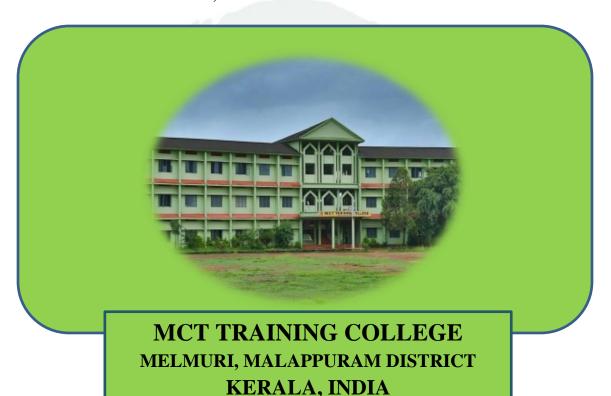


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GREEN AUDIT REPORT

Prepared for

MCT TRAINING COLLEGE MELMURI, MALAPPURAM DISTRICT















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GREEN AUDIT REPORT - MCT TRAINING COLLEGE,

MELMURI, MALAPPURAM, KERALA

Prepared for MCT Training College, Malappuram.

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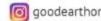
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DATE:15/08/2024

AUDIT CERTIFICATE

PRESENTED TO

MCT TRAINING COLLEGE

Has been assessed by the GEO for the comprehensive study of institutional working framework, to fulfil the requirement of

GREEN AUDIT

The efforts taken for the biodiversity conservation of the institution have been verified in the report submitted and were found to be satisfactory. The efforts taken by the management and faculty towards all measures taken for the conservation-oriented actions taken in the institution are highly appreciated and found remarkable.





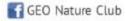




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ACKNOWLEDGEMENTS

The Wildlife Research and Conservation Trust extends its gratitude to the management of MCT Training Collegefor entrusting us with the important task of conducting a Green Audit. We are grateful for the cooperation of the entire team at MCT TRAINING College, which was essential for the successful completion of the assessment.

Firstly, we would like to thank Mr. M.P Abdussalam, the Principal; Sayed Rasheedali Shihab Thangal, chairman; K.P Attakoya Thangal, General Secretary; P.K Kunhu, Vice Chairman and Mr. K Abu Haji Vice Chairman, for their support and forward-thinking approach. Special thanks to Ms. Smitha C.P, IQAC Coordinator, for her continuous support and guidance. We also appreciate the efforts of all the staff members who actively participated in data collection and sampling. Additionally, we are thankful to the students and non-teaching staff at MCT Training College.

Lastly, we extend our thanks to the management committee for permitting us to evaluate the campus's greenery. The WRCT Green Audit Team has prepared this Green Audit Report for MCT based on the conducted surveys.



TRAINING COLLEGE ELMURI, MALAPPURAM





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ABOUT THE COLLEGE

MCT Training College was established in 1995 in the self-financing sector to impart quality education and to mould graduates well-versed in modern science and professionally competent, socially responsible and morally sound citizens. The college primarily offers the Bachelor of Education (B.Ed.) program, focusing on training students to become professional educators. Over time, it may have expanded its offerings in line with changes in the educational landscape, though the B.Ed. program remains central to its mission. The college is affiliated with the University of Calicut, and its academic programs are approved by the National Council for Teacher Education (NCTE). The performance of the students in university examinations is excellent. New initiatives have been taken up to build a centre of academic excellence.

MCT Training College is a self financing college recognized by the Govt of Kerala and affiliated to the University of Calicut. It is run by the Muslim Cultural Trust. The college was established in 1995 with a main objective of uplifting the educationally back ward Muslims and other back ward communities in particular and all other communities in general, moulding them professionally competent, socially responsible and morally sound citizens. The main college building, which encapsulates a blend of natural beauty and eco-friendliness, stands on a vast expanse of 5.63 acres of scenic land located we kilometers from Alathurpadi, a key town along the Kozhikode-Malapparam Highway. This serene and expansive setting provides an ideal environment conducive to academic endeavors and the AM scholarly pursuit of knowledge.











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The campus spans 5.63 acres and is encircled by lush greenery and hillocks. The college offers the best setting for learning because of its tranquil mood and picturesque surroundings. The College is committed to making special provisions for integrated and interdisciplinary courses, educating and training human resources for the country's development, initiating appropriate measures for promoting innovation in teaching and learning and paying special attention to mproving the social and economic conditions and welfare of the people, especially about their intellectual, academic and cultural development.







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CONTEXT OF GREEN AUDIT

Since the academic year 2019-20, all higher education institutions are required by the National Assessment and Accreditation Council, New Delhi (NAAC) to submit an annual Green, Environment, and Energy Audit Report. Green Audit falls under the purview of Criteria 7 of the National Assessment and Accreditation Council (NAAC), an autonomous Indian body that designates educational institutions based on their accreditation results. Furthermore, ensuring that higher education institutions take steps to reduce their carbon footprint and therefore help mitigate global warming is part of their Corporate Social Responsibility.

