GREEN AUDITING

2023-2024

Malabar B.Ed Training College, Peravoor

AUDIT TEAM

External Audit Members:

- Dr. Geethanandan

  President, Kerala Sasthra Sahithya Parishad, Peravoor Mekhala

- Reena Manoharan

  Ward Member, Peravoor Gramapanchayat

Internal Audit Members

- Mrs. Indu K Mathew

  Principal, Malabar B.Ed Training College

- Mrs. Bhavya.K.K

  Assistant Professor, Natural Science Dept., Malabar B.Ed Training College

- Eco Club Members

Authentication

We hereby certify that an environmental audit has been conducted for Malabar B.Ed Training College, Peravoor with the aim of evaluating the eco-friendly initiatives and sustainable development practices implemented on the campus. The proactive measures and commendable actions taken by the college management towards fostering a sustainable green environment are deserving of high praise and recognition.

Dr. Geethanandan
President,
Kerala Sasthra Sahithya Parishad
Peravoor Mekhala

Reena Manoharan
Ward Member,
Peravoor Gramapanchayat

Mrs. Indu K Mathew
Principal,
Malabar B.Ed Training College

Acknowledgment

We would like to extend our sincere gratitude to the administration, faculty, staff, and students of Malabar B.Ed Training College for their cooperation and support throughout the audit process. Their commitment to sustainability and environmental stewardship has been instrumental in shaping the findings and recommendations presented in this report.

We extend our sincere appreciation to Sasthra Sahithya Parishad for their invaluable support and collaboration in conducting the green audit. Their expertise, dedication, and commitment to environmental stewardship have been instrumental in guiding us through the audit process and facilitating meaningful insights into our sustainability practices. Their partnership has not only strengthened our environmental initiatives but has also inspired a deeper commitment to fostering a greener and more sustainable campus community. We are truly grateful for their contributions and look forward to continued collaboration in our collective efforts towards a more environmentally responsible future.

Executive Summary

A green audit serves as a formal evaluation of a college's environmental impact, aiming to enhance existing practices and mitigate adverse effects on the environment. Across various institutions, diverse approaches, such as energy conservation, waste recycling, and water management strategies including harvesting, have been employed to preserve the campus environment. The green audit process entails documenting these initiatives while assessing the college's infrastructure, academic policies, and future sustainability plans. Green auditors conduct systematic assessments of an organization's environmental effects, culminating in the production of an environmental audit report. A clean and sustainable environment not only fosters effective learning but also provides a conducive atmosphere for academic growth.

The green audit acts as a valuable tool for colleges to identify areas of high energy or water consumption, enabling them to implement changes and achieve savings. Furthermore, it aids in assessing the volume and types of waste generated, facilitating recycling projects and waste minimization plans. Moreover, it fosters health consciousness and cultivates environmental awareness, values, and ethics among staff and students. By enhancing understanding of the environmental impact on campus, green auditing promotes financial savings through resource reduction and efficiency measures. It also offers an opportunity for personal and social development, instilling a sense of ownership and responsibility among students and teachers alike.

Hence, it is essential for colleges to evaluate their contributions towards a sustainable future. As environmental sustainability gains prominence nationally, the role of higher educational institutions in fostering environmental stewardship becomes increasingly relevant.

Chapter 1

Introduction

OVERVIEW OF THE COLLEGE

Malabar B.Ed Training College, located in Peravoor, Kannur, is a distinguished institution dedicated to providing quality education in the field of teacher training. Established with a commitment to excellence and innovation, the college offers comprehensive programs designed to nurture aspiring educators and prepare them for the challenges of the modern classroom. Our college illuminates and nurtures the competency and efficiency of students aspiring success in the field of Education.

The college boasts a sprawling campus equipped with state-of-the-art facilities and infrastructure conducive to holistic learning and professional development. From well-equipped classrooms and laboratories to modern amenities and recreational spaces, Malabar B.Ed Training College provides students with an enriching environment to pursue their academic goals.

Committed to fostering academic excellence and nurturing holistic development, the college offers a range of programs in teacher education, including Bachelor of Education (B.Ed) and Diploma in Education (D.Ed) courses. With a team of experienced faculty members and mentors, the college ensures that students receive personalized attention and guidance throughout their academic journey.

