

ENERGY AUDIT

STUDY PERIOD (ONE YEAR) 2024 - 2025

Sustainability study
AUDIT REPORT

Studied for
Maulana Azad Education Society's
Marathwada College of Education
Dr. Rafiq Zakaria Campus, Dr. Rafiq Zakaria Marg,
Post Box No. 117, Harsul Road, Rauza Baugh,
Aurangabad – 431001 (MS), India

Studied in the capacity of
Accredited and Certified
Green Building Professional



Email: greenviosolutions@gmail.com

Disclaimer

The study has been prepared for **Maulana Azad Education Society's Marathwada College of Education** located at Dr. Rafiq Zakaria Campus, Dr. Rafiq Zakaria Marg, Post Box No. 117, Harsul Road, Rauza Baugh, Aurangabad – 431001 (MS), 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 in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

It 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 should not be copied or regenerated in any form.

Ar. Nahida Abdu
Greenvio Solutions



Acknowledgement

Appreciation extended to **Maulana Azad Education Society's Marathwada College of Education, Maharashtra** for assigning this important work of Energy 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.

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

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1. Introduction

1.1 About the Institution

1.1.1 Vision

The Institute strives "To be the Centre of Excellence by providing world class 'Teacher Education' to students from all sections of the socitey."

1.1.2 Mission

The Institute's adheres:

- *Envisages to impart quality training with commitment to excellence.*
- *Endorses to impart value added education with efficient and competent man power, excellent infrastructure and innovation in teacher training and research programmes in order to generate globally competitive and skilled teachers, researchers and torough pffessionals.*

2. Overview

2.1 Summarised Populace analysis for 2024-25

2.1.1 Students data

The data (shared by Institute) shows there were 161 male; 333 female.
Thus 494 students.

2.1.2 Staff data

Sl. No.	Particulars	Male	Female	Total
1	Admin staff	5	0	5
2	Teaching staff	10	8	18
3	Non-Teaching staff	8	1	9
Total		23	09	32

Table 1: Staff data of the Institution

Above data documents 32 staff members.

Thus, total populace stands at 526 nos.

3. Observation

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Evidence documents for Site visit of external audit team

Audit team headed by external expert - Ar. Nahida Abdulla
Accredited & Certified Green Building Professional, ISO IA (IMS)
Audit objective: Green Building up gradation of the premises

Audits covered: Green audit Energy audit Environment audit

Institute: Marathwada College of Education Date: 17-05-2022
CSN

Document objective: Inferences of the Site visit

Observations (Positive aspects)	Suggestions (Improvement aspects)
Green Audit	
- Documentation of water facilities with maintenance information	- Dedicate following zones with documentation - Orange zone
Energy Audit	
- 20 Nos. of solar panels available on rooftop of building & is maintained - Fire safety measures undertaken.	- Dedicate following zones with documentation - Green Energy zone - Danger zone
Environment Audit	
- Environmental study reflects good atmosphere - Flora is available in sufficient nos.	- Dedicate following zones with documentation - Green zone - Rooftop zone

Signature & round seal
Name:
Designation:

Signature & round seal
Name: Mrs. Shalini
Designation: Project Coordinator
For The Greenvio Solutions

Plate 1: Evidence files related to inferences

4. Investigation

The following results were carried out during visit on **17 May 2025**.

The micro-climate temperatures of the site depends upon various factor including through evapotranspiration, trees and other vegetation cool the air around them. (Reference and further edited with details from dnr.louisiana.gov)

The base temperature for thermal comfort is 24°C (75°F) – Reference study [https://www.researchgate.net/post/What_is_the_base_temperature_for_thermal_comfort_in_India#:~:text=The%20base%20temperature%20for%20thermal%20comfort%20in%20India%20is,C%20\(75%C2%B0F\).](https://www.researchgate.net/post/What_is_the_base_temperature_for_thermal_comfort_in_India#:~:text=The%20base%20temperature%20for%20thermal%20comfort%20in%20India%20is,C%20(75%C2%B0F).)

S. No.	Time	Location	Result (°C)	Should be (°C)	Requires improvement
1.	10:59	Building 1 – Terrace	30	24	No
2.	11:24	Building 2 – Ground floor	30	24	No

Table 2: Results for the micro-climate temperature study

5. Documentation

Section 1 - Life safety management

5.1 Facilities study

The facilities include fire extinguishers, sand buckets etc.



Plate 2: Fire and life safety measures

Section 2 - Energy generation & expense incurred

5.2 Load distribution study

5.2.1 Categorization

The campus has EDUCATIONAL and RESIDENTIAL (Boys Hostel nin common campus);

As per the bill shared the type of load can be stated is 'COMMERCIAL'

5.2.2 Primary sources of energy consumption

- **Electrical (Metered)** – Light, Fans, Equipments, Pumps comprise these sources.
- **Alternate sources of energy consumption** – There are 20 solar panels on building one rooftop.

5.2.3 Secondary sources of energy consumption

The sources are noted below:

S. No.	Detail	Nos.
1	UPS	2
2	Batteries	16
3	Solar panels	24

Table 3: Secondary sources

5.3 Technical payload study

The data related to electricity bills is documented below.