The management of the College decided to hire a qualified external professional auditor to perform an external environment assessment study in light of the NAAC circular on green auditing. Examining environmental behaviors that affect the atmosphere either directly or indirectly both inside and outside of the campus is the goal of the green audit. The term "green audit" refers to the methodical identification, measurement, documentation, reporting, and analysis of institutional environment components. It was started to examine the actions taken by the institutions whose operations could endanger the environment and the people's health.

The green audit can guide how to enhance the environment's structure and incorporate various elements that safe goard the environment. This audit focuses on the institution's implementation of the Green Campus, Management, Water Management, Air Pollution, Energy Management, and Cart Footprint, among other things. Belowwill a discussion of the principles, organization, goals, analysis tools, methodology, and audit objectives.









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INTRODUCTION

Educational institutions are increasingly becoming more environmentally conscious, leading to innovative strategies to make them eco-friendly and sustainable. Various methods are employed to address environmental concerns, such as promoting energy conservation, recycling waste, reducing water consumption, and harvesting rainwater. However, the operations of these institutions can still negatively impact the environment.

A green audit is a formal evaluation of a college's environmental impact, aimed at assessing the current environmental situation on campus. This audit helps the institution identify the areas where it uses the most energy, water, or other resources, enabling it to make informed decisions about adjustments to save money. It also helps in understanding the type and amount of waste generated, which can be useful for improving waste minimization plans or recycling initiatives.

The implementation of mitigation measures and green audits benefits not only the institutions but also the students and the environment. It raises awareness of health issues, promotes environmental consciousness, and instills values and ideas. Both staff and students gain a better understanding of the institution's environmental impact. Green auditing helps maintain special by optimizing resource use and offers opportunities for educators and learners to take responsibility for their personal and social duties. The and process in wolves primary data collection, site visits with college staff, and an explustion of policies, procedures, documentation, and records.









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EXECUTIVE SUMMARY

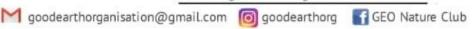
Green auditing is an essential first step in determining whether an institution's actions are ecologically sound and sustainable. While we have traditionally been conscientious and productive stewards of the environment, over time, the overuse of resources like gasoline, electricity, and water has become commonplace, especially in urban and semi-urban areas. It is now critical to assess if our processes are consuming more resources than necessary and to evaluate whether we are using our resources wisely.

Green audits standardize these procedures, offering an effective approach to utilizing natural resources. In light of resource depletion and climate change, it is crucial to reevaluate our practices and transform them into green and sustainable ones, a task that green audits facilitate. They also enhance the overall understanding of environmental sustainability among those working in the organization.

This is the initial attempt to conduct a green audit to ensure that the College campus meets NAAC requirements. The audit primarily focused on greening indicators such as the campus's carbon footprint, waste management practices, soil and water quality, vegetation, and energy and fossil fuel consumption. To collect data on the resources available on campus the resource consumption habits of college staff and students, a questignaire was invitally distributed. MALAPPURAM

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RELEVANCE OF GREEN AUDIT REPORT

This Green Audit Report provides a crucial assessment of the environmental practices, sustainability metrics, and eco-conscious ethos at MCT Training College, Edavanna Kerala. Conducting this green audit is essential to align with the college's dedication to environmental stewardship and sustainability in higher education.

The significance of performing such a comprehensive green audit at MCT Training College is multifaceted. It offers a systematic approach to evaluate the efficiency of resource usage on campus, measure the ecological impact of its operations, and highlight the relationship between the college and its surrounding natural environment. The audit provides an in-depth understanding of the college's carbon footprint, waste management, energy conservation, water resource utilization, and biodiversity. It is crucial for:

Enhancing Environmental Performance: By identifying current performance benchmarks, the green audit serves as a guide to further improve the college's environmental sustainability and performance outcomes.

Compliance and Governance: The audit ensures that the college adheres to environmental regulations and governance standards, mitigating legal risks and reinforcing ethical accountability.

Educational Opportunities: As an educational institution, the audit offers practical insights into sustainability.

Pin: 676 517 invaluable learning experience for students, enriching their academic pursuit

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Informed Decision Making: The insights generated through the green audit inform strategic planning and decision-making, aligning campus operations with best practices in environmental management.

Community Engagement: By demonstrating the college's commitment to a green future, the audit fosters a culture of environmental awareness and engagement among students, staff, and the broader community.

Resource Optimization: The audit identifies areas where resources can be used more effectively, leading to significant cost savings and operational efficiencies.

Benchmarking and Progress Tracking: It allows the college to set benchmarks in sustainability and track progress against established goals, ensuring continuous improvement.

Positive Institutional Image: The commitment to conducting a green audit and acting upon its findings enhances the college's reputation as a responsible and forward-thinking institution.

Through this Green Audit Report, MCT Training Collegepledges to continue its legacy of academic excellence while nurturing a green and sustainable campus that contributes positively to global environmental efforts.