In addition to academic pursuits, Malabar B.Ed Training College places a strong emphasis on co-curricular and extracurricular activities to enhance students' overall growth and development. The college encourages participation in cultural events, sports activities, and community service initiatives, fostering a spirit of collaboration, leadership, and social responsibility among students

The college offers B.Ed course of two year duration comprising of core, elective papers and optional papers. It offers instruction in six optionals namely, English,Malayalam, Mathematics, Natural Science, Physical Science and Social Science. Apart from these optional papers, students also undergo practice teaching in schools. The college has a strength of 215 student teachers. The Institution boats of a well-e stablished library and a team of efficient and sincere teaching and non-teaching staff.

Our Vision

Professional prominence through value oriented education

Our Mission

To nourish intellectual, competent , committed teachers in the society.

Objectives

To mould the teachers to develop and practice innovative methods and strategies in teaching learning process.

To nourish value oriented teachers through teacher education.

To encourage the educationally backward /minorities sections of the society through outreach activities.

To empower the students through the development of integrated personality characterised by leadership qualities, commitment and ethical professionalism .

Core Values

Commitment

Social Responsibility

Morality

Boldness

Team spirit

Honesty

Total Campus Area & College

Malabar B.Ed Training College boasts a sprawling campus area that provides an enriching environment for academic pursuits and personal growth. Spanning across 5.23 acres, the college campus offers ample space for various academic, recreational, and administrative activities. Within this expansive campus, the constructed area comprises 2003.07 sq.m, encompassing state-of-the-art classrooms, laboratories, administrative buildings, student facilities, and green spaces. This well-planned infrastructure not only facilitates the delivery of high-quality education but also fosters a vibrant campus community. With modern amenities and meticulously designed facilities, Malabar B.Ed Training College provides students with an inspiring setting to pursue their academic goals and aspirations.

Campus Infrastructure

Main Block

Auditorium

Library

Laboratory

Conference hall

Common rooms

Computer room

Computer center

Cafeteria

Classrooms

Objectives of the audit

Assessment of Environmental Impact: Evaluate the college's overall environmental impact, including energy consumption, water usage, waste generation, and carbon emissions.

Identification of Areas for Improvement: Identify specific areas where the college can improve its environmental sustainability practices, such as energy efficiency measures, waste reduction strategies, and water conservation initiatives.

Compliance with Regulations: Ensure compliance with environmental regulations and standards set by regulatory bodies, local authorities, and governing agencies.

Cost Reduction: Identify opportunities for cost savings through energy efficiency measures, waste reduction, and resource optimization.

Promotion of Sustainability: Promote sustainability principles and practices among staff, students, and stakeholders, fostering a culture of environmental responsibility and stewardship.

Enhancement of Campus Environment: Improve the overall quality of the campus environment by implementing green infrastructure, landscaping, and sustainable building practices.

Community Engagement: Engage with the campus community and local stakeholders to raise awareness about environmental issues and solicit input and feedback on sustainability initiatives.

Long-Term Planning: Develop long-term sustainability goals and action plans to guide future efforts and investments in environmental sustainability.

Chapter 2

Methodology

The audit process involved a multi-faceted approach, combining on-site inspections, stakeholder interviews, and document reviews to gain a comprehensive understanding of the college's environmental impact. On-site inspections encompassed a thorough assessment of energy systems, waste management facilities, water usage, and transportation infrastructure across campus. Stakeholder interviews were conducted with faculty, staff, and students to gather insights into current practices and identify areas for improvement. Additionally, document reviews were conducted to analyze utility bills, waste disposal records, and existing sustainability policies. By employing a diverse range of methods, the audit aimed to provide a holistic assessment of the college's environmental practices.

Field visit:

The objective of the field visit was to assess biodiversity across various sources and evaluate waste management practices. The environmental audit team conducted field visits at specific intervals, gathering data on various indicators

Group discussion:

Group discussions were organized involving the Eco Club, NSS, faculty members, office staff, and management to deliberate on various strategies pertaining to the target areas.

