

Energy Audit Report
Smt. Meenalben Mehta College, Panchgani
Academic Year: 2023-24



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INTRODUCTION

This Energy Audit Report presents the findings of an energy audit conducted at Smt. Meenalben Mehta College, Panchgani, during the academic year 2023-24. The audit was conducted to identify opportunities for energy savings and to develop recommendations for improving the energy efficiency of the college.

The audit included a site survey, an energy consumption analysis, and a review of the college's energy management practices. The site survey identified the major energy-consuming equipment and systems at the college. The energy consumption analysis was used to quantify the college's energy use and to identify areas where energy savings could be achieved. The review of the college's energy management practices identified areas where improvements could be made.

The audit found that the college has a number of opportunities to save energy. The following are some of the key findings of the audit:

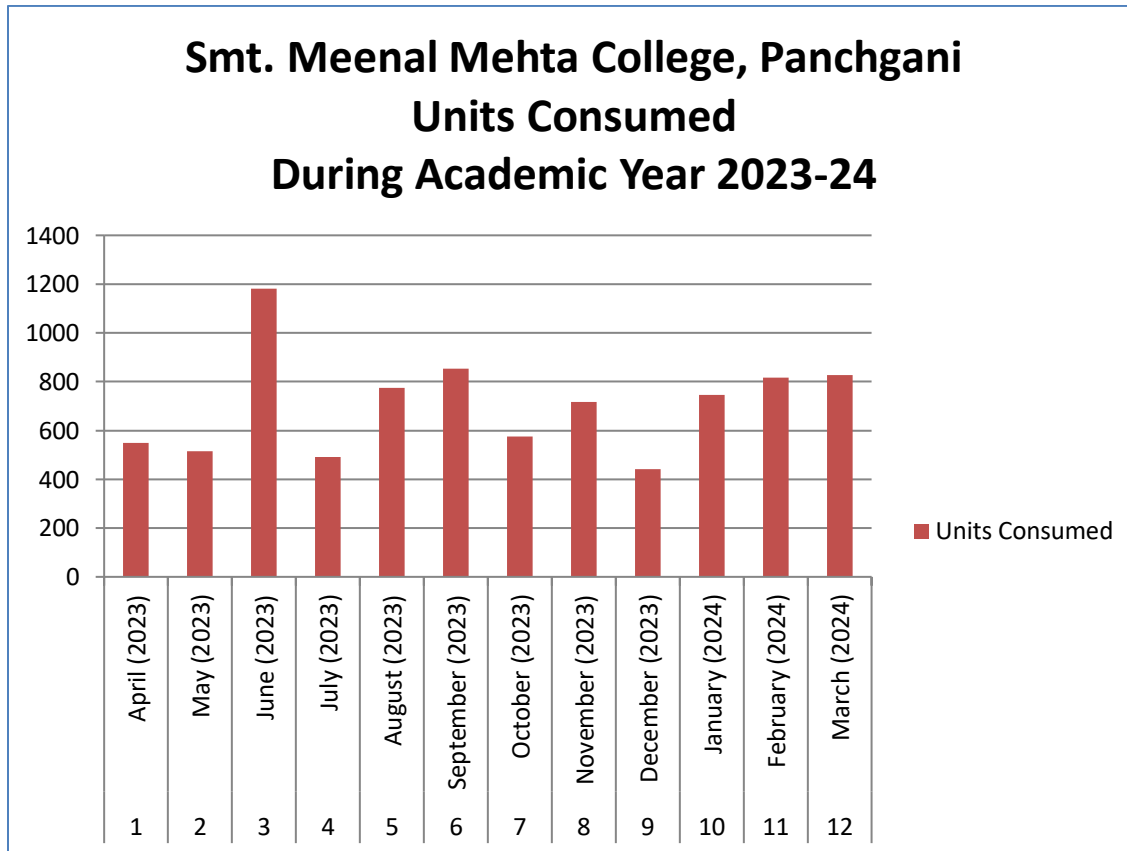
- The college's lighting system is outdated and inefficient. Upgrading to energy-efficient lighting could save the college a significant amount of money on its energy bills.
- The college's energy management practices could be improved. For example, the college could implement a preventive maintenance program for its energy-using equipment and systems. This would help to ensure that the equipment and systems are operating efficiently and that any problems are identified and corrected early on.
- The audit also developed a number of recommendations for improving the energy efficiency of the college. The following are some of the key recommendations:
 - Upgrade the college's lighting system to energy-efficient lighting.
 - Implement a preventive maintenance program for the college's energy-using equipment and systems.
 - Educate the college's staff and students about energy conservation practices.