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METHODOLOGY-SUMMARY

Identification of vegetation about the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in the core and buffer zones. The plant species identification was done based on the reference materials and also by examining the morphological characteristics and reproductive materials i.e. flowers, fruits and seeds. The faunal elements (animal species) of the core and buffer zone were identified by direct sightings or indirect evidence viz. pug marks, skeletal remains, feathers, scats and droppings etc. (Jayson and Easa 2004). Standard binocular was used for the observations. The authenticity of faunal elements occurrence was confirmed by interaction with the local people. Avifauna identification was done with pictorial descriptions of published literature. Information about the existence of any migratory corridors and paths was obtained from local inhabitants. The status of each faunal element was determined and the wildlife schedule category was ascertained as per the IUCN-Red Data Book and Indian Wildlife (Protection) Act, 1972.

The plot method is used in the floral documentation in the core and buffer zones. For trees (10x10-m), shrubs (5x5-m) and herbs (1 xl-m) plots were taken. Birds and butterflies were mainly focused during faunal assessment, transect method was employed for birds and butterflies. A transequisca with along which one counts and Astraight-line walk covering records the occurrence of an individual for study. desired distance, within a period of one hours to 30 minutes was carried out in the proposed region. Bird species were recorded during the hours of peak activity 0700 to 1100 Hrs and 1430 to 1730 Hrs (Bibby et al. 2000). Direct observations and bird







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calls were used for bird documentation. The same transects were used for counting butterflies. Opportunistic observations were made for Amphibians, reptiles and odonates. The presence of mammals was recorded by direct and indirect signs. All possible transects were taken for birds and butterflies. Birds and butterflies were classified into species level. Recorded bird species were identified at the species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

SAMPLING

A stratified simple random sampling procedure was employed to obtain a sample from the study area. The study area was further stratified into different landuse/ecosystems

Sampling Size

Keeping in mind both the random sampling technique and covering all land use patterns for the study following sampling locations were chosen depending on the area of the proposed site.

Timing of Study

The study was carried out during morning and evening hours, to cover the different activity phases for important species such as resting, feeding, hunting, and daily movements. MALAPPURAM

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Observations from Sampling

The various observations relating to flora and fauna species are discussed in detail below, in separate sections.

Equipment/ References Used

- o Canon Mark III Camera with 50-500mm lens— Snap shots taken
- Leica Binoculars (8x20) to spot/identify species
- o IUCN Red Data Book https://www.iucnredlist.org/species
- o Ornithological/Entomological/Herpetological/Mammalian catalogues pictorial descriptions from various authors and sites followed forspecies identification

Standard protocols were followed for fauna and flora surveys are as follows.

PARTIFIED SAMPLING TECHNIQUES

Observational methods- Mammals

We employed two types of observational methods for the recording of mammals:

(1) direct observations, and (2) recording occurrences such as holes, markings,

scats, hairs and spines (Menon 2003). Photographs, including a scale reference,

were used for identification confirmations, and localities were recorded with a

handheld GPS unit. Sometimes indigenous knowledge (especially from locals) was

also used to prepare a preliminary list species and or help with the identification

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of signs.



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Visual Encounter Survey (VES) - reptiles and amphibians

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed period (Campbell and Christman, 1982). The result of VES is measured against the time spent on the search. VES technique is one of the simplest methods and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

Transect walk — Birds

Five transect lines with varying length (100m-300m) and fixed width (2m) were laid which cuts through the core and peripheral areas of the proposed region. The transect surveys were conducted from 0700 to 1100 hours and 1430 to 1730 hours (Bibby et al. 2000). All avifauna found along these transects were recorded for analysis of the data. Counts were conducted while there was no heavy rain, mist or strong wind.

Modified Pollard Walk — for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method was employed to investigate butterfly spatial distribution, diversity and abundance at the different survey sites as used in previous studies on tropical butterflies.

Multiple Stage Quadrat — Vegetation

A range of habitat or vegetation structure variables were measured using the standard sampling protocol called Multiple Stage Quadrat (Sykes and Horrill 1977). Sampling took place in all those areas, which occupied an area with the major corners temporarily demarcated with colour rippons, Each site was located in the field with a compass and clinometer and subsequently latitude, longitude and elevation of the plot were recorded with a handheld Global Posttoning System (Garm in 12XI)









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FLORA

Each of the plots has been examined for representative flora on randomly sampled quadrats for trees (10x 10-m), shrubs (5x5-m) and herbs (1x 1-m) depending upon prevailing geographical conditions and bio-diversity aspects of the study area.

PART II DATA ANALYSIS

Because of differing sample sizes from landscapes, species diversity, richness and evenness were calculated using the statistical package— Species Diversity & Richness (SDR) programme (Pisces Conservation LTD). For comparisons of mean species diversity among the sites program BioDiversity Pro (McAleece et al. 1997) was used. We estimated diversity in terms of species richness and evenness, as well as using the Shannon Weaver index, which combines richness and abundance into a single measure (Magurran 1988).