3. Survey

The environmental audit team conducted comprehensive surveys covering various aspects of target areas by distributing survey forms under different categories. All departments, offices, the canteen, and the library actively participated in the detailed questionnaire study

4. Observation

Auditors directly observe processes, activities, and controls in action to assess their effectiveness and identify any deviations from expected practices.

Chapter 3

Energy Consumption

Malabar B.Ed Training College's energy usage is a significant aspect of its operational footprint. Through an assessment of electricity consumption and HVAC systems, it's evident that energy efficiency is a pertinent area for improvement. Traditional lighting fixtures and suboptimal air conditioning practices contribute to unnecessary energy expenditure. Transitioning to energy-efficient LED lighting and optimizing HVAC systems can yield substantial cost savings and reduce the college's environmental impact. By implementing targeted measures and fostering awareness among staff and students, Malabar B.Ed Training College can enhance its energy efficiency and contribute to a sustainable future

Electricity Usage

The audit revealed that Malabar B.Ed Training College's electricity consumption is disproportionately high compared to similar institutions of its size. This can be attributed to several factors, including outdated lighting fixtures, inefficient air conditioning systems, and a lack of energy conservation measures. Many classrooms, administrative buildings, and dormitories are equipped with traditional incandescent or fluorescent lighting, which consume more energy than modern LED fixtures. Similarly, the college's air conditioning systems are often operated inefficiently, leading to unnecessary energy expenditure. To address these issues, the college should prioritize the replacement of outdated lighting fixtures with energy-efficient LED alternatives. LED lighting not only consumes less energy but also has a longer lifespan, reducing maintenance costs in the long run. Additionally, implementing occupancy sensors and automated lighting controls can further optimize energy usage by ensuring that lights are only activated when needed. Similarly, optimizing air conditioning settings, conducting regular maintenance, and investing in energy-efficient HVAC systems can help reduce the college's overall electricity consumption.

Renewable Energy

While the college currently relies solely on grid electricity, there is significant potential for the adoption of renewable energy sources such as solar power. Peravoor experiences abundant sunlight throughout the year, making it an ideal location for solar energy generation. By installing solar panels on rooftops and open spaces across campus, the college can generate clean, renewable energy while reducing its reliance on fossil fuels.

A feasibility study should be conducted to assess the technical, financial, and regulatory aspects of solar panel installation. This study should consider factors such as available sunlight, roof orientation, installation costs, potential energy savings, and available incentives or rebates. Based on the findings of the feasibility study, the college can develop a strategic plan for implementing solar energy solutions. Additionally, exploring partnerships with renewable energy providers and government agencies can help facilitate the transition to renewable energy sources.

Waste Management

At Malabar B.Ed Training College, waste management is a critical aspect of campus operations. The college generates various types of waste, including paper, plastic, food, and electronic waste, which require careful management to minimize environmental impact. Through an assessment of current waste generation practices, it's evident that there are opportunities for improvement in waste reduction and recycling

initiatives. By implementing strategies such as paper reduction, plastic ban, food waste management, and e-waste recycling, the college can enhance its waste management practices and contribute to a cleaner, more sustainable campus environment. Collaboration among staff, students, and local waste management agencies will be essential for the successful implementation of these initiatives

Waste Generation

The audit identified significant opportunities for reducing waste generation and promoting recycling initiatives at Malabar B.Ed Training College. Paper waste, in particular, was found to be a major contributor to the college's overall waste stream. Administrative tasks, academic activities, and campus events all generate substantial amounts of paper waste, much of which could be avoided through the adoption of digital alternatives.

To minimize paper consumption, the college should implement digital solutions for documentation, communication, and academic materials wherever feasible. This could include transitioning to electronic document management systems, promoting electronic submission of assignments and forms, and utilizing online platforms for announcements and communication. Additionally, providing incentives for faculty and staff to go paperless, such as training workshops or recognition programs, can help drive behavior change and promote sustainability.

Plastic Usage

Single-use plastics were also identified as a significant environmental concern at the college. Disposable cutlery, cups, and packaging materials are prevalent in campus cafeterias, vending machines, and convenience stores, contributing to plastic pollution and environmental degradation.