Sr. No.	Month	Year	Amount	Total units consumed with solar
1	June	2024	21,035	745
2	July	2024	20,954	726
3	August	2024	20,503	707
4	September	2024	19,793	659
5	October	2024	21,917	809
6	November	2024	16,578	419
7	December	2024	17,929	514
8	January	2025	20,165	689
9	February	2025	21,027	765
10	March	2025	28,056	1,297
11	April	2025	30,960	1,561

Table 4: Details of the electrical consumption

The observation related to above information states:

- ⇒ The **total amount** spent is **Rs. 2,38,915/-**
- ⇒ **Total units** consumed was **8,891 kWh (Electrical + Solar)**
- ⇒ **Alternate source of energy is available through 20 solar panels**
- ⇒ **The solar is connected to:**
 1. Meeting hall
 2. Coordinator room
 3. Principal cabin
 4. Computer labs
 5. Admin office
 6. Three staff rooms



Plate 3: Rooftop solar panels



Plate 4: Batteries near the rooftop solar panels



Plate 5: Solar details

Section 3 - Building safety

Certain cracks and maintenance aspects need to be undertaken.

Section 4 – Energy consumption

5.4 Calculated electrical consumption study

(Energy consumption by the electrical appliances study)

The following documentation is based on the consumption practice on a regular working day.

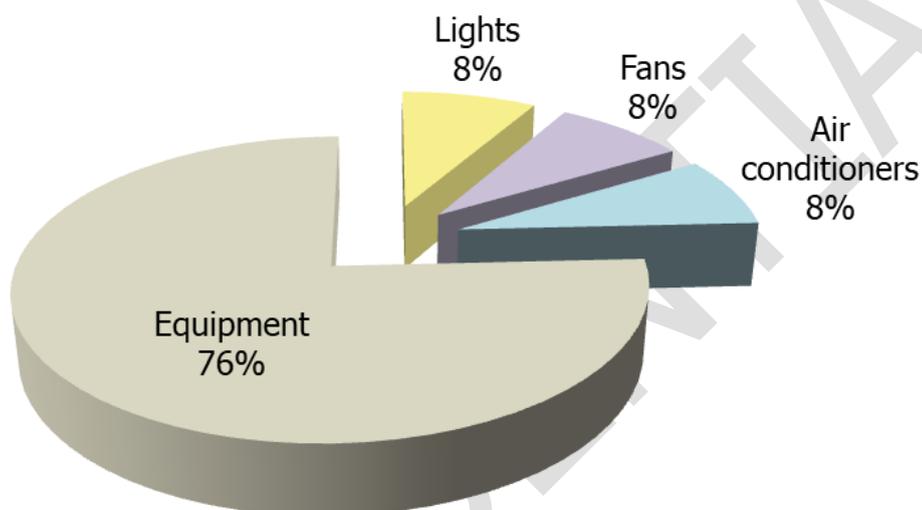


Figure 1: Summary of the calculated electrical consumption as per inventory

The above graph shows that equipment consume 76% whereas fans, lights and air conditioners consume 8% each of total calculated electrical energy.

5.5 Lights

5.5.1 Types of lights based on the numbers

There are **144 lights on the premises**; the following table shows the various types of lights on the premises.

S. No.	Type	Nos.
1	LED lights (Energy efficient appliance)	79
2	Non-LED (Non-Energy efficient appliance)	65

Table 5: Summary of the types of lights on-premise

5.5.2 Types of lights based on the power consumption

The energy consumption of lights is **7,286 kWh** of energy.

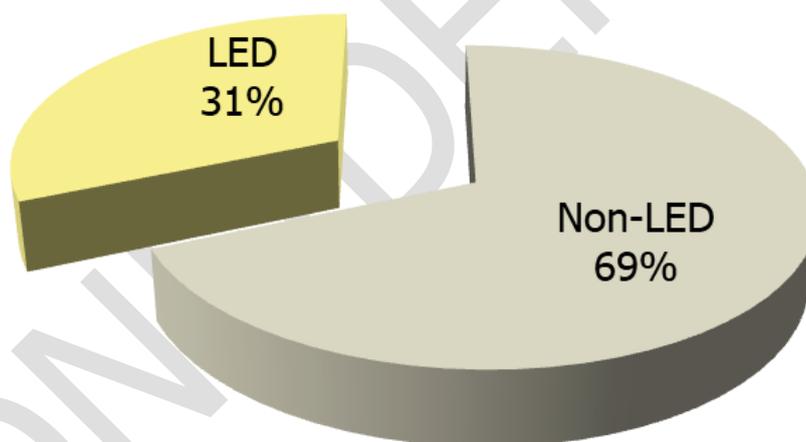


Figure 2: Energy consumed by types of lights in the premise based on the usage study

The analysis of the types of Lights on-premises shows **LED lights consume 31%** whereas the **Non-LED lights consume 69%** of the total power consumed by lights.

5.5.3 Energy efficient lighting

The premise has LED Lights to contribute to 55% in terms of number and **31% of the power requirement** is met through the same.

5.6 Fans

5.6.1 Types of fans based on the numbers

There are **107 Ceiling fans** on the premises.

5.6.2 Types of fans based on the power consumption

The energy consumption of fans is **7,042 kWh** of the energy with the Ceiling fans (Regular) consuming 100% of total power consumed by fans.

5.7 Air conditioners

5.7.1 Types of air conditioners based on the numbers

There are **4 air conditioners** on the entire premises.

5.7.2 Building-wise consumption analysis

The energy consumption of air conditioners is **6,794 kWh** of energy.

5.8 Equipment

Only the major appliances information has been documented.

5.8.1 Types of Equipment

There are **88 nos. of equipment** in the premises.

5.8.2 Types of equipment as per their energy contribution

The energy consumption of equipment is **66,030 kWh** of energy.

