

ENVIRONMENT AUDIT

2019-20 & 2020-21

AUDIT REPORT

Studied for

**Manjara Charitable Trust's
Smt. Sushiladevi Deshmukh
Senior College**

Khadgaon Road, Latur - 413531

Analysed by



24 December 2021



Disclaimer

Green Audit Team has prepared this report for the **Manjara Charitable Trust's Smt. Sushiladevi Deshmukh Senior College, Khadgaon Road, Latur - 413531** 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 on-site 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 along with Ar. Nahida Shaikh as an Accredited Green Building Professional.

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Acknowledgement

Green Audit Assessment Team thanks the **Manjara Charitable Trust's Smt. Sushiladevi Deshmukh Senior College, Latur** 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 **Hon. Shri. Dilipraoji Deshmukh**, President; **Hon. Hon. Shri. Amitji Deshmukh**, Secretary; **Hon. Shri. Vijaymurti Shete**, **Hon. Shri. Najeer Ahemad M. Yaseen Sayyad**, **Hon. Shri. Shankarrao Chavan**, Trustee and everyone from the Management.

Our heartfelt thanks to Chairperson of the entire process **Dr. Ajay Patil, Principal, Sushiladevi Deshmukh Senior College** for his valuable inputs.

We are also thankful to **College's Task force the faculty members** who have collected data required **Dr. Mallikarjun Karajgi**, IQAC Coordinator and Teaching Staff Members **Dr. Kumar Bansode, Dr. Balu Kamble, Prof. Anita Gaikwad, Prof. Gurunath Deshmukh and Prof. Sanjayadevi Pawar**

The kind gesture for the inventory and data collection of the Non-Teaching Staff Members **Shri. Satyanarayan Bhutada, Smt. Chanda Kamble, Shri. Vikram Pathan, Shri. Balaji Kumbhar and Shri. Jivan Sable** is quite commendable.

We highly appreciate the assistance of the College Team for their support while collecting the data.

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

Contents

1. Introduction.....	4
2. Institution overview	8
3. Green Building Study Audit.....	11
4. Site Study.....	12
5. Ecological (Environmental) Audit	13
6. Towards a Healthy & Sustainable Institution.....	22
7. References	24

1. Introduction

1.1 About Manjra Charitable Trust

It was established twenty eight years ago, when the leading citizens from the different fields of life of Latur area, namely: **Late Hon. Shri. Vilasraoji Deshmukh** (Founder and Ex. Chief Minister of Maharashtra & Ex. Union Minister of India), **Late Adv. Shri. B. V. Kale** (Secretary), **Shri. Deelipraoji Deshmukh** (President, & MLC, Maharashtra), **Shri. Amitji Vilasrao Deshmukh** (Executive Trustee & MLA, Maharashtra), **Late Shri. Shivajirao Survase**, **Shri. Sayeed N. A. M. Yaseen**, **Shri. Shankarrao Chavan** and **Shri Vijaymurti Shete**. These honourable personalities with a great concern and a noble view established the college.

1.2 Vision and Mission Statement of College

Our Vision – Education for knowledge and Character building.

Our Mission – To provide opportunities of education to the students from rural area who are economically, socially and educationally weak.

1.3 Institution and the surrounding premises

Smt. Sushiladevi Deshmukh Senior College, Latur (MS), is unique single faculty college of the region, with 6.08 acres, pursuing excellence in education. Keeping in view the educational needs of the region, Manjra Charitable Trust, a local management committee, established Smt. Sushiladevi Deshmukh Senior College, Latur in the year 1991. It is a grant-in-aid institution formerly affiliated to Marathwada University, Aurangabad and is at present affiliated to S.R.T.M. University, Nanded since its formation. The U.G.C. has accorded status of 2(f) and 12 (b) to the college on 21st March 2005.

Out of 18 faculty of the college, 09 faculty members are Ph. D. holders and 08 faculty members are Recognised Research Guides. The college promotes and motivates the faculty for research and publication activities. The faculties of college have to their credit 227 different publications with an average of 40.86 per faculty during last four years. The college is also active in community and extension services through NSS unit. The college feels proud to mention here that the NSS unit has adopted crematorium (Smashanbhumi) of Khadgaon village.

To keep pace with over changing global scenario, the college is taking co-operation of the Management, UGC, University, Teachers, Students, Parents and all stakeholders involved in the process and imparting education with its mission statement Education for knowledge and Character building.