To address this issue, the college should institute a comprehensive ban on single-use plastics and transition to biodegradable or compostable alternatives. This could include replacing plastic cutlery and cups with reusable or compostable alternatives, phasing out plastic packaging in campus stores, and encouraging students to bring their own reusable containers and water bottles. Additionally, the college should work with vendors and suppliers to source eco-friendly packaging materials and incentivize the use of sustainable alternatives through discounts or rewards programs.

Water Conservation

Water conservation measures at Malabar B.Ed Training College play a crucial role in promoting sustainability and minimizing environmental impact. Through an assessment of current water usage patterns, it's evident that there are opportunities for implementing water-saving initiatives across campus. By prioritizing the installation of water-efficient fixtures, such as low-flow toilets and faucets, the college can significantly reduce water consumption without compromising on functionality or hygiene standards. Additionally, implementing smart irrigation systems and adopting drought-resistant landscaping practices can help minimize water usage for landscaping and outdoor recreational areas. Educational campaigns and awareness programs can further promote water conservation practices among staff, students, and the wider campus community. By embracing water conservation measures, Malabar B.Ed Training College can demonstrate its commitment to environmental stewardship and contribute to a more sustainable future.

The audit revealed opportunities for improving water conservation practices at Malabar B.Ed Training College. While the college relies on municipal water sources for its water supply, there are several areas where water usage could be optimized to reduce waste and promote sustainability.

Water Usage

The college's water consumption is primarily driven by sanitation facilities, landscaping irrigation, and recreational activities. While these are essential aspects of campus life, there are opportunities for optimizing water usage and minimizing waste.

To reduce water consumption, the college should prioritize the installation of water-efficient fixtures such as low-flow toilets, aerated faucets, and sensor-operated urinals. These fixtures can significantly reduce water usage without compromising hygiene standards or user experience. Additionally, implementing smart irrigation systems and drought-resistant landscaping techniques can help minimize water usage for landscaping and outdoor recreational areas.

Awareness and Education

In addition to implementing water-saving technologies, the college should also invest in awareness and education initiatives to promote responsible water usage among students, faculty, and staff. This could include educational workshops, signage, and outreach campaigns to raise awareness about the importance of water conservation and provide practical tips for reducing water waste. By fostering a culture of conservation and sustainability, the college can empower its community members to take proactive steps towards preserving this vital resource.

Transportation

Vehicle Emissions

The audit identified transportation as a significant contributor to the college's overall environmental impact. Many faculty, staff, and students commute to the college using personal vehicles, leading to increased carbon emissions, air pollution, and traffic congestion in the surrounding area.

To address this issue, the college should prioritize initiatives to promote sustainable transportation options and reduce reliance on single-occupancy vehicles. This could include implementing carpooling programs, providing incentives for carpoolers such as preferred parking or discounted parking permits, and organizing transportation events such as bike-to-campus days or public transit fares.

Sustainable Commuting

In addition to promoting carpooling, the college should also invest in infrastructure and amenities to support alternative modes of transportation such as cycling and public transit. This could include installing bike racks, bike repair stations, and secure bicycle storage facilities on campus, as well as providing information and resources about public transit routes, schedules, and fares.

By making sustainable transportation options more accessible and appealing, the college can encourage members of its community to reduce their carbon footprint and embrace eco-friendly commuting habits.

Climatic Parameters

Peravoor, located in Kannur district of Kerala, experiences a tropical climate typical of the region. Here's a detailed description:

Temperature: Peravoor enjoys warm temperatures throughout the year. The average annual temperature ranges from 25°C to 35°C. Summers, from March to May, are particularly hot and humid, with temperatures often soaring above 30°C. The monsoon season, from June to September, brings relief from the heat but also heavy rainfall. The winter months, from December to February, are cooler with temperatures averaging around 22°C.

Rainfall: Peravoor receives abundant rainfall due to its proximity to the Western Ghats and its coastal location. The southwest monsoon, which arrives in June and lasts until September, brings heavy rainfall, with the region receiving around 3000 to 4000 mm of rain annually. The northeast monsoon, from October to December, also contributes to the rainfall.

Humidity: Humidity levels are generally high throughout the year, especially during the monsoon season. Humidity levels can reach up to 90% during rainy months, making the weather feel even warmer.

Seasons:

Summer (March to May): Hot and humid weather prevails, with temperatures often reaching above 30°C.

