

ENERGY AUDIT

STUDY PERIOD (TWO YEARS) 2021 – 2022 AND 2022 – 2023

Sustainability study **RENEWAL AUDIT REPORT**

Studied for
Mogaveera Vyavasthapaka Mandali's
Colleges of Commerce & Science

MVM Educational Campus Marg,
Off. Veera Desai Road, Andheri (West), Mumbai – 400058

Studied in the capacity of
Accredited and Certified
Green Building Professional



Studied by

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

Email: greenviosolutions@gmail.com

Valid till **April 2024**

Inferences of the Site visit

Audit conducted by : Nahida Shaikh, IGBC AP, GEM CP, Architect

Accredited and Certified Green Building Professional

ASSOCHAM GEM Certified Professional Registration number 22/718

Link for the Verification website https://www.green-assochem.com/manage_gem_cp.php?page=12

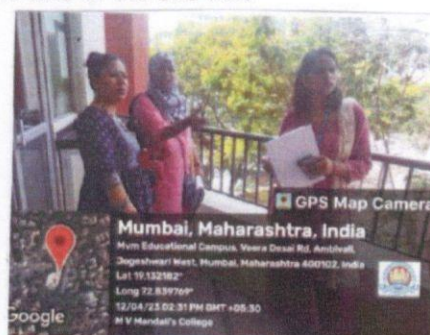
M V MANDALI'S COLLEGES OF

Institute: COMMERCE & SCIENCE. Date: 12/04/2023

Audits covered: Green, Energy & Environment Day: Wednesday

Observations	Inferences
<ul style="list-style-type: none"> - Fire Mock drill conducted - Extensive Fire Audit/aspect related activities undertaken - Dust collection problem resolved as per instructions - Energy (solar panels) under process 	<ul style="list-style-type: none"> - Increase nos. of plants. - Increase nos. of energy efficient appliances - Improve waste & water management

Evidence of the site visit



Signature of Ar. Nahida Shaikh,
ASSOCHAM GEM CP 22/718

College Name: M V Mandali's Colleges of
Signature: Commerce & Science
Name: Dr. Seema Rawat
Designation: Vice Principal
Date: 12/4/2023



For Greenvio Solutions
Signature: [Signature]
Name: Mrs F. A. Shaikh
Designation: Manager
Date: 12/4/2023



Greenvio

Disclaimer

The Audit Team has prepared this report for the **Mogaveera Vyavasthapaka Mandal's Colleges of Commerce & Science** located at MVM Educational Campus Marg, Off. Veera Desai Road, Andheri (West), Mumbai – 400058 based on input data submitted by the College and analyzed 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 a comparative analysis of the existing facilities and the prerequisites formulated by various standards. The inputs derived are a result of the inspection and research. These will further enhance and develop a Healthy and Sustainable Institution.

These can be implemented phase-wise or as a whole depending on the decision taken by the Hon'ble Management and College. The warranty or undertaking, expressed or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements, or forecasts in the report.

The audit is a thorough study based on the inspection and investigation of data collected over a while and should not be used for any legal action. This is the property of Greenvio Solutions and should not be copied or regenerated in any form.

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

Greenvio Solutions

Developing Healthy and Sustainable Environments

We are an Environmental and Architectural Design Consultancy firm

Sustainable Academe is our department for conducting Audits

Palghar District, Maharashtra- 401208

sustainableacademe@gmail.com

Acknowledgment

The Audit Assessment Team thanks the **Mogaveera Vyavasthapaka Mandali's Colleges of Commerce & Science** for assigning this important work of Energy Audit. We appreciate the cooperation extended to our team during the entire process.

Our special thanks to all the Managing Committee members of the Mogaveera Vyavasthapaka Mandali, Mumbai for selecting us to do the Energy Audit.

Our heartfelt thanks to the Chairperson of the entire process **Dr. Gopal Kalkoti**, Principal, for the valuable input.