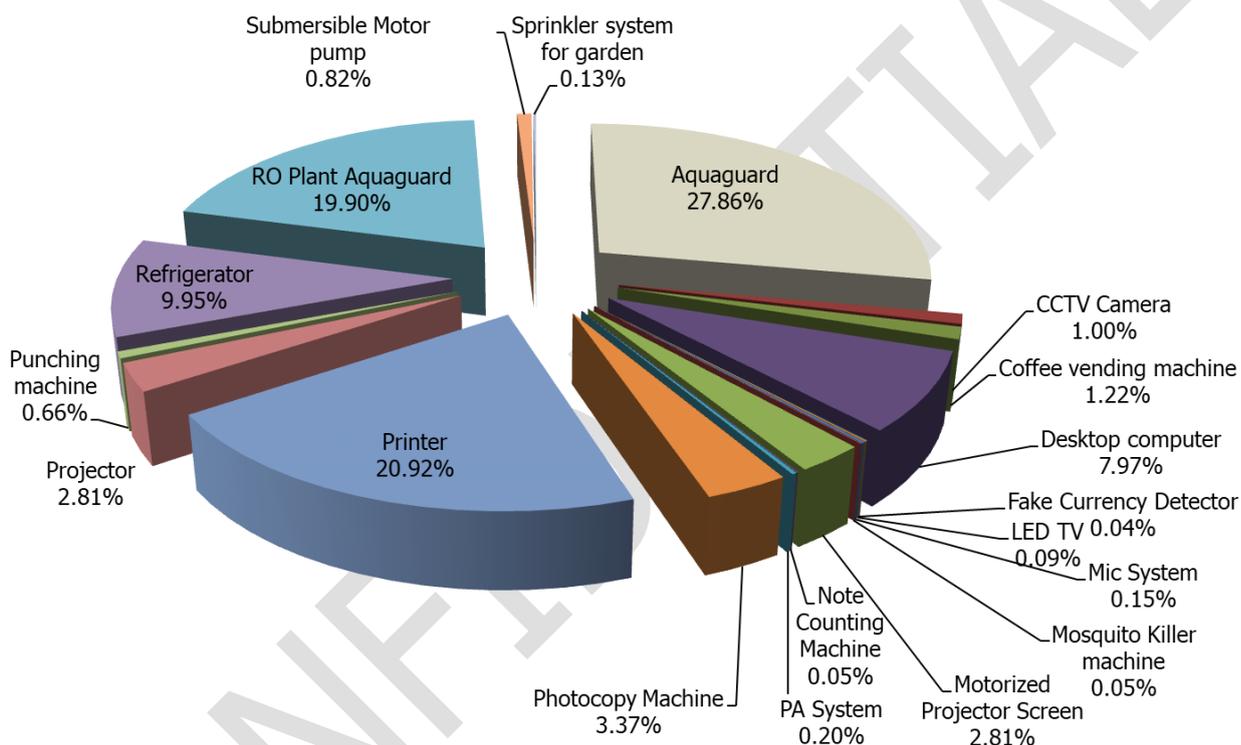


Figure 3: Energy consumed by types of equipment in the educational sector based on the usage study

The above summary shows that **Aquaguard consumes more energy at 27.86%** while **printer consumes 20.92%** whereas **RO Plant Aquaguard consumes 19.90%** and **Refrigerator consumes 9.95%** these are major consumers as compared to other equipment.

6. Compliance

The compliance study was carried out through investigative ways. This was done to understand extent of implementations based on previous reports.

- Original report study was for 2021-22 and 2022-23
- Renewal study currently done is one academic year starting June 2024

6.1 Compliance status in form of Action taken report

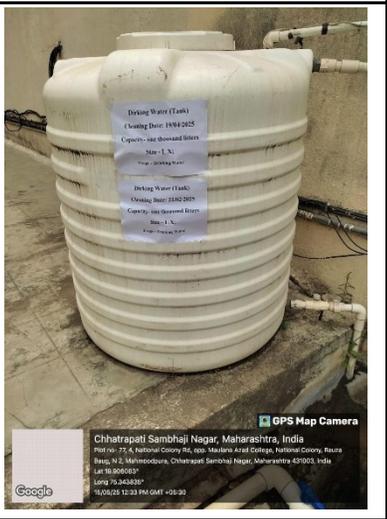
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ACTION TAKEN REPORT

(Green/ Energy/ Environment) AUDIT

S. No.	Recommendation	Page nos. of Report	Action taken (Implemented/ Under process/ Steps to be taken)	Evidence (Geo tag photo or other)
1.	Use of LED Lights	Energy Audit-Pg.no .08	WE have installed LED lights in all the classrooms, staff rooms, office, Library etc. The photos are attached	
2.	Electronic waste	Environment -al audit	We have installed the electronic waste box in the Internship school	
3.	Water Conservation		Students daily upload saving of water on YEWS APP	
4.	Use of Separate Dustbins	Environment Audit Pg no.09	We have put dustbins of plastic and dry garbage separately in corridors	

5.	No vehicle Zone	Environment Audit pg.no 15	The notices are released from time to time to notify the students not to park the vehicles in 'No Vehicle zone'	
6	Bird feeder Installation	Green audit	The campus is made ecofriendly for different birds found in the campus	
7.	Fire Zone	pg.no. 14	Fire zone banners related with fire safety and precaution was hanged at building entrance area	
8.	Composting	pg.no. 09	The students were taught to use dried leaves of campus trees and use it for composting purpose	
9.	Workshop on Sustainable Shopping Habit	Environmental Audit	The students were asked to prepare cloth bags for shopping of vegetables, avoiding the use of plastic bags	
10.	Trash to treasure	Environmental audit pg.no 09	The waste materials were used for making the useful products, and students were involved in it.	