The Premises is situated amidst the landscape serene of **Latur district of Maharashtra State** 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 College was established with an aim to educate the girl students in the vicinity for their social, economic and cultural enlistments, is to continuously enhance the teaching methods in order to provide students with an opportunity for their all-round development. 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 Swami Ramanand Teerth - Marathwada University, Nanded.

- **Graduation - Bachelor of Arts (B.A.)**

The College offers only Bachelor of Arts course at UG level. At the UG level, teaching is imparted in 09 optional subjects in which all the subjects are divided into four groups viz,

- English/Marathi/Hindi,
- History/Sociology,
- Political-Science/Geography,
- Public-Administration and Economics.

- **Certificate Courses** – Industry linked courses as follows.

- Share Marketing – (Carrier Oriented Course)
- Foundation Course in Human Rights – (Foundation course)

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

- To motivate students for creativity and innovation.

- To provide quality higher education for holistic development of the students.
- To promote ethical and moral values.
- To inculcate scientific temper among the students.
- To create research aptitude of the students.
- To mould the students as responsible and respectable citizens of the society and nation, by inculcating in them, perfect discipline in terms of regularity, sincerity and punctuality.

1.4 Assessment of the College

Below mentioned are the administrative details of the Institute.

Affiliations - The institution is affiliated to Swami Ramanand Teerth Marathwada University, Nanded.

Accreditation - The following are details of the reaccreditation of the Institute.

Cycle	First	Second
CGPA	78.00	2.80
Grade	B+	B++
Year	2004	2017

Table 1: NAAC Accreditation details of the Institute

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

1.5 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.

Name of the award	By whom	When was it received	For what
Best College Award (Urban)2019-20	Swami Ramanand Teerth Marathwada University, Nanded	2019	Best College Award

The Best Exam Centre Award	Y.C.M.O.U, Nashik	23/12/2016	Best Exam Centre
University merit	Swami Ramanand Teerth Marathwada University, Nanded	Summer 2014	B. A. Second Year English (Compulsory).
Silver Medalist	Indo-Nepal Badminton Tournament	Sept. 2015	Badminton Tournament
Winning Team captain	International Kho- Kho series	Nov. 2015	Kho-Kho

Table 2: Details of the Awards received

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 **42 Girl and 131 Boys** students.

2.1.2 Staff data

Type	Male	Female	Total
Admin staff	05	01	06
Teaching staff	13	05	18
Non-Teaching staff	01	00	01
Total	19	06	25

Table 3: Staff data of the Institution for 2019-20

The staff data shows the premise has a total of **25** 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 **59 Girl and 143 Boys** students.

2.2.2 Staff data

Type	Male	Female	Total
Admin staff	05	01	06
Teaching staff	13	05	18
Non-Teaching staff	01	00	01
Total	19	06	25

Table 4: Staff data of the Institution for 2020-21

The staff data shows the premise has a total of **25** staff members.

2.3 Total Institute Area & College Building Spread Area

The total site area is 6.08 acres and total built-up area is 31,728 sq. ft. for approx. 227 footfalls.

2.4 Institute Infrastructure

2.4.1 Establishment

The College is run by Manjra Charitable Trust, Latur. It is established in 1991. The Sanstha has rich tradition of Quality education of many years. 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

2.4.2.1 Room-wise details

The room-wise details are mentioned below:

S. No	Room Name	Floor No
1	Principal Cabin	Ground Floor
2	Management Office	Ground Floor
3	Administrative Office	Ground Floor

4	Store Room	Ground Floor
5	Office	Ground Floor
6	Classroom	First Floor
7	Exam. Department.	First Floor
8	Language Department	First Floor
9	Social Science Department	First Floor
10	Computer Lab	First Floor
11	Geography Department and Lab	First Floor
12	IQAC, Cell and Department of English	First Floor
13	Ladies Room	First Floor
14	Wash Room	First Floor
15	Library	Second Floor
16	Reading Room	Second Floor
17	YCMOU, Centre	Second Floor
18	Canteen	Ground Floor
19	Indoor Sports Hall	Ground Floor

Table 5: Room-wise space details

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	7:50 a.m. to 3:40 p.m.	7.7	200
2	General areas	Admin areas and library, Passage, staircase, toilet	9:00 a.m. to 4:00 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

