	Sport Stadium	Open Space
	400 M. Running Track	Open Space
	Jayelin Throw	Open Space
	Discthrrow	Open Space
	Foot Ball Ground	Open Space
T	Ladies Toilet	Ground Floor
	Gents Toilet	Ground Floor
	Ladies Toilet	Ground Floor

Table 4: Building wise detail in the premise

2.4.2.2 Room-wise details considered for Audit study

The room-wise details are mentioned below:

Sr. No.	Room No./ Room Name	Floor
1	Principal Cabin	Ground floor
2	Office	Ground floor
3	Vice Principal Office	Ground floor
4	Room No. 14	Ground floor
5	15 YCM	Ground floor
6	Staff Room 16	Ground floor
7	Math Dept. 19	Ground floor
8	Chem. Dept. 21 & 22	Ground floor
9	Zoology Dept. 23	Ground floor
10	Physics Dept. 25	Ground floor
11	Electric Dept. 25	Ground floor
12	Auto. Dept. 26	Ground floor
13	Auditorium 31	Ground floor

14	Library	Ground floor
15	Meter Hall 42	Ground floor
16	Ladies Room 44	Ground floor
17	Computer Lab 45	First floor
18	BCA Class Room 46	First floor
19	IQAC 47	First floor
20	Senior Dept. 48	Second floor
21	Senior Dept. 49	Second floor
22	BCA Class Room 50	Second floor

Table 5: Room-wise space details

2.4.2 Facilities available in the premise

The college has a good infrastructure, a grand administrative building, spacious class rooms, auditorium, Grand Library, spacious and well equipped science laboratories, Late B.D. Hambarde Stadium with 400 mtrs. running track and various play grounds, Gymkhana with indoor and outdoor sports facilities Ladies common room with toilet facility, Computer lab with 50 computers in LAN, Language Laboratory, Network resource center, virtual classroom, smart board and well-furnished departments and Wi Fi access to the staff and students.

2.4.4 Operation and Maintenance of the premises

The interview session with the staff regarding the operation and working hours is summarized in the table. The Institutions are open Monday to Saturday for full day. Sunday is an off for all. Below mentioned in the table are the average working hours. The detail wise timing for each is mentioned below the table.

S. No.	Section	Spaces	Time	Hours / day	Days in a year
1	Main Institutional College	Student areas and Teaching faculty	7:00 a.m. to 2:30 p.m. & 1 p.m. to 6 p.m.	6.5	200
2	General areas	Admin areas and library, Passage, staircase, toilet	10:00 a.m. to 5:00 p.m.	7	240

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 premise 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 campus
- 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 campus

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

- 22 July 2021 – Discussion with the College
- 29 August 2021 – Physical site visit of College
- 9 September 2021 – Survey of the Student and staff submitted
- 15 September 2021 – Data submitted by College
- 10 October 2021 – Submission of draft Report
- 23 November 2021 – Submission of Main Report

4. Site Study

The following listed are some of the positive site elements which are beneficial to the college in terms of tangible and intangible benefits.

- **Location** - The Ashti Taluka Shikshan Prasarak Mandal's Adv. B. D. Hambarde Mahavidyalaya is located at MH SH 142, Ashti – 414203 and falls under Nagar Gram Panchayat, Ashti.
- **Neighbourhood context** - The premise is surrounding by open spaces and Residential spaces on the immediate surroundings of the site.
- **Natural physical features** – The premise includes a rich biodiversity and huge number of plants in the adjacent open space. The site does not have major different in the land levels (contours). There is slight difference in land level in open spaces. This has proved to be beneficial to college as the rainwater is diverted through pipes into ground and it has helped ground water recharge for the well water over the years as informed by the College. There is provision of pond which helps in rainwater harvesting and has been beneficial for the college over the years.
- **Manmade features** – The premise is situated in an urban area amidst residential areas and open spaces with appropriate proximity to necessary amenities. There is sufficient appreciation space for entrance. The materials used for construction are RCC and the landscaping includes innumerable natural trees as well as potted plants. There are facilities for **ramps, cement benches made from waste, recycled roof used as a covering shed for parking, Sanitary napkin vending machine, Day care for girl students and lady staff members having kids, Auditorium with updated sound system to organize various functions, seminars and conferences.**
- **Circulation** – There is a smooth transition of pedestrian traffic inside the premises due to the large entrance gate and the huge open space where vehicles of students and staff is parked.
- **Climate** –The annual rainfall for the district is 750.1mm and overall climate is dry except for South-west monsoon.