11	Water Conservation	pg.no.08	The students were asked to download YEWS APP of Maharashtra Govt. and upload daily the savings of water on it.	 <p>Chhatrapati Sambhaji Nagar, Maharashtra, India N12-8-27-43, Raaza Baag, N 2, C/Sec, Chhatrapati Sambhaji Nagar, Maharashtra 431003, India Lat 19.906678° Long 76.344133° 17/01/2025 01:21 PM GMT +05:30</p>
12	Plant 4 Mother	Green Audit	The student were asked to plant one Tree and save the Mother Land	 <p>Chhatrapati Sambhajnagar (Aurangabad), Maharashtra, India N12-8-27-43, Raaza Baag, N 2, C/Sec, Chhatrapati Sambhajnagar (Aurangabad), Maharashtra 431003, India Lat 19.906678° Long 76.344133° 19/01/24 12:28 PM GMT +05:30</p>
13	Medicinal Plantation	Environmen tal audit , pg.no 08	The plantation of trees was done For sustaining and maintaining Eco Friendly environment	 <p>Aurangabad, Maharashtra, India V8Q9+8MM, Navkhanda, Aurangabad, Maharashtra 431001, India Lat 19.888180° Long 76.31861° 10/09/24 12:18 PM GMT +05:30</p>
14	Cleaning of Water tank	Pg.no.08	The details of Water capacity, The Water tank was cleaning date was mentioned on water tank	 <p>Chhatrapati Sambhaji Nagar, Maharashtra, India Plot No- 77, A, National Colony Rd, opp. Maulana Azad College, National Colony, Raaza Baag, N 2, Maharashtra, Chhatrapati Sambhaji Nagar, Maharashtra 431003, India Lat 19.906683° Long 76.344280° 19/01/25 12:23 PM GMT +05:30</p>
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7. Suggestion

The suggestion (inference) would act as a 'PLAN OF ACTION' to implement all the suggestions in a detailed manner.

- ➔ Conduct the 'Before' and 'After' study with photos
- ➔ Document the same in 'Action taken report'

S. No.	Aspect with evidence if any	Suggestion
1.	Fire and Life safety aspect Aspect area: Signages and display for awareness	Wherever there is a fire extinguisher awareness board on 'HOW TO USE THE FIRE EXTINGUISHER?' in english and local language
2.	Fire and Life safety aspect Aspect area: Exposed electrical facilities	<ol style="list-style-type: none"> 1. Many areas had lights, light points, in both blocks, if these are not working they can be removed / repaired; 2. Lights wherever extra replace with Non-LEDs 3. Cover the electrical meter areas as 'Danger zone'
3.	Energy generation Aspect area: Document solar facilities	<p>There should be a display board about renewable energy with following information displayed</p> <ul style="list-style-type: none"> ➔ Plant name ➔ Capacity ➔ Location ➔ Type of renewable energy system ➔ Nos. of units ➔ Installation date, month and year ➔ Energy generated per day and annually ➔ Energy consumption actual requirement per day and annually ➔ Energy saved per day and annually ➔ Last maintenance date and vendor ➔ Institute name and logo

<p>4.</p>	<p>Energy consumption Aspect area: Capping of the wirings</p>	<p>Appropriate concealing and fabrication should be undertaken for these areas using cable concealers</p>  <p><i>Image reference: Amazon</i></p>
<p>5.</p>	<p>Structural safety aspect Aspect area: Safety signages</p>	<p>Include 'Restricted area ZONE' board for access near terrace area</p> 

Table 6: Observation based suggestion study of the campus

8. 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.

Specific references for study related to energy

- ➔ <https://www.energy.gov/eere/buildings/zero-energy-buildings>
- ➔ <https://www.dsaarch.com/zero-net-positive-energy>
- ➔ U.S. Energy Information Administration
- ➔ <https://www.happysprout.com/inspiration/what-is-smart-gardening/>
- ➔ <https://ieeexplore.ieee.org/document/6779316>
- ➔ <https://www.murata.com/en-global/apps/industry/security/entranceandexitsystem>
- ➔ <https://www.energuide.be/en/questions-answers/what-are-the-alternatives-to-air-conditioning/2121/>
- ➔ IGBC Green Campus rating system Abridged Reference Guide
- ➔ GEM Sustainability Certification Rating Program
- ➔ Inference study reference images
 - https://seors.unfccc.int/applications/seors/attachments/get_attachment?code=NG125PFE4WHMWSYAK8TCAKIHMWX0F4QD
 - <https://housing.com/news/smart-gardening/>
 - <https://solarpowerproject.in/solar-panels-for-parking-lots.php>

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Sustainability study

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Signature & round seal
Name:
Designation:

Signature & round seal
Name: Mrs. Shalini
Designation: Project Coordinator
For The Greenvio Solutions

Plate 1: Evidence files related to inferences

4. Investigation

The following results were carried out during visit on **17 May 2025**.

This study is the combined study of all the micro-studies taken place in previous section to draw a specific conclusion of overall AQI. The key parameters include:

- Month of testing – May
- Season of testing – As per IMD – Considered Summer or pre-monsoon

Note: All the following tests are done in outdoor areas of premises.