- 25 August 2021 – Discussion with the College
- 2 November 2021 – Survey of the Student and staff submitted
- 23 November 2021 – Data submitted by College
- 25 November 2021 – Submission of draft Report
- 24 December 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 Manjara Charitable Trust's Smt. Sushiladevi Deshmukh Senior College, Khadgaon Road, Latur - 413531 and falls under the Marathwada region.
- **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).
- **Manmade features** – The premise is situated in a rural 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.
- **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** – This city has a tropical climate. In winter, there is much less rainfall in Latur than in summer. According to Köppen and Geiger, this climate is classified as Aw. The average temperature in Latur is 25.8 °C | 78.4 °F. About 853 mm | 33.6 inch of precipitation falls annually. The least amount of rainfall occurs in February. The average in this month is 3 mm | 0.1 inch. With an average of 213 mm | 8.4 inch, the most precipitation falls in July. The temperatures are highest on average in May, at around 32.5 °C | 90.5 °F. December has the lowest average temperature of the year. It is 21.8 °C | 71.3 °F. In Latur, the month with the most daily hours of sunshine is May with an average of 11.58 hours of sunshine. In total there are 359.11 hours of sunshine throughout May.

(Source: <https://en.climate-data.org/asia/india/maharashtra/latur-24306/>)

Ecological (Environment) Audit



Background reference image byugal Shrivastava on pexel



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 and cultural gatherings. **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 with detail description of each.

S. No.	Marathi Name	English Common Name	Scientific Name	Size	Type	Nos.
A1	Naral	Coconut	<i>Cocos Nucifera</i>	Large	Tree	56
A2	Limb	Lemon	<i>Citrus Limon</i>	Small	Small tree/ Spreading bush	34
A3	Bakul	Spanish Cherry	<i>Mimusops Elengi</i>	Medium	Evergreen tree	132
A4	Karanj	Indian Beech and Pongame Oiltree.	<i>Millettia Pinnata</i>	Medium	Briefly deciduous tree or evergreen tree	30
A5	Pimple	Peepal	<i>Ficus Religiosa</i>	Large	large dry season-deciduous or semi-evergreen tree	23
A6	Vad	Banyan	<i>Ficus Benghalensis</i>	Large	Tree	81
A7	Umbar	Indian Macaque	<i>Ficus Racemosa</i>	Very small	Plant	8
A8	Kadam Or Cadamba	Burflower-Tree/ Laran/ Leichhardt Pine	<i>Neolamarckia Cadamba</i>	Large	Evergreen, tropical tree native to South and Southeast Asia.	3
A9	Renti	Oleander Or Nerium	<i>Nerium Oleander</i>	Small	Shrub	1
A10	Saagvan	Teak	<i>Tectona Grandis</i>	Large	tropical hardwood tree	14
A11	Saptaparni	-	<i>Alstonia Scholaris</i>	Large	Evergree tree	58
A12	Gulmohar	Royal Poinciana/ Flame Tree	<i>Delonix Regia</i>	Large	Flowering plant	24
A13	Keskesal Unchbruksh Leaf	Indian Mint	<i>Coleus Amboinicus</i>	Small	Plant	4
A14	-	Peacock Flower	<i>Caesalpinia Pulcherrima</i>	Large	Shrub	4
A15	English Chinch	Manila Tamarind, Madras Thorn	<i>Pithecellobium Dulce</i>	Large	Tree	7
A16	Akash	African Tulip	<i>Spathodea</i>	Large	Tree	4

