

2(f) & 12 (B): March 2006

Hanuman Shikshan Prasarak Mandal, Sonpeth's

**LATE RAMESH WARPUDKAR ARTS, COMMERCE & SCIENCE COLLEGE,
SONPETH. DIST. PARBHANI 431516 (MS)**

NAAC Accredited Grade 'B' with 2.03 CGPA (Validity: 02 March 2020)

(Affiliated to: Swami Ramanand Teerth Marathwada University, Nanded)

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Criterion 7- Institutional Values and Best Practices

7.1: Institutional Values and Social Responsibilities

**7.1.3: Policy Document on Environment and Energy usage
Certificate from the Auditing Agency**

1. GREEN AUDIT / ENVIRONMENT AUDIT
2. ENERGY AUDIT
3. CLEAN AND GREEN CAMPUS INITIATIVES
4. BEYOND THE CAMPUS ENVIRONMENTAL PROMOTION ACTIVITIES

ENVIRONMENT AUDIT REPORT

ENVIRONMENT AUDIT

STUDY PERIOD (TWO YEARS) 2021 – 2022 & 2022 - 2023

Sustainability study
AUDIT REPORT

Studied for
Late. Ramesh Warpudkar
Arts, Commerce and Science College
Rajabhau Kadam Nagar,
Paeli Road Sonpeth Dist. Parbhani - 431516,
Maharashtra, India

Studied in the capacity of
Accredited and Certified
Green Building Professional



Website: <https://thegreenviosolutions.co.in/>

Email: greenviosolutions@gmail.com



Disclaimer

The Audit Team has prepared this report for the **Late. Ramesh Warpudkar Arts, Commerce and Science College** located at Rajabhau Kadam Nagar, Paeli Road Sonpeth Dist. Parbhani - 431516, Maharashtra, India based on input data submitted by the Institute 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 internal team. 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.

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

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Introduction

About the Institute

The Late Ramesh Warpudkar ACS College, Sonpeth is in the service of the vicinity since 1994. The town Sonpeth literally means a 'Store of Gold'. The town had a significant status in the region of Nizam of Hyderabad. After independence, the town lost its administrative importance and remained neglected. This college is 80 Kms. away from district place and away from highway which resulted in slowing down its progress. Before the establishment of the college, the students of the region had to go to the district place for their higher education. The journey of the institute began with 50 students in 1994, today nearly 2000 students are studying in this campus.

About the Environment audit

A flora survey was carried out to identify the total numbers of plants and trees.

S. No.	Plant name	Type	Nos.
1	<i>Azadirachta Indica (Neem)</i>	Tree	3
2	<i>Prunus Amygdalyus (Almond)</i>	Tree	2
3	<i>Alstonia Scholaris (Saptparni)</i>	Tree	22
4	<i>Mangifera Indica (Mango)</i>	Tree	7
5	<i>Myroxylon Balsamum (Guava)</i>	Tree	2
6	<i>Moringa Olifera (Drum Stick)</i>	Tree	2
7	<i>Tectona Grandis (Sagvan Wood)</i>	Tree	1
8	<i>Cocus Nucifera (Coconut Tree)</i>	Tree	5
9	<i>Saraca Asoca (Ashoka Tree)</i>	Tree	12
10	<i>Delonix Regia (Gulmohar)</i>	Tree	4
11	<i>Tamarindus Indicus (Tamarind)</i>	Tree	1
12	<i>Syzgum Camini (Jambhul)</i>	Tree	1
13	<i>Sasbania Bispinosa (Shavri)</i>	Tree	2
14	<i>Citrus (Lemon)</i>	Tree	1
15	<i>Karanji</i>	Tree	2

Table 1: Details of the Flora in the premises

At present there are 67 numbers of plantations in the premises. All of these are planted by the on various occasions and some have grown naturally.



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

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Acknowledgement

The Audit Assessment Team extends its appreciation to the **Late. Ramesh Warpudkar Arts, Commerce and Science College, Maharashtra** for assigning this important work of Environment Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks are extended are due to everyone from the Management.

Our heartfelt thanks extended to the Chairperson of the entire process **DR. V.D. Satpute**, (Principal) for the valuable inputs.