(Source: District Survey Report of BEED District <https://cdn.s3waas.gov.in/>)

5. Ecological (Environmental) Audit

Environment is an essential part for human survival. We co-exist with the environment and it cannot be termed as a separate entity. The Ecological audit helps to understand the flora, fauna that exists and steps that can be taken to improve the same. To denote if there are problems related to sound in and around the surrounding. In terms of the carbon footprint it helps in keeping a tab on the eco-friendly habits incorporated by the inhabitants of the premise. Health today is the topmost priority, a general understanding of the initiatives undertaken along with sufficient hygiene practices adopted. Universal design is applicable to all built and unbuilt spaces.

As part of our study we could state that the Institution has developed eco-friendly practices and sustainable solutions which are well reflected in the rich biodiversity of the Premises. Being situated near the city the appreciation space towards the main entrance provides a welcoming approach to the College.

The college has huge open space used by all. The students use it for as a leisure place for study and college ground is used for sports activities. There are ample resting spaces as part of building design which provide a resting and warm welcoming approach in the premise.

5.1 Open Spaces

There is a beautiful balance of natural and open spaces in the premise and the open/vegetation spaces are balanced overall. The ground is used by students at present for sports as it is a Physical Education Institute. **There are provisions for natural plantations which have enhanced the beauty of the space.**

There are a few Maintenance staff allotted for the open spaces and they have done an excellence job in terms of the duty allotted. The infrastructure committee too is involved in this process. The traditional tap and pipe facility is adopted for watering and the college has taken special provisions for the same. The spaces are watered daily in summer. **The efforts to maintain the existing space are commendable.**

5.2 Flora Audit

A flora survey was carried out to identify the total numbers of plants and trees every year. The landscape area has a variety of plantations constituting thousands of surveyed trees in premise in the last few years as follows.

S. No.	Type	Name	Nos.
A	Bush	Exora	40
		Ephorbia	35
		Lantana	25
		Shatawari	30
		Almana	15
		Pendunus	45
	Total Bushes		190
B	Total Medium Tree (Cono corpus)		70
C	Total Tall Trees		275

Table 7: Details of the flora in premise

In the Botanical Garden there are multiple varieties of plantations in innumerable quantities.

- *Mangifera indica*
- *Soursop graviola*
- *Cordia dichotoma*
- *Pteeocarpus marsupium*
- *Stereospermum colais*
- *Sapindus mukorossi*
- *Wrightia antiotys senterica*
- *Terminalia Bellerica*
- *Ehretia Laevis*
- *Careya arborea*
- *Madhuca indica Gmel.*
- *Bixa orellana*
- *Phyllanthus embica*
- *Baliopermum montanum*

- *Plumeria rubra*
- *Lawsonia alba*
- *Adhatoda vasica*
- *Ocimum basilicum*
- *Rademachera xylocarpa*
- *Cholorophytum borivilianum*
- *Asparagus Racemosus*
- *Saraca Asoca*
- *Bryophyllum pinnatum*
- *Prunus amygdalus Batsch*
- *Acacia concinna*
- *Saraca Asoca*
- *Aqadirachta indica*
- *Centella asiatica*
- *Mahua*

5.3 Noise Audit

5.3.1 Macro level

On a macro level there are open grounds in the site. The approach road too has very minimal traffic. As the college is oriented amidst the residential areas with immense vegetation the noise levels do not affect the students and staff in their day to day functioning. The approach road too is pretty away. **Overall the noise level in terms of bad effect is low and there are positive outcomes as per our analysis on macro level.**

5.3.2 Micro level

The college has an adequate open space covered with huge trees prevailing naturally in the premise. There are bare minimum parking provisions provided in the premise which causes bare minimum noise as they are situated near the entrance which is a bit away. The college does not have generator thus there is no inconvenience or sound problem caused due to the same. There are no particular equipments which cause any noise effect. **Overall the noise levels inside the premises are low which is a good approach.**

5.4 Carbon Footprint Audit

5.4.1 Eco-friendly Commuting Practices

Based on data collection and discussion with staff the following points were noted:

- **Ease of commuting** – Owing to close proximity to public transport the access is very feasible and walk able.
- **Vehicles details** – The provision provided by College includes around 20 bikes parking and 6 cars parking inside the premise for staff and students, whereas the college has ample space of more than bikes and cars parking separately.
- **Commute details** – The students and staff commute from quite a lot of places but mostly from the nearby places.

5.4.2 Heat Island Reduction

The Institution has **adopted the following practices which are yielding positive results** in terms of Urban Heat Island Effect which refers to increase in temperature of the surrounding because of ineffective strategies.