	<i>Shevaga</i>	Tree				
A17	<i>Tamra Vruksh</i>	Copperpod	<i>Peltophorum Pterocarpum</i>	Large	Deciduous tree	7
A18	<i>Bottle Pump</i>	Bottle Palm	<i>Hyophorbe Lagenicaulis</i>	Large	Tree	48
A19	<i>Bahawa Amaltas</i>	Cassia/ Golden Shower Tree	<i>Cassia Fistula</i>	Large	Deciduous tree	15
A20	<i>Kashid</i>	Senna Siamea	<i>Peltophorum Pterocarpum</i>	Large	Deciduous tree	4
A21	<i>Sonmohar</i>		<i>Peltophorum Pterocarpum</i>	Large	Deciduous tree	7
A22	<i>Badam</i>	Almond	<i>Prunus Dulcis</i>	Large	Deciduous tree	26
A23	<i>Nilgiri</i>	Eucalyptus	<i>Eucalyptus Globulus</i>	Large	Evergreen tree	3
A24	<i>Ashoka</i>	Sorrow-Less	<i>Saraca Asoca</i>	Large	Tree	1
A25	<i>Subabul</i>	River-Tamarind	<i>Leucaena Leucocephala</i>	Large	Tree	9
A26	-	Sasi Tree	<i>Aquilaria Malaccensis</i> <i>Aquilaria Malaccensis</i>	Large	Tree	4
A27	<i>Katori Babul</i>	Acacia Nilotica	<i>Vachellia Nilotica</i>	Large	Tree	1
A28	<i>Bamboo</i>	Bamboo	<i>Bambusoideae</i>	Medium - Large	Evergreen flowering plants	1200
A29	<i>Champak</i>	Sonchafa	<i>Magnolia Champaca</i>	Medium	Flowering plant	1
A30	<i>Amba</i>	Mango	<i>Mangifera Indica</i>	Large	Tree	12
A31	<i>Tecoma</i>	Yellow Bells	<i>Tecoma Stans</i>	Large	Shrub	75
A32	<i>Jambul</i>	Jamun	<i>Syzygium Cumini</i>	Large	Tree	5
A33	<i>Shevga</i>	Baramati Moringa Leaf	<i>Moringa Oleifera</i>	Large	Tree	1
A34	<i>Chinch</i>	Tamarind	<i>Tamarindus Indica</i>	Large	Tree	1
A35	<i>Palm</i>	Arecaceae	<i>Arecaceae</i>	Large	Tree	6
A36	<i>Kamal</i>	Lotus	<i>Nelumbo Nucifera</i>	Small	Plant	2 Tubs
A37	<i>Sadafuli</i>	Cape Periwinkle	<i>Catharanthus</i>	Small	Plant	1 Pot
A38	<i>Gulvel</i>	Gurjo	<i>Tinospora Cordifolia</i>	Small	Plant	Innumerable
A39	<i>Tantani</i>	Lantana	<i>Lantana Camara</i>	Small	Plant	Innumerable

A40	Nirgudi	Chinese Chastetree	<i>Vitex Negundo</i>	Small	Plant	5
A41	Papai	Papaya	<i>Carica Papaya</i>	Large	Tree	1
A42	Jambhul Small	Java Plum	<i>Syzygium Cumini</i>	Large	Evergreen	Innumerable
A43	Gulab	Rose	<i>Rosa</i>	Small	Plant	2
A44	Jai	Chameli Creeper	<i>Jasminum Grandiflorum</i>	Small	Plant	1
A45	Motiya	Mogra	<i>Jasminum Sambac</i>	Small	Plant	2
A46	Peru	Guava	<i>Psidium Guajava</i>	Large	Tree	1
A47	Chafa	Frangipani	<i>Plumeria</i>	Large	Tree	2
A48	Morpankhi	Thuja Orientalis	<i>Platycladus Orientalis</i>	Large	Tree	1
A49	Aboli	Tumkur	<i>Crossandra Infundibuliformis</i>	Medium	Tree	Innumerable
A50	-	Honey-Locust	<i>Gieditesia Triacanthos</i>	Large	Deciduous Tree	22
A51	-	Oriental Thuja	<i>Platycladus Orientalis</i>	Large	Shrub	2
A52	Geiger Tree	Scarlet Cordia	<i>Cordia Sebestena</i>	Large	Shrub	1
A53	Siala	Nile Tullip	<i>Markhamia Lutea</i>	Large	Plant	4
A54	Yuca	Cassava Manioc	<i>Manihot Esculenta</i>	Large	Plant	5
A55	Bherli Maad	Fish Tail Palm	<i>Caryota Urens</i>	Large	Tree	2
A56	Thuvar	Euphorbia Tithymaloides	<i>Pedilanthus Tithymaloides</i>	Medium	Plant	1
A57	Jhar Phanus	Leucocephala	<i>Leucaena Leucocephala</i>	Small	Tree	1
A58	Bhendi	Ladies Finger/ Okra	<i>Abelmoschus Esculentus</i>	Medium	Plant	71
A59	Hemelia	Firebush	<i>Hamelia Patens</i>	Small	Large Perennial Shrub/ Small Tree	2
A60	-	Ti Plant	<i>Cordyline Fruticosa</i>	Small	Tree	8
A61	Alu/ Kaamsaalu	Gant Taro	<i>Alocasia Macrorrhizos</i>	Large	Plant	2

Table 7: Details of the Flora in the premise

At present there are more than 2,000 trees and plants in the premise. However, the data submitted to use is studied further in detail as follows:

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 is as follows:

S. No.	Type	Nos.	For (student/ Staff)
1.	Cars	06	Staff
2	Bikes	40	Student & staff
3	Cycles	156	student

Figure 1: Detail of the parking facilities in the premise

- **Visitors vehicle** – There are very rare number of visitors parking in the premise.
- **Commute details** – The students and staff commute from quite a lot of places but most of these are close to the premise and at a walk able distance.