We are also thankful to Institute's Task force who have played a major role in data collection.

- Faculty members – **Mr.S. M. Devraye**. Assistant Professor (*Special mention for the excellent coordination*)
- Non-teaching staff members – **Mr. D.M. Sontakke**, Lab. Attendant
- Admin staff members – **Mr. R.R. Kale, Jr.** Clerk

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

Sustainable Academe

Brand of Greenvio Solutions, Palghar District, Maharashtra- 401208

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1. Introduction

1.1 About the Institute

The Late Ramesh Warpudkar ACS College, Sonpeth is in the service of the vicinity since 1994. The town Sonpeth literally means a 'Store of Gold'. The town had a significant status in the region of Nizam of Hyderabad. After independence, the town lost its administrative importance and remained neglected. This college is 80 Kms. away from district place and away from highway which resulted in slowing down its progress. Before the establishment of the college, the students of the region had to go to the district place for their higher education. The journey of the institute began with 50 students in 1994, today nearly 2000 students are studying in this campus.

1.2 About the departments of the Institute

The College has departments such as Arts, English, Marathi, Hindi, Economics, Geography, History, Political Science, Physical Education, Public Administrator, Sociology.

1.3 Assessment of the Institute

1.3.1 Affiliations

The technical course provided by the College are affiliated to the **S.R.T.M.**, a state public university of Maharashtra State.

1.3.2 Certification

The College has received the following Certification of **AISHE** – The All India Survey of Higher Education code with the code being C-7402.

1.3.3 Accreditation

The College received a 'B' grade with a CGPA of 2.03 in the 'First' cycle of accreditation awarded by the National Assessment & Accreditation Council (NAAC) in 2015.

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



1.4 Statements of the Institute

1.4.1 Vision

The Institute proposes "Reaching to the unreached."

1.4.2 Mission

The Institute adheres and focuses towards "To offer opportunities of the empowerment to the rural learners by imparting quality higher education within the capacities."

1.4.3 Objective

It is the objective of the College:

- To strive for imparting higher education to rural masses in general and girls in particulars
- To seek socio-cultural transformation of rural youth
- To inculcate the values like national integration, patriotism, liberty, equality, fraternity humanity and tolerance among youth
- To nurture the quality of socio and civil responsibilities among the students
- To create youth capable to be employed



2. Overview

2.1 Summarised Populace analysis for 2022-2023

2.1.1 Students data

The data (shared by the Institute) shows there were **548 students**.

2.1.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	07	00	07
2	Teaching staff	20	03	23
3	Non-Teaching staff	08	00	08
Total Staff Members		35	03	38

Table 1: Staff data of the Institution for 2022-2023

The staff data shows the Institute premises had **38 Staff Members**.

2.2 Summarised Populace analysis for 2021-2022

2.2.1 Students data

The data (shared by the Institute) shows there were **579 students**.

2.2.2 Staff data

S. No.	Type	Male	Female	Total
1	Admin staff	07	00	07
2	Teaching staff	20	03	23
3	Non-Teaching staff	08	00	08
Total Staff Members		35	03	38

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

The staff data shows the Institute premises had **38 Staff Members**.



3. Research

3.1 Site area

The Institute is spread over **2 acres**.

3.2 Institute Infrastructure

3.2.1 Establishment

The Institute was established on **1994**.

3.2.2 Spatial Organisation

- The Institute is located in a rural area.
- The campus is a clustered organization spread in built and open spaces.
- There is a pollution free and healthy environment.
- There are ample shaded areas with covered walkways etc.
- The rural set-up invites a pollution free ambience with plantations all over.

3.3 Operation and Maintenance of the premises

The interview session was held with the staff regarding the operation and working hours. The Institution is open from Monday to Saturday with the timings being 08:30 am to 16:00 hours.



4. Evidence



Plate 1: Open areas in the premises – These can be developed into landscape pockets



Plate 2: Naturally shaded areas in the premises – These can be developed with seating areas for open learning spaces



Plate 3: Huge canopy trees in the premises – The numbers of similar trees can be increased



Plate 4: Huge canopy trees and open ground in the premises – The numbers of similar trees can be increased, furthermore the green cover in the open area can be improved



5. Documentation

5.1 Open Spaces

As per the documentation, we would suggest the open space in the campus can be enhanced further.