- **Exposed roof areas** – The terrace is flat roof, it is absolutely clean and well maintained. The Buildings are covered with white paint. The current practices are well maintained.
- **Exposed non-roof hardscape areas** - There is a pathway on all sides of the premises. These include some natural and potted plantations. However, the trees are wide and the canopy is wide spread providing ample shade to this space. Hence, there is no direct sunrays or similar effect. In addition there are provisions for grass pavers in the premise. The college multiple types of open spaces in the form of lush green carpet.

There are adequate measures adopted in the premises to reduce heat island effect of Building roofs and in site.

5.4.3 Outdoor Light Pollution Study

The college compound lights are not upward looking thus, these do not cause light pollution.

5.5 Universal Campus

As per World Report on Disability, 2011 there are 180 million approx. Persons with Disabilities that makes it 15% of total population of India.

There are Handrails along staircase, low height risers in the Staircases as part of universal campus initiatives. The design of the premises is appropriate for access with passages and corridors being wide enough in size and naturally ventilated.

The doubly and singly loaded corridors are safe from fire safety aspect. The college has resting places (seating areas) in the outdoor along the trees thereby making it user friendly for the specially abled students.

There are future plans for the provision of ramp in premise, but since it is a Teacher's Training Physical Education Institute the College emphasizes on physical health and climbing of stairs instead.

5.6 Fire Safety

When the building was constructed Fire fighting norms and permission from Chief Fire Officer was not in practice. However, the Institution has taken care for adequate fire safety measures to be adopted. Each floor has an open staircase without any barriers for fire safety measures. These staircases are free of any kind of storage or combustible material. The windows in each classroom are at a low height with fresh air and natural light thereby adding to ample ventilation throughout the day. The college should adopt additional fire safety practices such as fire hydrant and others. The current facilities are quite well maintained. There are adequate Fire extinguishers in the premise and these are present on each floor.

S. No	Location	Floor	Number
1	Office	Ground	2
2	Library	Ground	1
3	Science Lab	Ground	2
4	Computer Lab	First Floor	1
5	Departments	Second	1

Table 8: Details of the fire extinguishers

There can also be provision for additional fire safety signages and similar measures.

5.7 Survey Results

An online survey was conducted to analyse the student and staff views about the premise, following are some of the reviews.

5.7.1 Participation

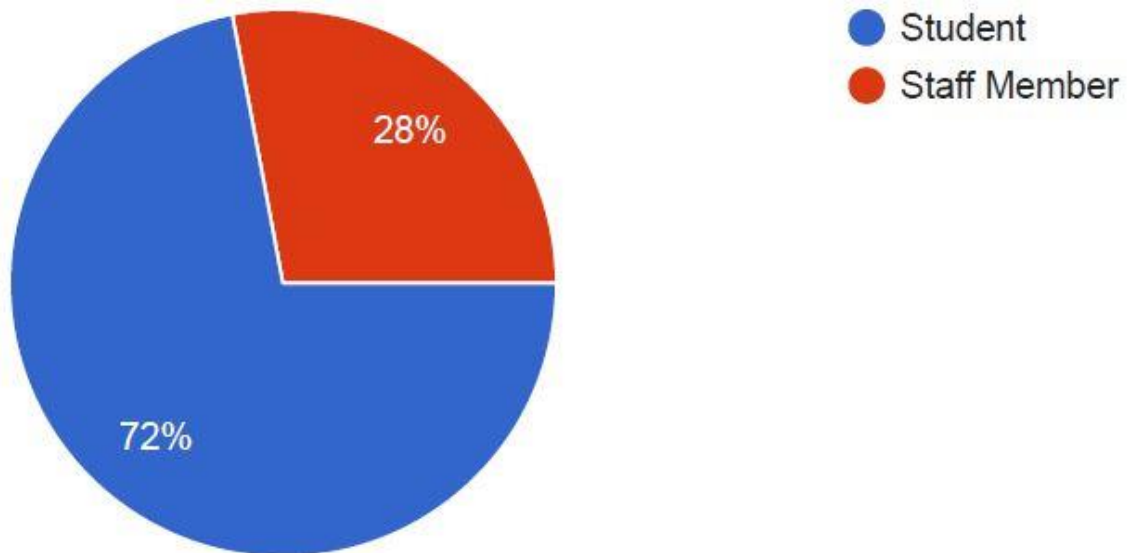


Figure 3: Participation analysis in the survey

A total of **143 responses** were received out of which 72% were students.