The implementation of these recommendations would result in significant energy savings for the college. The savings would reduce the college's operating costs and help to protect the environment.

EXECUTIVE SUMMARY

This energy audit report provides a comprehensive analysis of the electricity consumption patterns of Smt. Meenalben Mehta College for the academic year 2023-24. The data used for this audit is based on the monthly electricity consumption provided by Mahavitaran. The report highlights key observations and remarks, suggests energy-saving and cost-reduction measures, and emphasizes the importance of behavioral changes in achieving long-term sustainability.

MONTH WISE CONSUMPTION OF ENERGY IN UNITS:



Key Observations:

- **Significant Variation:** There is a considerable variation in monthly electricity consumption, indicating a potential for optimization.
- **Peak Consumption:** June shows the highest electricity consumption, likely due to increased usage during the summer months.
- **Seasonal Trends:** Consumption generally increases during the summer months (June-August) and winter months (December-February) due to increased reliance on lighting.

RECOMMENDATIONS

The following recommendations are proposed to help Smt. Meenalben Mehta College, Panchgani to reduce its electricity consumption and costs:

ENERGY-EFFICIENCY MEASURES:

Replace traditional incandescent bulbs with energy-efficient LED lights.

Ensure regular maintenance and servicing of electrical equipment and systems.

Encourage staff and students to be mindful of electricity usage and turn off lights and appliances when not in use.

Improve insulation in buildings to reduce the load on heating and cooling systems.

Solar panel installation:

Consider installing solar panels on the campus to generate renewable energy and reduce dependence on the grid.

Energy-efficient appliances:

Replace old, energy-hungry appliances with energy-efficient models.

Look for ENERGY STAR-rated products, which are known for their energy efficiency.

Behavioral changes:

Conduct workshops and awareness programs on energy conservation to engage and inform the college community.

Educate students and staff about energy-saving habits and the importance of reducing energy consumption.

BENEFITS OF ENERGY EFFICIENCY

Implementing energy-efficient measures and practices can provide a number of benefits to Smt. Meenalben Mehta College, including:

Reduced electricity costs: Energy efficiency can lead to significant savings on electricity bills.

Improved environmental performance: Reduced energy consumption reduces greenhouse gas emissions and other pollutants, contributing to a more sustainable environment.

Enhanced comfort and productivity: Energy-efficient buildings and systems can create a more comfortable and productive learning environment for students and staff.

Increased resilience: Energy efficiency can help the college reduce its reliance on external energy sources and become more resilient to disruptions in the grid.

CONCLUSION

By adopting the recommendations outlined in this report, Smt. Meenalben Mehta College can achieve substantial energy savings, cost reductions, and environmental benefits. The college's commitment to energy efficiency and sustainability will also play an important role in inspiring and educating the next generation of environmental stewards.

In addition to the above recommendations, the following suggestions may be considered:

Conduct a detailed energy audit: This Audit report is based on the electricity bill provided hence required a more detailed energy audit can identify specific areas where energy efficiency improvements can be made.

Implement energy management software: Energy management software can help track electricity consumption, identify trends, and target areas for improvement.

Partner with energy efficiency experts: Partnering with energy efficiency experts can help the college develop and implement a comprehensive energy management plan.

Smt. Meenalben Mehta College has a significant opportunity to reduce its energy consumption and costs by implementing energy-efficient measures and promoting sustainable practices. By taking action, the college can achieve financial savings, improve its environmental performance, and create a more sustainable future for its students and staff.



A handwritten signature in blue ink, appearing to read "Zill".