The study suggests to undertake the following activities.

- **Develop green cover for climate control measures**
- **Develop walkways (mud) around for students and staff members**
- **Develop sports facilities for holistic education**
- **Develop seating areas in the premises**

5.2 Flora audit

A flora survey was carried out to identify the total numbers of plants and trees. The landscape area has a variety of plantations the details of the same documented by internal team.

S. No.	Plant name	Type	Nos.	Planted by
1	<i>Azardirachta Indica (Neem)</i>	Tree	3	Grown naturally
2	<i>Prunus Amygdalyus (Almond)</i>	Tree	2	Staff
3	<i>Alstonia Scholaris (Saptparni)</i>	Tree	22	Students
4	<i>Mangifera Indica (Mango)</i>	Tree	7	Students
5	<i>Myroxylon Balsamum (Guava)</i>	Tree	2	Staff
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14	<i>Citrus (Lemon)</i>	Tree	1	Staff
15	<i>Karanji</i>	Tree	2	Staff

Table 3: Details of the Flora in the premises

At present there are 67 numbers of plantations in the premises. All of these are planted by the on various occasions and some have grown naturally.

The study suggests that there is scope to increase the number of plantations in the premises.

5.3 Fauna audit

Being located in a rural set-up there are low levels of pollution observed in & around campus.

The study suggests to undertake documentation of the fauna and publishing the same for dissemination and sensitization purposes.

5.4 Noise Audit

On a macro level, the site is surrounded by huge green cover on the North, East and South side; while it is further surrounded by residential areas on the West side. Since, there are no major industrial belts surrounding the campus the noise levels do not cause any direct negative impacts to campus.

On a micro level there are trees with huge canopy cover that help reduce the noise levels through absorption, thus keeping noise levels under control.

The study suggests that the current practices are good; however certain awareness posters about the same will be beneficial.

5.5 Carbon Footprint Audit

5.5.1 Heat Island Reduction

Certain measures have to be taken to keep outdoor temperatures under control.

The study suggests an increase in number of plantations as this will be useful.





5.5.2 Outdoor Light Pollution Study

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

5.6 Fire Safety

Fire and life safety are an important consideration of the National Building Code 2016. This aspect is touched upon as part of this study in the capacity of an Architect registered with the Council of Architecture. As part of the research, fire safety audit was considered from the 'Building systems' perspective.

The study suggests that the current practices need an up gradation.

DETAILED REPORT

6. Suggestions

The following suggestions are section-wise recommendations and are supposed to be **executed within the next 3.5 years from the date of the Report submission**. The Institute can execute a plan after discussion with Project Head.

6.1 Site beautification

- **Beautification of the entrance pathway** - The existing bricks (waste from the existing new construction going on) can be used or upgraded the pathway through an appropriate Landscape Architecture design.
- **Birdhouse/ Feeders** - At appropriate locations there can be provisions for drinking water and some grains for birds as they visit the site much frequently.
- **Garden development** - The existing open space should be designed as an Architectural landscape.
 - Nursery documentation, expansion and beautification – The premises should have a nursery, details can be decided as per the landscape beautification.
 - Scientific name plates and QR codes – The team should undertake a project to have name plates with QR codes on every plant of the premises.

6.2 Heat island reduction

Cool rooftops - The Terrace rooftops should be painted with Cooltop – reflective materials to reflect the harsh sun rays and reduce the heat absorption in the top most floor and surrounding areas of the building.