S. No.	Time	Location	AQI result	AQI category as per IMD	Requires improvement
1.	10:59	Building 1 – Terrace	56	51-100 Satisfactory	No
2.	11:24	Building 2 – Ground floor	56	51-100 Satisfactory	No

Table 2: Macro level study of the site – AQI parameters

Note: The software used considers only AQI below 50 as Fair and better. *The above study was conducted using the HuaFeng Accuweather software.* However, AQI Caegory is denoted as per Standard for Operating Procedure – IMD – Minstry of Earth Sciences, Govt. of India 2021.

5. Documentation

5.1 Ecological audit

There has been excellent ecological updaration; open spaces and green spaces are documented below:



Plate 2: Ecological cover in premises

5.2 Biodiversity audit

Publication of flora and fauna has been prepared by Internal Team and it was informed it is same as last study.



Plate 3: Green cover around the premises

5.3 Carbon Footprint Audit - Heat Island Reduction

5.3. Light pollution study

This type of pollution is not experienced within premises

5.3.2 Heat Island Reduction

The heat island effect refers to the study of micro climatic feature within a site. The following features help maintain the internal micro-climate as cool:

- Light colored facades
- Green pockets within premises

5.4 Noise Audit

This study is conducted within site premises.

S. No.	Time	Location	Actual Noise (dB)	Max. Noise (dB) as per norms	Requires improvement
1.	10:59	Building 1 – Terrace	62.6	50	Not really because vehicles are restricted within premises
2.	11:24	Building 2 – Ground floor	57.8	50	

Table 3: Summary study of the noise

The above study was conducted using the NoiseCapture software.

As the above study shows the sampling carried following are major observations:

- No changes required at present on an immediate basis

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The compliance study was carried out through investigative ways. This was done to understand extent of implementations based on previous reports.

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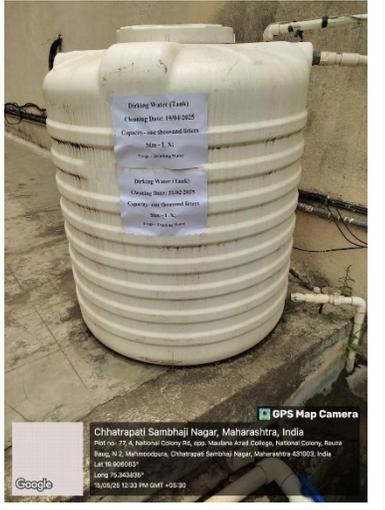
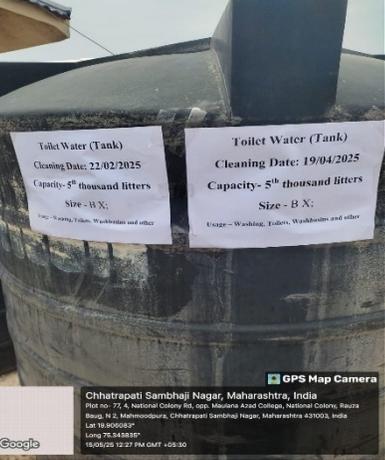
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7. Suggestion

The suggestion (inference) would act as a 'PLAN OF ACTION' to implement all the suggestions in a detailed manner.

- ➔ Conduct the 'Before' and 'After' study with photos
- ➔ Document the same in 'Action taken report'

S. No.	Aspect with evidence if any	Suggestion
1.	Biodiversity aspect Aspect area: Numbering the plantations in the premises	<p>Make a list of all the plantations in the premises and start numbering the plantations in either of the ways:</p> <ol style="list-style-type: none"> 1. Paint the nos. on iron plates and nail the same 2. Print nos. on paper, laminate and paste the same 3. Paint the nos. directly <p>Sample image for 3 examples are noted below.</p> <div style="display: flex; justify-content: space-around;">    </div> <p style="text-align: center;"><i>Options for numbering the plantations</i></p> <p>Care should be taken that the display should be visible. Uniform color palette should be identified and used. Measures should be taken to avoid withering during monsoon. This could be undertaken as a student activity.</p>
2.	General Aspect area: Demark & display board about zones	<p>Introduce display board and signboard about:</p> <ul style="list-style-type: none"> ➔ Green zone ➔ Cooltop zone

<p>3.</p>	<p>Carbon footprint aspect</p> <p>Aspect area:</p> <p>Cool rooftops</p>	<p>Terrace rooftops can be painted with Cooltop (Reflective material) to reflect the harsh sunrays and reduce the heat absorption in the top most floor and surrounding areas of the building.</p> <p>Introduce signboards about 'No students are allowed to enter'</p> <p>Undertake feasibility study of before - after temperature reading.</p> <div data-bbox="678 517 1509 1133" data-label="Image"> <p>The diagram shows a cross-section of a building with two roof types. On the left, a 'Dark Roof' is shown in black, with dashed arrows representing solar radiation hitting it and being absorbed. On the right, a 'Cool Roof' is shown in white, with dashed arrows representing solar radiation hitting it and being reflected away from the building. The sun is depicted in the sky above.</p> </div> <p><i>Cool roof comparative analysis (For reference purpose only)</i></p> <p>Source: Image by https://www.gaf.com/en-us/blog/six-truths-about-cool-roofs-281474980105387</p>
<p>4.</p>	<p>Noise aspect</p> <p>Aspect area:</p> <p>Demark & display board about Silent zone</p>	<p>A signboard highlighting and 'No honking or Silent zone' should be displayed outside campus near all entrance gates; near roadside approach of site (Outdoor areas) and 'Quite zone' outside the library space (Indoor areas)</p> <div data-bbox="692 1534 1002 1995" data-label="Image"> <p>A rectangular signboard with a red border. The top section has a red background with the word 'CAUTION' in white. The middle section has a yellow background with a red circle containing a white horn icon with a diagonal slash through it. The bottom section has a red background with the words 'NO HONKING ZONE' in white.</p> </div> <div data-bbox="1026 1534 1493 1995" data-label="Image"> <p>A diamond-shaped signboard with a yellow background and a black border. The words 'QUIET ZONE' are written in bold black letters in the center.</p> </div>