Shannon-Wiener Index is defined and given by the following function:

$$H = \sum [(pi) \times In(pi)]$$

Where —

- o pi = proportion of total sample represented by species ii. Divide no. of individuals of species I by the total number of samples.
- \circ S = number of species, = species richness
- Hmax=ln(S) Maximum diversity possible
- \circ E = Evenness = H/Hmax

To examine the association between regetation empositions across different plots, the Bray—Curtis index of similar (Bray and Cortis 1957; expressed equivalently as dissimilarity by subtraction from 100) was calculated pairwise for all sites from pooled data for vegetation adopted from and Warwick (1994).

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Main Gate of the College



Main Block of the College, view from Playing Ground





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College Assembly Area









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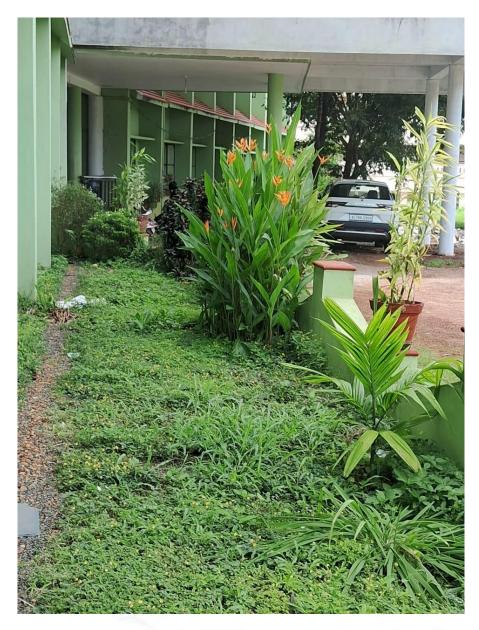


Image showing the compared surrounding vegetation



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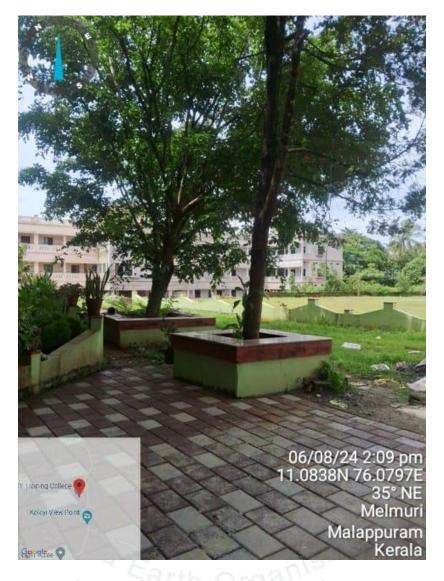


Image showing the campus and surrounding vegetation





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Images showing the campus and surrounding vegetation









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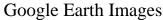








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Google Earth Images









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FINDINGS/RESULTS

The assessment was conducted during the summer season, under favorable weather conditions. The details of the flora and fauna observed are as follows:

Species Richness of Mammals

The survey was conducted within the proposed area, including the buffer zone. The survey team reported three species of mammals. Notably, two individuals of the Indian Palm Squirrel (Funambulus palmarum) were observed (Table 1).

Species Richness of Reptiles

The reptiles recorded at the site included two individuals of Psammophilus dorsalis, one individual of Ptyas mucosa, and three individuals of Calotes versicolor (Table 2).

Species Richness of Birds

Bird species were recorded based on actual sightings and calls along five transects within the proposed site. A total of twenty-eight (28) bird species were documented while surveying along four transect lines. Six (6) species were identified through calls, while the remaining were observed directly (Table 3).

Species Richness of Butterflies

A total of twenty-two (22) species of butterflies were recorded at the

study site. The list of observed species is Grownled in Table (4).

Fauna Recorded from the Proje

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MALAPPURAM





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Table 1: List of Mammals recorded in the study area

Sl. No	Scientific name	Common name	Status	Count	Remark
1	Funambulus	Indian Palm	LC	2	
	palmarum	Squirrel			

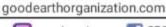
Table 2: List of Reptiles recorded in the study area

S1.	Scientific name	Common name	Status	FN	AN
No				count	count
1	Psammophilus	South Indian rock	LC	2	0
	dorsalis	agama			
2	Calotes	Garden lizard	LC	1	3
	versicolor	Q.		- 17	
3	Ptyas mucos'a	Indian rat Snake	LC	1	0

Table 3: List of Birds recorded in the study area

S1.	Scientific name	Common name	Status	FN count	AN
No					count
1	Gallus	Grey Jungle fowl	LC	2	0
	sonneratii		1681		
2	Spilornis cheela	Crested serpent	LC	0	1
	cheela	eagle			
3	Haliastur indus	Brahminy kite	LC	1	0
4	Corvus splendens	House erow Co	LC	2	Sur