HEAD
Department of Physics
Lal Bahadur Shastri College of
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GREEN AUDIT REPORT

(2023-24)

Smt. Meenalben Mehta College, Panchgani

(Arts, Commerce and Science)

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INTRODUCTION:

Green Audit is a process of identification, quantification, recording, reporting and analysis of components of green diversity and practices of institute within and outside of the concerned place, which will have an impact on the eco-friendly atmosphere. Green audit is a valuable means for a college to determine how and where they are using the most energy or water or other resources; the college can then consider how to implement changes and make savings. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development . The college has been putting efforts to keep our environment clean since its inception. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

- To map the Geographical Location of the college.
- To document the floral and faunal diversity of the college.
- To record the meteorological parameter
- To document the waste disposal system.
- To estimate the Energy requirements of the college.
- To report the expenditure on green initiatives during year.

METHODOLOGY:

- The purpose of the green audit of college is to ensure that the practices followed in the campus are in accordance with the Green Policy of the country. The methodology includes: collection of data, physical inspection of the campus, observation and review .

Study Area : Smt. Meenalben Mehta College, Panchgani is situated at NL: 17⁰92' 36"

EL: 73⁰79' 83" Area : 1.26 Hectors.

Criteria Utilized for its Assessment:

Sr. No.	Criteria/Parameter	Remarks
1	Documentation of Biodiversity (Protection, Conservation and its Management)	Yes , Documented
2	Plantation activities within and outside the Campus	Yes
3	Eco- friendly /Environmental friendly practice in institution	Yes
4	Documentary evidences of various activities related to environment	Yes
5	Total Area of Campus and Map for assessment	Yes
6	Soft and Hard Copy of Existing Campus Area	Yes
7	Mode of Environmental consciousness generated among students ,teaching staff, Non teaching staff	Yes(Lectures, Field Visits)
8	Data regarding 2/4 Wheelers	Yes.(08-four Wheelers , 42-Two Wheelers)
9	Existing Electricity Mode	MSEB
10	Total number of Staff and Students in the Campus	736
11	Number of Visitors/Year	600-800.
12	Waste Management Practice by Institution	Yes (Vermicomposting)
13	Effluent Plant	No

14	Hazardous Waste Management	No
15	Mode of Water Supply for drinking and for Garden	Yes, Corporation and Well
16	Water recycling	Yes
17	Rain Water Harvesting	Yes
18	Environment Policy of Institutor	Yes
19	Separate Financial allocation for Green Practices	Yes
20	Contribution of Institution for the Society, Farmers, NGOs, related With Environment	Yes

Total Area of Campus and Map for assessment



Documentation of Biodiversity (Protection, Conservation and its Management)

- **Lower Cryptograms:** *Species of Spirogyra, Nostoc, Riccia, Anthoceros, Plagiochasma, Polytrichum, Pogonatum, Funaria*
- **Herbs:** *Species of wild grasses, Oxalis, Phyllanthus niruri, Tradescantia sp., Catharanthus roseus*
- **Shrubs:** *Species of Crotalaria, Species of Bougainvella, Species of Hibiscus, Species of Mulberry, Species of Raspberry, varieties of roses, Ocimum tenuiflorum, Pandanus sp., Clerodendron serratum, Muntingia calabura, Nerium sp., Cestrum nocturnum, Duranta sp., Acalypha sp., Ipomea sp. Dracaena sp., Ficus benjamina, Crossandra infundibuliformis*
- **Trees:** *Bottle neck palm, Polyalthia, Mangifera, Plumeria, Ficus racemosa, Jacaranda sp., Syzygium cumini, Tectona grandis, Grevillea robusta, Samanea saman Eucalyptus sp., Casuarina Equisetifolia*
- **Endemic plants:** *Species of Smithia , varieties of Impatiens, varieties of Senecio*

Plantation activities within and outside the Campus:

- Tree Plantation within campus

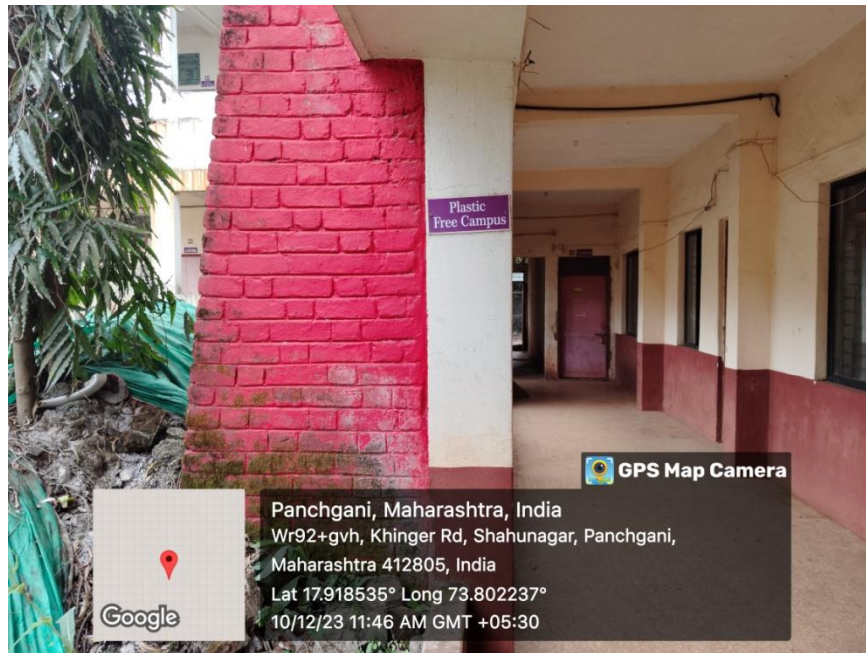


- Tree Plantation outside campus



- **Eco- friendly /Environmental friendly practice in institution**

No Plastic zone



- **Oxygen park is developed in college campus**



- **Mode of Environmental consciousness generated among students, teaching staff, Non teaching staff**

Sr. No.	Department	Activity	Date
1	Botany	Study Tour of B.Sc. I and B. Sc. II at Kas	05/11/2023
		Study tour B.Sc. I and B. Sc. III at Mahabaleshwar	28/01/2024
2	Zoology	Study Tour at Apiculture centre Mahabaleshwar	13/01/2024
		Visit to Bioflock Unit, Nashik	24/12/2023
			25/12/2023

- **Waste Management practice by college (Vermicomposting)**



Rain Water Harvesting and Water Recycling



Rain Water Harvesting and Water Recycling



Environmental Policy

Smt. Meenalben Mehta College, of Arts, Science & Commerce, Panchgani shows its sensitivity towards the environment by establishing its environmental policy.

The aims of the policy: The policy aims to eliminate or reduce all forms of environmental pollution and encourages all faculty members, staff, students and other stakeholders to do the same. The college always raises awareness of environmental issues among its staff, students, stakeholders and encourages initiatives leading towards a clean environment. Its academic departments, NSS unit, and Women empowerment cell works towards this aim collectively. The policy promotes the 3 R's for waste in the following order: Reduce, Reuse and Recycle and provide convenient waste collection points and guidance for the disposal of:

- a. Paper
- b. Cardboard
- c. Glass
- d. Plastic
- e. Electrical items and white goods

- f. Hazardous waste
- g. e-wastes

The college aims to minimize the consumption of water and thereby to contribute to the proper use of the natural resource by the following ways:

- a. Encourage reporting leaks and rectifying them promptly.
- b. Progressively replacing/supplementing water-taps in the staff room, washroom, etc. if needed.
- c. Exploring options for using waste/roof water wherever possible
- d. Establishing rainwater harvesting schemes in the old buildings of the campus
- e. Minimizes the consumption of electricity where opportunities arise by
- f. Progressive replacement of light bulbs with energy efficient ones
- g. Encouraging staff to turn off electrical appliances when not in use
- h. Conserving energy by promoting the use of daylight
- i. Conducting frequent preventive and corrective maintenance

Recommendations:

- Initiate paperless administration practices
- Increase use of clean energy source



Seal and Signature:

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