<p>5.</p>	<p>Site aspect Aspect area: Site map</p>	<p>Introduce campus map near entrance of site</p> 
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Table 4: Observation based suggestion study of the campus

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8. 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.

National references

- ➔ IGBC Green Existing Buildings – Operation & Maintenance (O&M) Rating system, Pilot version, Abridged Reference Guide, April 2013
- ➔ IGBC Green Landscape Rating system, March 2013

International references

- ➔ The city of Cheyenne, Streetscape/ Urban Design elements - Wyoming Planning Association, Gillette, Wyoming, United States
- ➔ Streetscape elements – Chapter 6 on San Francisco
- ➔ American lung association <https://www.lung.org/>
- ➔ Study related to air pollution <https://www.airgle.com/>
- ➔ Exploring the light pollution <https://education.nationalgeographic.org/>
- ➔ Urban heat island effect <https://www.epa.gov/heat-islands/what-you-can-do-reduce-heat-islands>

GREEN AUDIT

STUDY PERIOD (ONE YEAR) 2024 - 2025

Sustainability study

AUDIT REPORT

Studied for

**Maulana Azad Education Society's
Marathwada College of Education**

Dr. Rafiq Zakaria Campus, Dr. Rafiq Zakaria Marg,
Post Box No. 117, Harsul Road, Rauza Baugh,
Aurangabad – 431001 (MS), India

Studied in the capacity of

Accredited and Certified
Green Building Professional



Email: greenviosolutions@gmail.com

Disclaimer

The study has been prepared for **Maulana Azad Education Society's Marathwada College of Education** located at Dr. Rafiq Zakaria Campus, Dr. Rafiq Zakaria Marg, Post Box No. 117, Harsul Road, Rauza Baugh, Aurangabad – 431001 (MS), 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 in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

It 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 should not be copied or regenerated in any form.

Ar. Nahida Abdul
Greenvio Solutions



Acknowledgement

Appreciation extended to **Maulana Azad Education Society's Marathwada College of Education, Maharashtra** for assigning this important work of Green 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.

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

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1. Introduction

1.1 About the Institution

1.1.1 Vision

The Institute strives "To be the Centre of Excellence by providing world class 'Teacher Education' to students from all sections of the socitey."

1.1.2 Mission

The Institute's adheres:

- *Envisages to impart quality training with commitment to excellence.*
- *Endorses to impart value added education with efficient and competent man power, excellent infrastructure and innovation in teacher training and research programmes in order to generate globally competitive and skilled teachers, researchers and torough pffessionals.*

2. Overview

2.1 Summarised Populace analysis for 2024-25

2.1.1 Students data

The data (shared by Institute) shows there were 161 male; 333 female.
Thus 494 students.

2.1.2 Staff data

Sl. No.	Particulars	Male	Female	Total
1	Admin staff	5	0	5
2	Teaching staff	10	8	18
3	Non-Teaching staff	8	1	9
Total		23	09	32

Table 1: Staff data of the Institution

Above data documents 32 staff members.

Thus, total populace stands at 526 nos.

3. Observation

1 | Page

Evidence documents for Site visit of external audit team

Audit team headed by external expert - Ar. Nahida Abdulla
Accredited & Certified Green Building Professional, ISO IA (IMS)
Audit objective: Green Building up gradation of the premises

Audits covered: Green audit Energy audit Environment audit

Institute: Marathwada College of Education Date: 17-05-2022
CSN

Document objective: Inferences of the Site visit

Observations (Positive aspects)	Suggestions (Improvement aspects)
Green Audit	
- Documentation of water facilities with maintenance information	- Dedicate following zones with documentation - Orange zone
Energy Audit	
- 20 Nos. of solar panels available on rooftop of building & is maintained - Fire safety measures undertaken.	- Dedicate following zones with documentation - Green Energy zone - Danger zone
Environment Audit	
- Environmental study reflects good atmosphere - Flora is available in sufficient nos.	- Dedicate following zones with documentation - Green zone - Rooftop zone

Signature & round seal
Name:
Designation:

Signature & round seal
Name: Mrs. Shalini
Designation: Project Coordinator
For The Greenvio Solutions

Plate 1: Evidence files related to inferences

4. Investigation

The following results were carried out during visit on **17 May 2025**.

S. No.	Block	Filter/ Water cooler specific location if any	Actual level (ppm)	Required level (ppm)	Inference
1.	Building 1	Terrace RO Plant	196	Usually 50 In certain cases where water is hard 100-120 can be considered	Requires maintenance
2.	Building 2	Main water source	135		

Table 2: Drinking water testing details

5. Documentation

5.1 Green Practices Audit

5.1.1 Green practices

Innumerable activities undertaken.