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Si. No	Scientific name	Common name	Status	FN count	AN count
5	Spilopelia chinensis	Spotted dove	LC	2	2
6	Copsychus soularis	Oriental Magpie Robin	LC	3	2
7	Saxicoloides fulicatus	Magpie Robin	LC	2	1
8	Dendrocitta vagabunda	Rufous Treepie	LC	2	2
9	Centropus sinensis	Greater coucal	LC	1	2
10	Acridotheres tristis	Common Myna	LC	2	2
11	Turdoides striata	Jungle Babbler	LC	2	4
12	Turdoides affinis	Yellow billed Babbler	LC	4	5
13	Chloropsis aurifrons	Golden-fronted Leafbird	LC	2	1
14	Pycnonotus jocosus	Red- whiskered	LC .	2	3
15	Pycnonotus cafer	Red-vented Bulbul	LC	2	2

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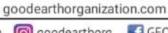


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Si.	Scientific name	Common name	Status	FN count	AN
No					count
16	Acritillas indica	Yellow-browed Bulbul	LC	1	1
17	Psilopogon viridis	White-cheeked barbet	LC	0	2
18	Pericrocotus speciosus	Scarlet Minivet	LC	2	4
19	Ptyonoprogne concolor	Dusky crag martin	LC	2	2
20	Merops orientalis	Green bee eater	LC	1	3
21	Oriolus xanthornus	Black-hooded Oriole	LC	2	1
22	Cyornis tickelliae	Tickell's blue flycatcher	LC	3	4
23	Dicrurus macrocercus	Black Drongo	LC	2	2
24	Dicrurus paradiseus	Greater rackettailed Drongo	LC	3	1
25	Leptocoma zeylonica	Purple-rumped Sunbird	LC	1	1
26	Cinnyris asiaticus	Purple sunbird	LC	2	1
27	Orthotomus sutorius	Tailorbird	LC	2	3
28	Lonchura straita	Munia Munia	LC (Sur	4
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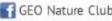
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Table 4: List of Butterflies recorded in the study area

SI. No	Scientific name	Common Name	Status	FN count	AN count
1	Papilio polymnestor	Blue Mormon	LC	2	1
2	Troides minos	Southern Birdwing	LC	1	3
3	Pachliopta	Common Rose	LC	2	1
4	Delias eucharis	Common Jezebel	LC	2	2
5	Graphium	Tailed Jay	LC	2	2
6	Graphium sarpedon	Bluebottle	LC	1	0
7	Eurema hecabe	Common grass yellow	LC	3	4
8	Eurema blanda	Three spot Grass yellow	LC	2	2
9	Euploea core	Common Crow	LC	1	2
10	Catopsilia Pomona	Common Emigrant	LC	2	2
11	Hypolimnas bolina	Great Eggfly	LC	_ 1	2
12	Acraea terpsicore	Tawny Coster	LC	2	4
13	Neptis hylas	Common Sailer	LC	3	2
14	Junonia iphita	Chocolate Pansy	LC	2	4
15	Ypthima huebneri	Common Four ring '	LC	4	2
16	Tirumala limniace	Bluninger Co	LC		40

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SI. Na.	Scientific name	Common Name	Status	FN count	AN count
17	Ariadne merione	Common Castor	LC	2	3
18	Danaus chrysippus	Plane Tiger	LC	2	4
19	Danaus genutia	Common Tiger	LC	2	5
20	Loxura atymnus	Yamfly	LC	2	1
21	Leptosia nina	Psyche	LC	6	5
22	Junoina lemonias	Lemon Pansy	LC	1	2

PART II VEGETATION CHARACTERISTICS

The place is with above average vegetation, located at plane area with laterite type of soil covered land. Only less vegetation can be noted within the campus and nearby areas.

Table 5. List of trees observed from the study area

	ero re e r = rar eg rr e	es coserred ji em me s	
Sl.No.	Local name	Scientific Names	Family
1	Aal	Ficus benghalensis	Moraceae
2	Aryaveppu	Azadirachta indica	Meliaceae
3	Athi	Ficus auriculata	Moraceae
4	Bottle brush	Callistemon citrinus	Myrtaceae
5	Chakkarakkolli	Gymnema sylvestre	Apocynaceae
6	Chappangam	Biancaea sappan	Fabaceae
7	Jathi	Myristica fragrans	Myristicaceae
8	Kanikkonna	Cassanivente	Fabaceae /
9	Karuvappatta	(innamomum	Lauraceae
		berum APPURAM M	
10	Koovalam	Æglemårmelog	Rutaceae RINCIPAL
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Sl.No.	Local name	Scientific Names	Family
11	Kudakapala	Holarrhena	Apocynaceae
		pubescens	
12	Kumizh	Gmelina arborea	Lamiaceae
13	Lakshmitharu	Simarouba glauca	Simaroubaceae
14	Maav	Mangifera indica	Anacardiaceae
15	Mahagony	Swietenia mahagoni	Meliaceae
16	Mani ium	Racosperma	Mimosaceae
		mangium	
17	Matti	Ailanthus triphysa	Simaroubaceae
18	Mullatha	Annona muricata	Annonaceae
19	Nagamaram	Couroupita	Lecythidaceae
	18	guianensis	
20	Nelli	Phyllanthus emblica	Euphorbiaceae
21	Nenmenivaka	Albizia lebbeck	Mimosaceae
22	Njettaval	Holoptelea	Ulmaceae
		integrifolia	
23	Ornamental	Ficus sp.	Moraceae
	ficus		
24	Palakapayyani	Oroxylum indicum	Bignoniaceae
	plant		
25	Pera	P.vidium guajava	Myrtaceae
26	Poomaruth	Lagerstroemia	Lythraceae.
		speciosa	
27	Puli	Tamarindus indices	Fabaceae
28	Red eugenia	Eugenia sp.	Myrtaceae
29	Star fruit	Averrhoa	Oxalidaceae
	947	carambola	
30	Thanni	Terminalia bellirica	Combretaceae
31	Thekk	Tectona grandis	Verbenaceae
32	Ungu AINIA	Mahetia pinnata	Fabaceae
33	Vatta /	Macaranga peltata	Euphorbiaceae
	MALAP Pin: 67	1 47 11	PRINCIPAL
		. /*//	MCT TRAINING COLLEGE MELMURI, MALAPPURAM
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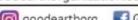
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Table 6. List of Herbs observed from the study area