Monsoon (June to September): Heavy rainfall characterizes this season, with occasional thunderstorms. The region becomes lush and green during this time.

Post-monsoon (October to December): Rainfall decreases gradually, and temperatures start to cool down slightly.

Winter (December to February): Cooler temperatures prevail during this period, with occasional showers.

Natural Disasters: Being in a tropical region, Peravoor is susceptible to natural disasters like cyclones and floods, especially during the monsoon season. Adequate measures are taken by local authorities to mitigate risks and ensure the safety of residents.

Overall, Peravoor's climate is tropical and characterized by high temperatures, heavy rainfall, and humidity throughout the year, making it a lush and verdant region with rich biodiversity

Biodiversity Status

Kerala's tropical climate and rich biodiversity make it a perfect environment for a wide variety of shrubs and plants to thrive. The below mentioned are commonly found in college campus, adding beauty and color to the surroundings. The lush greenery and vibrant blooms of these shrubs contribute to the natural beauty of the region.

Table 1. List of Tree/Shrubs/Herbs species found in the campus

S. No.	Botanical Name	Common Name
Trees		
1.	*Tectona grandis,*	Teak

2.	*Couroupita guianensis*	Nagalinga pushpam
3.	*Cocos nucifera*	Coconut Tree
4.	*Carica papaya*	Papaya
5.	*Tamarindus indica*	tamarind tree
6.	*Arecaceae spp.*	Adakka
7.	*Artocarpus heterophyllus*	Jackfruit Tree
8.	*Mangifera indica*	Mango Tree
9.	*Phyllanthus emblica*	Gooseberry/ nelli
10.	*Azadirachta indica*	Neem Tree
11.	*Anacardium occidentale*	Cashew Tree
12.	*Musa spp.*	Banana Plant
13.	*Murraya koenigii*	Curry Leaf Tree
14.	*Hibiscus rosa-sinensis*	Hibiscus
15.	*Cassia fistula*	Kanikonna
16.	*Earleaf acacia*	Acacia
Shrubs		
17.	*Lantana camara*	Aripoo
18.	*Ixora coccinea*	Ixora
19.	*Bougainvillea spectabilis*	Bougainvillea
20.	*Mussaenda spp.*	Mussaenda
21.	*Ricinus cummunis*	
Grasses/Herbs		
22.	*Cynodon dactylon*	Bermuda grass
23.	*Cymbopogon citratus*	Lemongrass
24.	*Curcuma longa*	Turmeric