S. No.	Program	Particulars	Date
1	Plant for Mother (Eik Ped maa ke Naam)	To involve pupil in Afforestation	16-08-2024
		To bring awareness about importance of Tree Plantation	
		To make earth pollution free.	
		To Prevent global warming.	
		To Aware pupil about the sustenance and Maintenance of Environment	
2	Sustainable Shopping Habits	To Avoid use of Plastic	16-08-2024
		To prevent soil pollution and plastic pollution	
		To make earth free from plastic	
3	Trash to Treasure	To recycle the waste material	13-01-2025
		To Resue the waste material	
		To make useful thing from waste material	
		To protect soil fertility	
4	Water conservation	To Conserve water	16-01-2025
		To save water	
		To Resue water through rain Harvesting	
		To use water economically in our day today life	
5	Composting	To Impart knowledege to puipil teachers to prepare a compost pit at home	17-08-2024
		To use waste dry leaves in a fruiotful way to prepare compost	
		To prevent soil pollution	
		to keep surrounding clean	
		To sensitize people to maintain Ecological Balance	
6	Bird feeder Installation	To bring awareness among pupil teachers to sustain bird environment	10-08-2024

Table 3: Environment related activities undertaken by Institute

5.2 Waste Audit

5.2.1 Waste management (Parameters adopted)

The following practices are common to entire campus.

S. No.	Type	Management
1	Solid waste (Toilets)	Connected to building storm water drain
2	Organic waste (Regular)	Compost pit available
3	Liquid waste (Toilets, wash basins)	17 toilets and 5 wash basins
4	Chemical waste from laboratories	Not applicable as not generated
5	Toxic waste from laboratories	
6	E-waste	Quotation called and handed over to the firm.
7	Paper waste	
8	Plastic waste	Manage by college staff self
9	Bio-waste (Sanitary)	Manage by college staff self
10	Medical waste (Pharmacy etc.)	Manage by college staff self
11	Construction waste and reuse (Only if applicable)	Manage by college staff self

Table 4: Waste management practices



Plate 2: Compost pit areas

Date: 25.03.2025

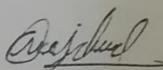
PURCHASE CERTIFICATE

We, M/s. Rajmudra Trading, hereby certify that we have purchased E-Waste scrap from The Marathwada College of Education, Aurangabad, Maharashtra. We are authorized by the Maharashtra Pollution Control Board, under consent number: Format1.0/RO(BMW)/UAN No. MPCB CONSENT-0000187933/CO/2402000544, which is valid until January 31, 2029. The details of the purchased E-Waste scrap are as follows:

SR No	Particulars	Quantity
1	E-Waste Scrap	465 KG

Hence certified.

Authorized Signatory



For Rajmudra Trading



Gate No: 58, Plot No: 18, Shajapur MIDC Waluj, Aurangabad - 9023218785

Plate 3: E-waste management practices

5.3 Water Audit

5.3.1 Water availability and consumption

NOTE- The Institute is located in a building that has shared facilities with multiple sister Institutes.

However, the following facilities are adhered by the Institute.

S. No.	Type	Capacity (litres)	Nos.	Total capacity
1	Underground	25,000	1	25,000
2	Overhead	1,000	4	4,000
3	Fire tank		4	0
4	RO Plant	500x1 and 300x1	2	

Table 5: Water management practices



Plate 4: Water management aspects in the premises

5.3.2 Water proportion study

- ➔ As per the Chapter 2 of the Report, total footfalls in premises were **526 nos.**
- ➔ Taking entire requirement into consideration **7,06,813 litres is the total water requirement** (Average assuming certain nos. for primary and secondary purposes)
- ➔ Bifurcating this study further we can assume **28,273 litres** for drinking and primary purposes ONLY.
- ➔ No deficiency or water shortage was observed or informed.



Plate 5: Overhead water tank - one



Plate 6: Overhead water tank - one

5.4 Health and Hygiene Audit

No odours issue was observed. Awareness posters are available.



Plate 7: Common Health Centre in the premises

6. Compliance

The compliance study was carried out through investigative ways. This was done to understand extent of implementations based on previous reports.

- Original report study was for 2021-22 and 2022-23
- Renewal study currently done is one academic year starting June 2024

6.1 Compliance status in form of Action taken report

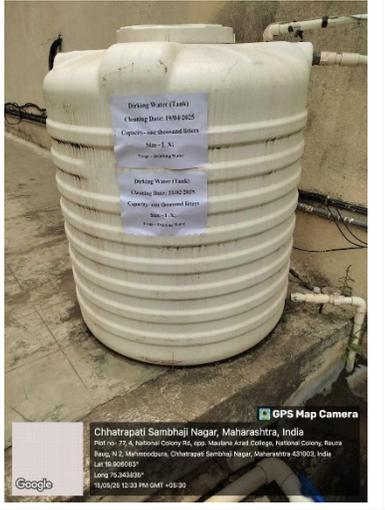
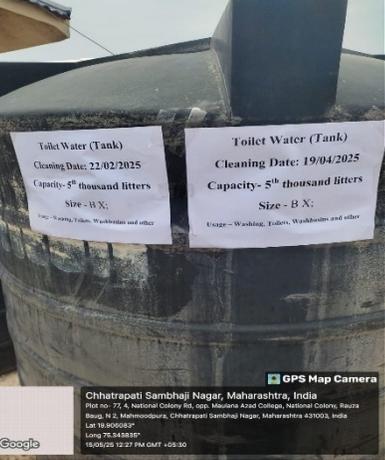
The inputs are noted next page onwards.