Sl.No.	Local name	Scientific Names	Family
1	Appa	Ageratina adenophora	Asteraceae
2	Brahmi	Bacopa monnieri	Plantaginaceae
3	Buffalo grass	Axonopus compressus	Poaceae
4	Changalamparanda	Cissus quadrangularis	Vitaceae
5	Cheera chedi	Alternanthera brasiliana	Amaranthaceae
6	Chengazhi	Kaempferia rotunda	Zingiberaceae
7	Chitharathai	Alpinia galanga	Zingiberaceae
8	Communist pacha	Chromolaena odorata	Asteraceae
9	Grass	Blumea sps.	Asteraceae
10	Grass	Brachiaria sp.	Poaceae
11	Kacholam	Kaempferia galanga	Zingiberaceae
12	Kallurukki	Scoparia dulcis	Scrophulariaceae
13	Kanjikoorkka	Coleus amboinicus	Lamiaceae
14	Kasthuri manjal	Curcuma aromatica	Zingiberaceae
15	Kattar vazha	Aloe vera	Asphodelaceae
16	Keezharnelli	Phyllanthus amarus	Phyllanthaceae
17	Mashithandu	Peperomia pellucida	Piperaceae
19	Moovila	Pseudarthria viscida	Fabaceae
20	Murikootti	Strobilanthes alternata	Acanthaceae
21	Narivalan	Stachytarpheta jamaicensis	Verbenaceae
22	Nila paala	Euphorbia hirta	Euphorbiaceae
23	Nilappana	Curculigo orchioides	Hypoxidaceae
24	Oorppam	Urena lobata	Malvaceae
25	Orilathamara	Nervilia aragoana	Orchidaceae
26	Palmuthukku	Ipomoea mauritiana	Convolvulaceae
27	Pothapullu	Eragrostis sp.	Poaceae
29	Shanghu pushpam	Clitoria ternatea	Fabaceae
30	Shatavari	Asparagus racemosus	Asparagaceae
31	Thaval	Mitracarpy Wirwe	Rubiaceae
32	Thippili	Piper longum	Piperaceae
33	Thottavaadi	Mimosh pudica	Mimosaceae
34	Thumba	Leucas espera: 676 517	Lamiaceae RINCIPAL RINCIPAL
35	Velipadakkam	Dipterscanthus prostrutus	Acanthaceae MCT TRAINING COLLEGE MELMURI, MALAPPURAM
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Table 7. List of shrubs observed from the study area

Sl.No.	Local name	Scientific Names	Family
1	Ayyappana	Ayapana triplinervis	Asteraceae
2	Chethikoduveli	Plumbago indica	Plumbaginaceae
3	Choriyantali	Leea indica	Leeaceae
4	Duranta	Duranta erecta	Verbenaceae
5	Idampiri	Helicteres isora	Sterculiaceae
	valampiri		
6	Iruveli	Plectranthus hadiensis	Lamiaceae
7	Karinmkurinji	Strobilanthes	Acanthaceae
		heyneanus	
8	Karinochi	Vitex negundo	Lamiaceae
9	Kariveppu	Bergera koenigii	Rutaceae
10	Kongini	Lantana camara	Verbenaceae
11	Munja	Premna serratifolia	Lamiaceae
12	Naattapoochedi	Hyptis suaveolens	Lamiaceae
13	Nandhyarvattam	Tabernaemontana sp.	Apocynceae
14	Oorppam	Urena lobata	Malvaceae
15	Orila	Desmodium gangeticum	Fabaceae
16	Peruk	Clerodendrum	Verbenaceae
		infbrtunatum	
17	Pichakam	Jasminum grandiflorum	Oleaceae
18	Vallippala	Tylophora indica	Apocynaceae
19	Vathamkolli	Justicia gendarussa	Acanthaceae
20	Vella koduveli	Plumbago zeylanica	Plumbaginaceae