We are also thankful to **College's Taskforce the faculty members** who have collected data required **Dr. Seema Rawat**, Vice-Principal and **Asst. Prof. Anita Chaudhary**, Co-ordinator - B.M.S *(Special mention for the excellent coordination).*

We highly appreciate the assistance 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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RENEWAL REPORT

1. Introduction

1.1 About Mogaveera Vyavasthapaka Mandali

It was established in the year 1902. It has completed 118 glorious years of Academic, Socio-Economic, and Cultural Excellence.

The MVM has been awarded the Karnataka Rajyotsava Prashasti for 2012 by Karnataka State Government. The courses offered by the College are documented below:

- Bachelor of Management Studies - (B.M.S)
- Bachelor of Science (Information technology) - B.Sc. I.T
- Bachelor of Commerce (Accountancy & Finance) - B.Com (A&F)
- Bachelor of Commerce - B.Com
- Bachelor of Commerce (Actuarial Studies) - B.Com (A.S.)
- Master of Commerce (Advanced Accountancy)

1.2 Populace analysis

1.2.1 Students data

- The student data (shared by the College) shows there were a total of **497 male and 343 female students** thus **a total of 840 students** in the premises in the academic year 2021-2022.
- The student data (shared by the College) shows there were a total of **370 male and 516 female students** thus **a total of 886 students** in the premises in the academic year 2022-2023.

1.2.2 Staff data

- The staff data shows the premises had 10 male and 20 female staff members; thus a **total of 30 Staff Members** in the premises in the academic year 2021-2022.

- The staff data shows the premises had 16 male and 17 female staff members; thus a **total of 33 Staff Members** in the premises in the academic year 2022-2023.

1.3 Total College Area & College Building Spread Area

The total site area is **2.12 Acres** and the **total Built-up area of the College** is **45,544 sq. ft.** for a **total of 919 footfalls.**

1.4 Timeline of activities for research

As the College had undergone a renewal for the Academic year 2021-2022 and 2022-2023, data collection processes for verification purposes were asked to be submitted. The report has been prepared based on the inputs provided for immediate action for improvement in this subject.

- Discussion with the College
- Allotment and Initiation by the College
- Process discussion with team
- Data submitted by College
- Submission of the files

2. Compliance

The compliance study was carried out through investigative ways. This was done to understand the extent of suggestions and their implementations based on previous report of Academic years 2019-2020 and 2020-2021. The details as per previous Report dated 23 May 2022 are documented below:

Sr. No	Recommendation Title	Compliance Status
1	Utility bills	Teaching and Non-teaching staff was instructed to switch off the equipments - lights, fans etc after the lecture hours.
2	Weather study	Teaching and Non-teaching staff was instructed to utilize the lights, fans, A.Cs as per the weather conditions and not to waste resources.
3	Non-LED and Mercury lights	Non-LED and Mercury lights will be replaced with LED lights at time of redevelopment.
4	Ceiling fans	Replacement with star-rated appliance will be done at time of redevelopment.
5	Desktop computers to laptops	Providing laptops to teaching staff is in process.

Table 1: Details of the compliance study

3. Inferences

3.1 Section-wise recommendations

The following suggestions are to be considered as a **first priority** for implementation. These should be executed within the next 1.5 to 2.5 years from the date of the Report submission. The Institute can execute a plan after discussion with Project Head.

3.1.1 Desktop computers to laptops

Among all equipment, it suggested replacing the desktop computers with laptops as this would be energy efficient. A normal desktop computer consumes an average of 250W and it is to be connected all time when it has to be used. On the contrary, a laptop consumes 40W and has a battery backup that lasts up to 4 hours. There is **an average 84% reduction** in energy consumption if replaced with an energy-efficient appliance which is a laptop in all the areas.

3.1.2 Ceiling Fans

The current Fans are in proper working conditions and maintained well. The ceiling fans are in more quantity and consume at least 60W when in use. These should be replaced with energy efficient fans consuming 35W when in use.

Our detailed study states that is all the **ceiling fans on all floors** if replaced with star rated appliance results in a reduction of average of **42% reduction** It will be suggested to replace when fans get damaged or are not in working condition.