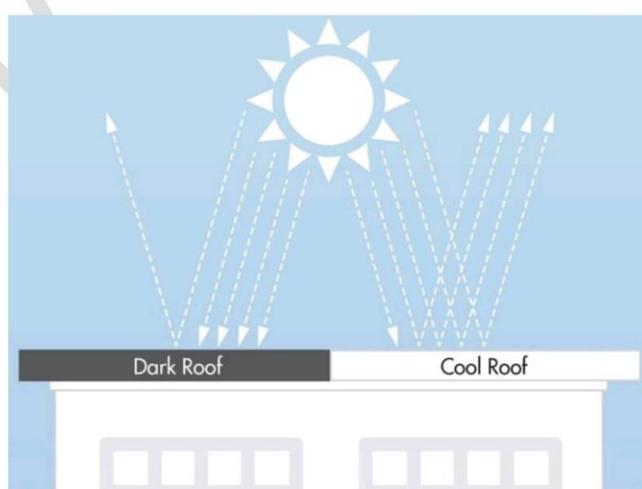


Plate 5: Cool roof comparative analysis (For reference purpose only)

Source: Image by <https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387>



6.3 Life safety

- **Mandate fire extinguisher in spaces** - One fire extinguisher should mandatorily be there in every space which has an air conditioner/ gas cylinder.
- **Combustible equipment** - Every space which has a gas cylinder or combustible equipment should have a provision for the barricade around the gas cylinders, appropriate safety board's mentioning 'danger sign' and 'Do not touch' with an additional small fire extinguisher close by.

6.4 Pollution Control

- **Bicycles as a gift** - As an appreciation gesture maybe the student's toppers/ staff best performers can be awarded a bicycle occasionally.
- **Paperless technologies for offices** - The Institute can go technology-friendly and go paperless in the functioning of premises to a certain extent maybe not fully.
- **Plant more carbon dioxide absorbing plants** - The following plantations should be planted as they will help in Carbon neutralisation.
 - Pine – It is known for its ability to sequester carbon.
<https://www.single.earth/blog/which-trees-absorb-the-most-carbon#:~:text=Pine%20trees%20as%20carbon%20sinks,their%20ability%20to%20sequester%20carbon.&text=These%20trees%20are%20found%20in,also%20make%20good%20landscape%20plants>
 - Neem – It helps to reduce greenhouse gases through photosynthesis absorbing large quantities of CO₂ and producing oxygen.
<https://neemfoundation.org/greening-india-with-neem/#:~:text=The%20planting%20of%20Neem%20trees,of%20CO2%20and%20producing%20oxygen>
 - Peepal – It can uptake CO₂ during the night as well because of its ability to perform a type of photosynthesis called Crassulacean Acid Metabolism (CAM) [https://nurserylive.com/blogs/sustainable-living/you-know-plants-that-give-oxygen-24-hours#:~:text=2.-,Peepal,Crassulacean%20Acid%20Metabolism%20\(CAM\)](https://nurserylive.com/blogs/sustainable-living/you-know-plants-that-give-oxygen-24-hours#:~:text=2.-,Peepal,Crassulacean%20Acid%20Metabolism%20(CAM))
 - Bamboo - It can absorb as much as 12 tonnes of carbon dioxide per hectare per year, giving the plant a potentially crucial role in stabilising our planet's atmosphere.
<https://www.theguardian.com/environment/2003/mar/20/research.science#:~:text=Research%20in%20Japan%20and%20elsewhere,in%20stabilising%20our%20planet's%20atmosphere> and <https://www.nelda.org.in/15-indian-trees-that-produce-the-most-oxygen>
 - Teak – It has the highest capacity for carbon sequestration among trees in India. This is the finding of a study conducted by the Gujarat Ecological Education and Research (GEER).
<https://timesofindia.indiatimes.com/city/ahmedabad/teak-absorbs-max-co2-from-air-helps-check-global-warming/articleshow/51721842.cms>



7. Compilation

The study is based on the data collected, analyzed, rechecked, and confirmed through multiple modes. For the quality study, some standards/ notes have been referred to. These are listed and noted below. However, no direct references have been used anywhere. These are used as a base to analyze and study the data collected.

- ➔ Uniform Plumbing Code – India, 2008
- ➔ IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- ➔ IGBC Green Landscape Rating system, March 2013
- ➔ BOMA Canada Waste Auditing Guide, Best Environmental Standards, BOMA BEST – Canada
- ➔ 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.
- ➔ Reference images for suggestions:
 - ❑ <https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387>
 - ❑ <https://earthbound.report/2021/07/14/5-ways-to-reduce-the-urban-heat-island-effect/>



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