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Table 8. List of Climbers observed from the study area

SI.	Species	Family	Local name
1	Cajanus	Fabaceae	Kattumuthira
2	Centrosema molle	Fabaceae	Kattupayar
3	Ichnocarpus	Apocynaceae	Palvalli
4	Cyclea peltata	Menispermaceae	Padathali
5	Getonia floribunda	Combretaceae	Pullani
6	Hemidesmus indicus	Periplocaceae	Naruneendi
7	Mukia	Cucurbitaceae	Mindamindikk
8	Ipomoea obscura	Convolvulaceae	Thiruthali
9	Mikania micrantha	Asteraceae	Dhritharashtra pacha
10	Passiflora foetida	Passifloraceae	Thoppapazha
11	Pothos scandens	Arecaceae	



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Table 9. Site-specific native tree species to be planted in the campus

	1 3	1
Sl.No.	Scientific name	Common name
1	Macaranga peltata	Vatta
2	Morinda pubescens	Manjapavatta
3	Butea monosperma	Plash
4	Syzygium cumini	Njaval
5	Cassia fistula	Kanikkonna
6	Trema orientalis	Pottama
7	Mangifera indica	Mavu
8	Terminalia paniculata	Maruth
9	Artocarpus heterophyllus	Plavu
10	Azadirechta indica	Veppu
11	Lagerstroemia speciosa	Poomaruth





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Table 10. Few of the other rejuvenating plants would probably check the sound and air pollution

Sl.No.	Scientific name of the shrub	Common name
1	Memecylon sps.	Kashaavu
2	Bambusa bambos	Bamboo
3	Murraya paniculata	Maramulla
4	Bambusa vulgaris	Yellow bamboo
5	Bambusa tuldoides	Buddha Belly Bamboo
6	Thyrsostachys oliveri	Bamboo
7	Mussaenda frondosa	Vellila
8	Briedalia stipularis	Cheriya nattam
9	Desmodium sp.	Golden desmodium
10	Bambusa striates	Yellow bamboo
11	Denarocalamus stricuts	Illi







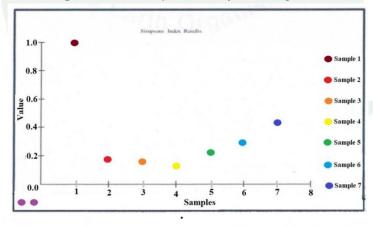


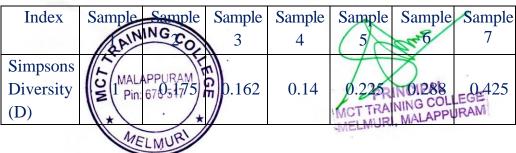
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Table 11 Descriptive statistics of the vegetation sampled

Sample	Mean	Standard	Standard	Total	Total	
	Individuals	Deviation	Error	Individuals	Specie	Maximum
Sample 1	0.286	1.309	0.286	6	1	6
Sample 2	0.905	1.758	0.384	19	6	6
Sample 3	1.286	2.305	0.503	27	9	8
Sample 4	0.81	1.436	0.313	17	9	6
Sample 5	1.286	2.741	0.598	27	7	11
Sample 6	0.571	1.469	0.321	12	3	5
Sample 7	0.857	2.575	0.562	18	4	11

Table 12. Simpson diversity index of the vegetation sampled

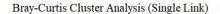






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Bray Curtis Cluster diagram to show the similarity of trees at different sampling locations



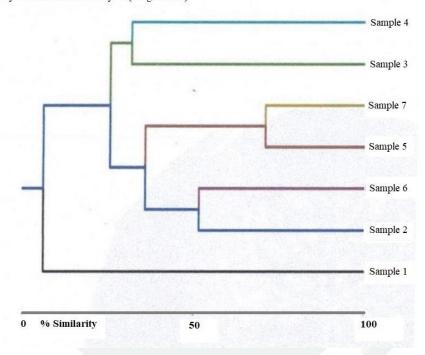


Table 13. Noise intensity measurements observed from different areas of the campus

		Cont. No.	
Sl.No.	Study Area	Minimum	Maximum
		(DB) ·	(DB)
1	Classroom 1	57.6	75
2	Classiou MG2c	5 7.5	75
3	Chassroom 3	6.5	64
4	Classroom LAAN	\ \$ }	67 / JUDAN
5	Tassfoom 5	/54/	65 PRINCIPAL
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GREEN INITIATIVES BY THE CAMPUS

- Solid Waste Management o Waste management is done by composting and landfills o Biodegradation of plastic waste is considered one of the best practices of the college
 - o Colourd bins are used to collect different types of wastes o One sided used paper is re-used for internal assessment and working.
 - o There is a ban on single-use plastic and plastic crockery on the campus.
- Renewable Energy
 - o A solar power plant of capacity 3 KW is installed on the building roof.
- Tree Plantation Drives o Several tree plantation drives were carried out in the current year on the Campus.
 - o Plants survival rate is around 85%