3.2 Consolidated study recommendations related to 'entire Institute'

The following details are consolidated study recommendations related to 'entire Institute' and should be considered as **second priority** for implementation, once the section wise recommendations are implemented. The following recommendations should be implemented within 2.5 to 3.5 years from the date of the Report submission.

3.2.1 Solar tree

Since there is availability of space and technical school; the option of providing an aesthetic beauty to the premises and benefit w.r.t to energy reduction can be provided with installation of solar tree in multiple places in the site.



Plate 1: Solar tree concept for the Institute (For reference purpose only)

Source: Image by <https://timesofindia.indiatimes.com/india/cmeri-installed-the-worlds-largest-solar-tree-at-durgapur/articleshow/77856790.cms>

3.2.2 Smart gardening

The College can undertake a Smart Gardening system using IoT Technology. This will result in saving time by scheduling time for watering; saving money through automated water schedules tracking dampness of soil to know when, how much water garden needs.

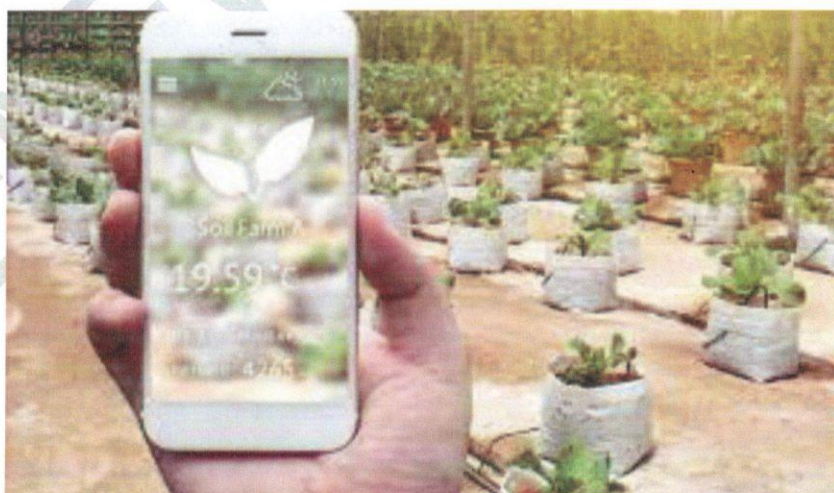



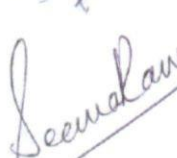

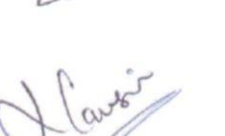
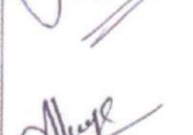

Plate 2: Solar farm concept for the Institute (For reference purpose only)

Image source: <https://housing.com/news/smart-gardening/>

Data source: <https://www.happysprout.com/inspiration/what-is-smart-gardening/>

Induction Meeting

M V MANDALI'S COLLEGES OF
Institute: COMMERCE & SCIENCE. Date: 12/04/2023
Audits covered: Green, Energy & Environment Day: Wednesday

S. No	Name	Designation	Signature
1-	MRS. FARIDA SHAIKH [EXTERNAL TEAM]	CO-ORDINATOR	
2-	AR. NAHIDA ABDULLA [EXTERNAL EXPERT]	PROJECT HEAD	
3.	DR. SEEMA RAWAT (INTERNAL MEMBER)	VICE PRINCIPAL	
4.	MS. ANITA CHAUDHARY (INTERNAL MEMBER)	IQAC COORDINATOR	
5.	DR. NAVSIN MISTRY (INTERNAL MEMBER)	SENIOR FACULTY	
6.	MR. VISHWANATH ACHARYA (INTERNAL MEMBER)	SENIOR FACULTY	

College Name: M V Mandali's Colleges of
Signature: Commerce & Science
Name: Dr. Seema Rawat
Designation: Vice Principal
Date: 12/4/2023



For Greenvio Solutions
Signature: [Signature]
Name: Mrs F. A. Shaikh
Designation: Manager
Date: 12/4/2023