Table 2. List of Birds found in and around the Campus

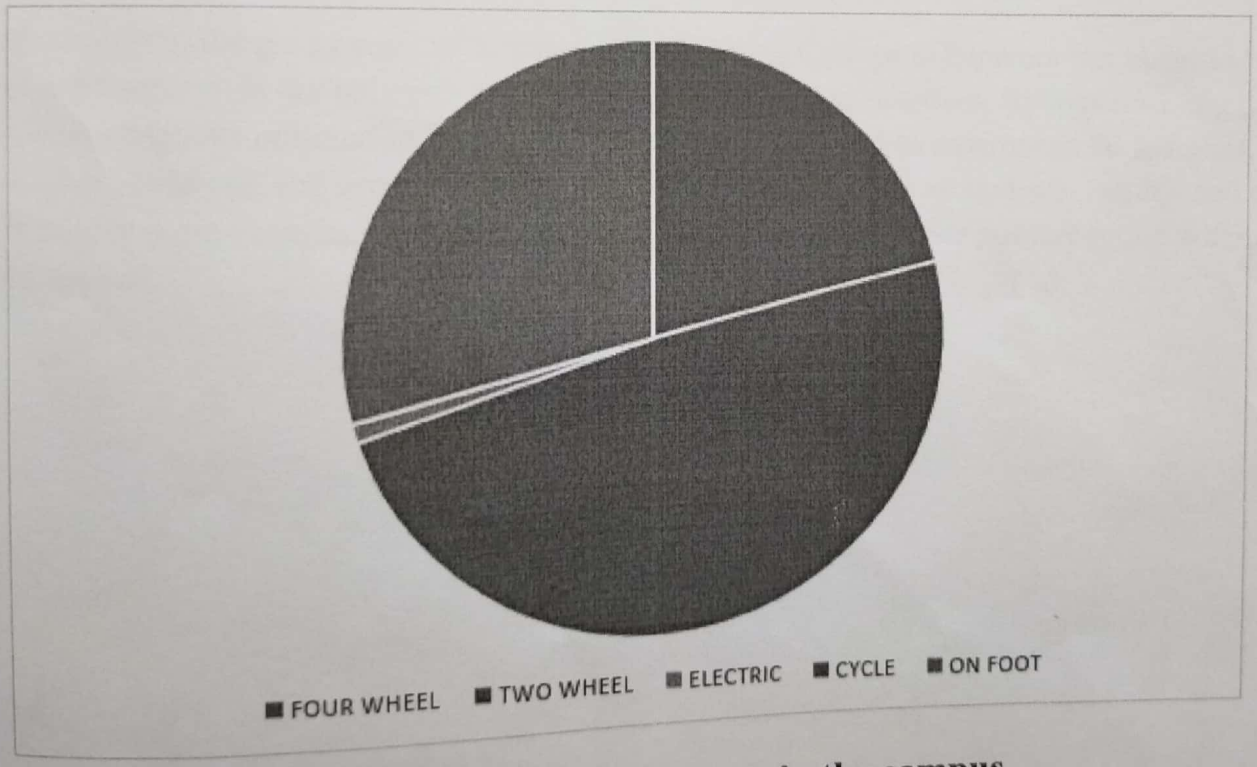
S. No.	Zoological Name	Common Name
1.	*Acridotheres tristis*	Common Myna
2.	*Passer domesticus*	House Sparrow
3.	*Corvus splendens*	House Crow
4.	*Milvus migrans*	Black Kite
5.	*Acritillas indica*	Yellow-browed Bulbul
6.	*Saxicoloides fulicatus*	Indian Robin
7.	*Alcedo atthis*	Common Kingfisher
8.	*Psittacula cyanocephala*	Plum Headed Parakeet
9.	*Psittacula krameri*	Rose Ringed Parakeet
10.	*Aquila nipalensis*	Steppe Eagle
11.	*Aethopygasiparaja*	Crimson Sunbird

Table 3. List of Butterflies found in and around the campus

S. No.	Zoological Name	Common Name
1.	*Pachliopta aristolochiae*	Common Rose
2.	*Papilio polytes*	Common Mormon
3.	*Graphium doson*	Common Jay
4.	*Delias cucharis*	Common Jezebel
5.	*Catopsilia crocale*	Common Emigrant
6.	*Eurema hecabe*	Common Grass Yellow
7.	*Pareronia hippie*	Indian Wanderer
8.	*Danaus genutia*	Striped Tiger

Table 4. List of Reptiles found in and around the campus

S. No.	Zoological Name	Common Name
1.	*Varanus spp.*	Monitor Lizard
2.	*Calotes spp.*	Garden Lizard
3.	*Hemidactylis spp.*	Common House Gecko
4.	*Ptyas mucosus*	Rat Snake
5.	*Bangaru caeruleus*	Common Kraits
6.	*Chamaeleo zeylanicus*	chameleon



Use of vehicle in the campus

Chapter 4

Findings

Numerous measures are taken to promote environmental sustainability, including limiting vehicle access on campus to stakeholders only.

Creating green corridors, planting native trees and shrubs, and establishing wildlife-friendly habitats to support local biodiversity by students.

Integrating sustainability into the curriculum, organizing environmental awareness campaigns and workshops, and establishing a sustainability committee to oversee campus-wide initiatives and promote environmental stewardship.

Increasing the number of trees planted within the campus

Students contribute to the upkeep of plants on campus.

Students are motivated to utilize public transportation through the utilization of bus fare concessions provided by the Government of Kerala.

Conclusion

In conclusion, the green audit of Malabar B.Ed Training College in Peravoor has identified several key areas for improvement in the college's environmental sustainability practices. By implementing the recommendations outlined in this report, the college can reduce its environmental footprint, conserve valuable resources, and promote a culture of sustainability among its students, faculty, and staff. By embracing these changes, the college can lead by example and inspire positive action within its community and beyond.