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Table 14. Different types of waste generated in the college and their disposal

Types of waste	Particulars	Disposal method
E-Waste	Computers,	On a contract with
	electrical and	an agency named
	electronic parts	LOGON Systems
	- Min	which is renewed annually
Plastic waste	Pen, Refill, Plastic	Haritha Karma Sena
	water bottles and	
	other plastic	
	containers, etc	
Solid wastes	Damaged furniture,	Reuse after
	paper waste, paper	maintenance energy
	plates, food wastes	conversion
Chemical wastes	Laboratory waste	Neutralise with water
Wastewater	Washing, urinals,	Soak Pits
	Bathrooms	
Glass Waste	Broken glasswares	Direct selling
	from the labs	
Sanitary napkin	Dispencers	Napkin Incinerators









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ROUTINE GREEN PRACTICES

The college annually commemorates Ozone Day, World Water Day, and World Environment Day on campus. The primary objective of these events is to enhance students' awareness of the importance of the environment, its conservation, and the sustainable utilization of its resources. These programs are conducted through various activities, including debates, quiz competitions, poster presentations, and seminars. Additionally, the college has an NSS (National Service Scheme) and a nature club dedicated to promoting environmental awareness. They also actively maintain a Medicinal Garden, which houses several plant species.











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SUGGESTIONS AND RECOMMENDATIONS

- 1. A creative approach to addressing ecological and environmental degradation is to document and gather extensive information about the campus's flora and fauna. Including different stakeholders in the green audit and survey can help raise awareness about various environmental issues.
- 2. The biodiversity listed by the IUCN has facilitated understandin he biological state of the campus's habitats. The campus is home to several trees, which should be encouraged to develop and be conserved.
- 3. As the campus continues to develop ecologically and sustainably, selective afforestation of native plant species should be promoted.
- 4. Efforts should focus on creating butterfly host plants and bird forage plants, which would attract additional seedlings to the campus and serve as an ecological learning site for geography, biology, and other students. Additionally, the soil must be nurtured and maintained to prevent the campus from frequently drying out.
- 5. The Kerala State Biodiversity Board can support the panchayat in promoting the establishment of a butterfly garden.
- 6. The Kerala Haritha Mission can initiate the "Pacha Thuruthu (Green Islands)" program to create and restore campus vegetation with native plants.
- 7. To keep the data up to date, a biodiversity audit survey should be conducted every five years. With each tree marked, it is easy to monitor their growth, survival, and other factors.
- 8. The water sources are safe from contamination, and students have taken small steps to reduce water usage for washing. Rainwater collected from building rooftops can be used to replenish the wells.
- 9. Constructing a 10,000-liter minwater harvesting tank can meet laboratory needs, especially in displacements where coolant leaks. Rainwater collected the tank on supply both the distillation unit's coolant and source satem. The coolant water can be recycled through as MELMURI, MALAPPURAM separate plumbing system.

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CONCLUSION

This audit involves extensive interactions and collaborative discussions with key faculty and staff members, addressing a wide range of environmental concerns. The campus Eco Club plays a pivotal role in promoting the efficient use of resources. The campus landscape covers 60% of the total area, with 55% being lush with vegetation. The college is highly aware of the environmental impact of its activities and is actively engaged in adopting eco-friendly practices.

Although the college already exhibits commendable environmental initiatives, there is potential for further improvement in advancing sustainability efforts. It is essential to undertake new initiatives, such as implementing a plant distribution and adoption scheme, and consider expanding the capacity of the solar power facility. Additionally, installing water meters in every building or block and generating water balancing reports are strongly recommended to enhance the campus's sustainable development.













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Waste bins for sorting different materials







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Incinerator









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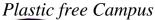




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"Respect, Unite, Empower: Say No to Ragging!"







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Nature Day - Planting Seedlings









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Solar Street Lights for reducing carbon footprint and safeguarding green spaces



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IMPORTANT LAWS RELATED TO THE ENVIRONMENT

The Environment [Protection] Act — 1986 (Amended 1991) & Rules-1986 (Amended 2010)

The Petroleum Act: 1934 — The Petroleum Rules: 2002

The Central Motor Vehicle Act: 1988 (Amended 2011) and The Central Motor Vehicle Rules:1989 (Amended in 2005) Energy Conservation Act 2010.

The Water [Prevention & Control of Pollution] Act — 1974 (Amended 1988) & the Water (Prevention & Control of Pollution) Rules — 1975

The Air [Prevention & Control Of Pollution] Act — 1981 (Amended 1987) The Air (Prevention & Control of Pollution) Rules — 1982

The Gas Cylinders Rules — 2016 (Replaces the Gas Cylinder Rules —1981 Ewaste management rules 2016

Electrical Act 2003 (Amended 2001) / Rules 1956 (Amended 2006)

The Hazardous Waste (Management and Handling and Trans-boundary Movement) Rules, 2008 (Amended 2016)

The Noise Pollution Regulation & Control Rules, 2000 (Amended 2010).



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