5.7.2 What according to you are the positive steps taken by the Institute towards Green Building/ Good maintenance?

We have listed some of the key responses below.

- Arranging program at college or institute level about environment awareness
- **The positive steps of the college is to provide water for trees in summer**
- Larger trees are planted
- Yeah, in our college there is greenery and cleanliness in surrounding Very good
- **Taking an intelligent approach to energy. Minimising energy use in all stages of a buildings life-cycle, making new and renovated buildings more comfortable and less expensive to run, and helping building users learn to be efficient too.**
- Different flowers & medicinal plant plantation on front of building.

- Working together for waste management and clean environment is the positive steps.
- The first step which has taken by my institute is every year we plants different trees in our institute campus.
- **Plantation of trees every year, Vehicle free Saturday, Waste management and Farm pond**
- Water Harvesting project and Plantation of Neem Trees
- Choose Environmentally Responsible Materials
- **Many positive steps have been taken by the Institute. Institute always conducts many programs at high-level for example Plantation, No more pollution and awareness programs. Also implements new positive rules towards Green Life.**
- We cultivate and maintain the plants.

5.8 Recommendations for a Sustainable Habitat by Greenvio Solutions

Site beautification

a) Beautification of the entrance pathway

The existing bricks (waste from the existing new construction going on) can be used or upgrading the pathway through an appropriate Landscape Architecture design.

b) Low VOC Paints and Adhesives

Whenever the College undergoes repairs or renovations there should be use of materials with low emissions so as to reduce the adverse health impacts on workmen and the students occupying the space thereafter.

c) Additional facilities for birds

There can be provision for drinking water and food facility for birds visiting in the College premise.

d) Landscape design of the entrance pathway

The entrance pathway can be redesigned with landscape elements such as plantations, lamps, green pavers, edging and so on.

Heat island reduction

a) Cool rooftops

It is suggested that the College gets the Terrace roofs painted with Cooltop as it will help reduce the temperature of the spaces.

b) Grass pavers in the setback areas

The college can have grass pavers for in replacement to existing paving for further heat island reduction on exposed non-roof areas

Universal Campus

a) Universal Toilet

There should be minimum 1 toilet for the specially abled people as per guidelines prescribed by National Building Code 2016 with size being minimum or more than 1.5m x 1.5m

b) Resting places

There should be increased provision for resting places in premises in outdoor and indoor.

Pollution Control**a) Promote the use of Eco-friendly vehicles**

There can be provision for battery operated vehicles/ low emission vehicles such as electrically driven vehicles parking in open space along with battery charge points, this would inspire students to change mode of transportation and adopt sustainable practices.

b) Bicycles as a gift

As an appreciation gesture may be the students toppers/ staff best performers can be awarded with a bicycle occasionally.

c) Paperless technologies

The college can go technology friendly and go paperless in the functioning of the Premise to a certain extent may be not fully.





6. Towards a Healthy & Sustainable Institution

6.1 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) Kitchen garden** - There can be provision of kitchen garden practices 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 vegetables grown which would be used in Canteen. It helps in capacity building. The smaller steps taken have huge impacts when each student would adopt these practices in their homes or societies and grow kitchen garden, 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, 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.
- c) Waste vio** – College can tie up with an organisation and students can be encouraged to collect dry waste and electronic waste such as newspapers, old computers and others and hand over to organisation on a weekly or monthly basis thereby making a waste reduction approach in the community.
- d) Signages** – In addition to the signages being in regular language there can be additional signages in braille language for the specially abled students.
- e) Additional fire safety** - The premises at present has only Fire extinguisher as the safety practice but additional fire safety measures should be adopted such as Hose reel, signages, fire-fighting tank, fire alarm and sprinkler system. There should be fire extinguisher minimum two per floor.

6.2 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 key responses are listed below. Whereas many responses **stated there were no changes requires because the present practices are excellent.**

Some of the positive responses are listed as follows:

- No changes given because college already give very good maintenance programs
- No changes all is well
- Plants management are very good in college
- Already great changes have been implemented towards the same.

Some of the suggestions by the Students and staff are listed below:

- Organize guest lecture of doctorate in that field or give activity on that basis
- Write slogans on walls for green college
- It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan.
- Identify tree and shrub name plates.
- To cultivate more fruit trees in the premises for Institutions growth.
- Planting medicinal plants and Installing solar plates to generate electricity.
- Tree plantation record and maintenance of Greenery. Planting of various types of flowers
- Solar system, waste recycling and more trees

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

7. 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. Climate data District Survey Report of BEED District <https://cdn.s3waas.gov.in/>
6. 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.