ACTION TAKEN REPORT

(Green/ Energy/ Environment) AUDIT

S. No.	Recommendation	Page nos. of Report	Action taken (Implemented/ Under process/ Steps to be taken)	Evidence (Geo tag photo or other)
1.	Use of LED Lights	Energy Audit-Pg.no .08	WE have installed LED lights in all the classrooms, staff rooms, office, Library etc. The photos are attached	
2.	Electronic waste	Environment-al audit	We have installed the electronic waste box in the Internship school	
3.	Water Conservation		Students daily upload saving of water on YEWS APP	
4.	Use of Separate Dustbins	Environment Audit Pg no.09	We have put dustbins of plastic and dry garbage separately in corridors	

5.	No vehicle Zone	Environment Audit pg.no 15	The notices are released from time to time to notify the students not to park the vehicles in 'No Vehicle zone'	
6	Bird feeder Installation	Green audit	The campus is made ecofriendly for different birds found in the campus	
7.	Fire Zone	pg.no. 14	Fire zone banners related with fire safety and precaution was hanged at building entrance area	
8.	Composting	pg.no. 09	The students were taught to use dried leaves of campus trees and use it for composting purpose	
9.	Workshop on Sustainable Shopping Habit	Environmental Audit	The students were asked to prepare cloth bags for shopping of vegetables, avoiding the use of plastic bags	
10.	Trash to treasure	Environmental audit pg.no 09	The waste materials were used for making the useful products, and students were involved in it.	

11	Water Conservation	pg.no.08	The students were asked to download YEWS APP of Maharashtra Govt. and upload daily the savings of water on it.	 <p>Chhatrapati Sambhaji Nagar, Maharashtra, India N12-8-27-43, Raaza Baag, N 2, C/Sec, Chhatrapati Sambhaji Nagar, Maharashtra 431003, India Lat 19.906678° Long 76.344133° 17/01/2025 01:21 PM GMT +05:30</p>
12	Plant 4 Mother	Green Audit	The student were asked to plant one Tree and save the Mother Land	 <p>Chhatrapati Sambhajnagar (Aurangabad), Maharashtra, India N12-8-27-43, Raaza Baag, N 2, C/Sec, Chhatrapati Sambhajnagar (Aurangabad), Maharashtra 431003, India Lat 19.906678° Long 76.344133° 19/01/24 12:28 PM GMT +05:30</p>
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7. Suggestion

The suggestion (inference) would act as a 'PLAN OF ACTION' to implement all the suggestions in a detailed manner.

- ➔ Conduct the 'Before' and 'After' study with photos
- ➔ Document the same in 'Action taken report'

S. No.	Aspect with evidence if any	Suggestion																														
1.	Green practices <u>Aspect area:</u> Programs	Undertake webinar/ seminar/ activity on important environment days: <table border="1"> <thead> <tr> <th>Date</th> <th>Month</th> <th>Known as</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>February</td> <td>World Wetland Day</td> </tr> <tr> <td>8</td> <td>March</td> <td>International Women's Day</td> </tr> <tr> <td>22</td> <td>March</td> <td>World Water Day</td> </tr> <tr> <td>22</td> <td>April</td> <td>World Earth Day</td> </tr> <tr> <td>22</td> <td>May</td> <td>The International Day for Biological Diversity</td> </tr> <tr> <td>5</td> <td>June</td> <td>World Environment Day</td> </tr> <tr> <td>16</td> <td>September</td> <td>World Ozone Day</td> </tr> <tr> <td>3</td> <td>October</td> <td>International E-Waste Day</td> </tr> <tr> <td>3</td> <td>December</td> <td>International Day of Persons with Disabilities</td> </tr> </tbody> </table>	Date	Month	Known as	2	February	World Wetland Day	8	March	International Women's Day	22	March	World Water Day	22	April	World Earth Day	22	May	The International Day for Biological Diversity	5	June	World Environment Day	16	September	World Ozone Day	3	October	International E-Waste Day	3	December	International Day of Persons with Disabilities
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3	October	International E-Waste Day																														
3	December	International Day of Persons with Disabilities																														
2.	Water aspect <u>Aspect area:</u> Pits	Introduce the following information as a display board: <ul style="list-style-type: none"> ➔ Number of the pit ➔ Type of rain water harvesting methodology ➔ Capacity ➔ Last maintenance date 																														
3.	Water aspect <u>Aspect area:</u> Display board	<ul style="list-style-type: none"> ➔ Wherever taps supply regular/ non-potable water introduce a board stating 'Not suitable for drinking' ➔ Similarly, introduce 'Drinking water don't wash here' board on or above every drinking water cooler/ filter 																														
4.	Waste aspect <u>Aspect area:</u> Orange zone	Introduce 'Orange zone' as 'Nearly zero plastic usage areas'																														
5.	Health & Hygiene aspect <u>Aspect area:</u> Display board about	Introduce a display board about emergency numbers on every floor of every building near staircase information about: 'Fire station, Police station, Board no. Director office, Dean office, admin manager,																														

	emergency contacts	security main gate, security parking, repair and maintenance'
6.	Health & Hygiene aspect Aspect area: Zone demarcation through signages	Introduce zone boards (Optional through mention of state/ central govt. acts) at entrance of the premises in an enlarged A1 poster  <p style="text-align: center;"><i>Sample images for zones</i></p> <p>Image source: Compliance signs</p>
7.	Health & Hygiene aspect Aspect area: Hygiene for mats	Introduce a green mat below water coolers for hygiene

Table 6: Observation based suggestion study of the campus

8. 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.

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