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. With time the paint is withering but the College shall take necessary steps to maintain it. 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 an open space 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 Ramps, 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. **The college can plan to have lifts in the future depending on the situation and facilities.**

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. 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 views about the premise, following are some of the reviews.

5.7.1 Participation

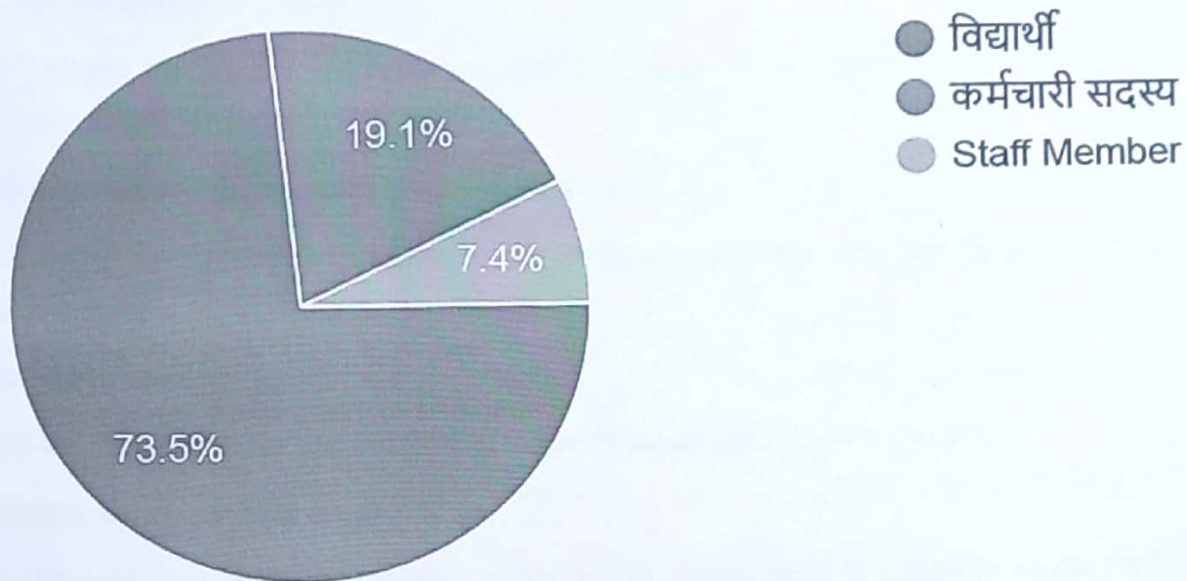


Figure 2: Participation analysis in the survey

A total of **68 responses** were received out of which 73.5% 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.

- Workshops, solar plant, rain water harvesting, e-waste management.
- Seminar, Group discussions, solar system.
- Workshops, Guest lectures.
- **Environment friendly campus.**
- Water conservation, water management and the **tree plantation with the care of old trees.**
- **Water conservation and the tree management.**
- The role played by the institute in the growth and safety of the trees planted in the college campus is important.

5.8 Positive site features a per our study

a) Cool rooftops

The College has the Terrace roofs painted with white cover it helps reduce the temperature of the spaces.

b) User friendly movability in premises

There are provisions of Kerb Ramp in the Building premises, also low height hand rail for ease of access.

c) Resting places

There are provisions for resting places in premises in outdoor and indoor.

d) Avoid using plastic in premise

There should be a provision for ban on the use of plastic bags or products in the Premise.

5.9 Recommendations for a Sustainable Habitat by Greenvio Solutions

Site beautification

a) 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.

b) Additional facilities for birds

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

Heat island reduction

a) **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

Pollution Control

a) Bicycles as a gift

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

b) 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.

c) OPAC system

The system is beneficial for the students.

On-site investigation and physical verification
The ecologically and user friendly premises



Parking and open areas in the premises



Lush green premises with ample vegetation



Sound Architectural design of the premises with balance of indoor and outdoor connect

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) **Signages** – In addition to the signages being in regular language there can be additional signages in braille language for the specially abled students.
- d) **Additional fire safety** - 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.**

- It's well planned in college.
- It already good.
- It's already beautiful.

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

- Planting of trees by classification.
- Recording of trees from time to time
- Maintaining of trees planted by micro-cameras in places .
- Compulsory of one tree per group per year keeping in view the number of students.

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.