Exit Meeting

Institute: M V MANDALI'S COLLEGES OF COMMERCE & SCIENCE Date: 12/04/2023
Audits covered: Green, Energy & Environment Day: Wednesday

S. No	Name	Designation	Signature
1.	MRS. FARIDA CHAIKH [EXTERNAL EXPERT] TEAM	CO-ORDINATOR	LS
2.	MR. NAHIDA ABDULLA [EXTERNAL EXPERT]	PROJECT HEAD	Handwritten signature
3.	DR. SEEMA RAWAT VICE PRINCIPAL (INTERNAL MEMBER)	VICE PRINCIPAL	Seema Rawat
4.	Mrs ANITA CHAUDHARY (INTERNAL MEMBER)	IQAC COORDINATOR	Handwritten signature
5.	DR. NAVSIN MISTRY (INTERNAL MEMBER)	SENIOR FACULTY	Handwritten signature
6.	MR. VISHWANATH ACHARYA (INTERNAL MEMBER)	SENIOR FACULTY	Handwritten signature

College Name: M V Mandali's Colleges
Signature: of Commerce & Science
Name: Dr. Seema Rawat
Designation: vice principal
Date: 12/4/2023

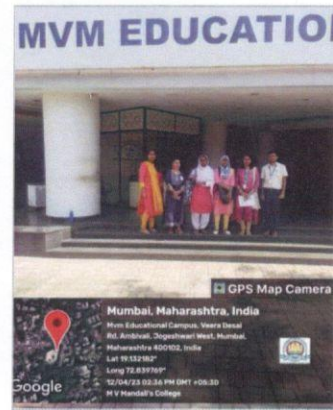
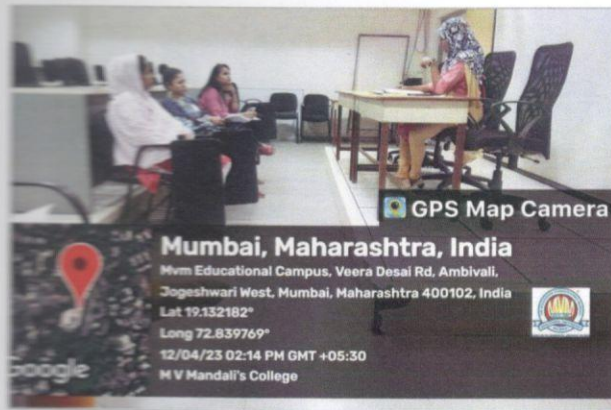


For Greenvio Solutions
Signature: Handwritten signature
Name: Mrs F. A. Shaikh
Designation: Manager
Date: 12/4/2023



On-site investigation and physical verification

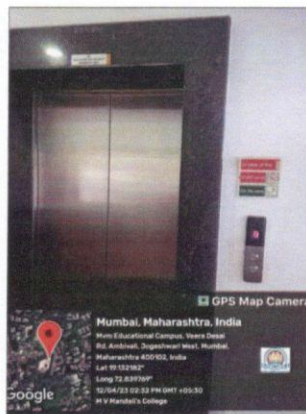
Audit Team during the visit and other photos collected during data documentation



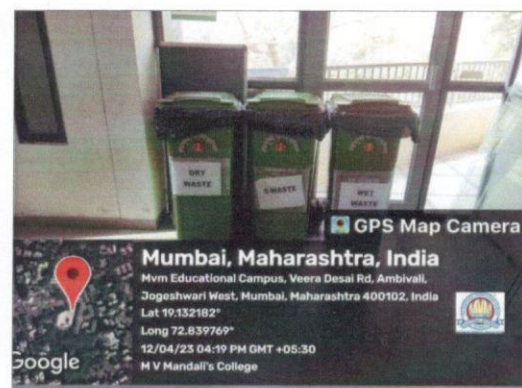
Meeting with the core team including Vice Principal and Co-ordinator



Seating area as user-friendly zone in premises; On-site discussion with the core team



Evidences about the Fire and Life safety practices; Discussion about development of the break-out zone



Waste management practices in the premises

4. Compilation

The study is based on the data collected, analysed, 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 analyse 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

