About the college

MES Kalladi College, Mannarkkad is the proud symbol of the Muslim Educational Society, Calicut to the cause of higher education in Kerala, especially to the educationally backward areas of Malabar. This is the first college started by the MES and it is also the felicitous outcome of the noble endeavor of the late KalladiCheriyaKunhammed Sahib and the local public. College is located in a vast area, a major part of which was donated by the late JanabValayadiKunhayammu Haji.

The college is situated 2 km away from Mannarkkad town on the side of Palakkad – Calicut National Highway and bordered by the perennial river "Kunthipuzha" and fortressed by panoramic hills of Silent Valley and Attappadi.

The college started functioning as a junior college in 1967 and was upgraded in 1971 with the introduction of degree courses in History, Economics, Mathematics, Botany and Commerce. Further it was upgraded as a Post Graduate college in 1978 with the introduction of M.Com.

The college adopted green protocol under green campus campaign. A set of rules to be practiced in the campus which gives importance to the conservation of environment. Sustainable utilization of natural resources and the conservation of the water and energy sources. Well managed waste management system, recycling and reuse of waste materials etc. are the major concern of the campaign and thus to make campus environment friendly one. The green campus programme also give emphasis the activities to avoid plastic and planting of trees and gardens in the campus.

Green Audit :A management tool comprising a systematic, documented, periodic and objective evaluation of how well the environment organization ,managent and equipment are performing with the aim of safeguarding the environment and natural resources in its operations.

Objectives

1. To aware the students and faculties about the conservation of environment.
2. To ensure the green protocol under green campus campaign

3. To control the effects of hazardous waste materials generated in the campus

4. To understand the energy consumption in the campus and how much the alternate energy sources are utilized in the campus.

5. To implement the safe and proper waste management and waste disposal.

6. To find the proper ways to save the health and welfare of staff and students of the college.

7. To examine current practices which can have impact on environment like resourse utilization,waste management and energy conservation.

8. To determine the green practices are eco-friendly and sustainable one.

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Methodology The green audit included the methodology like questionnare, inspection of campus, Analysis of ecofriendly activities conducted in the campus

Green Audit Team

No.	Name	Designation
1.	Nazeema.M.K	Convener
2.	Dr.Sereena.K	Member
3.	Ummu Habeeba.K	Member
4.	Priya.T.V	Member
5.	Razeena.A	Member
6.	Saritha.U.K	Member

Action Plan

The Green Audit by MES KalladiCollege,Mannarkkad based on four aspects.

1. Environmental Audit
2. Water Audit

3. Energy Audit
4. Waste Audit

1. Environment Audit

Environmental audit mainly focused on the factors related to the conservation of Biodiversity. a) `.Does the campus having gardens especially herbal garden to preserve biodiversity b).Does the infrastructure facilities such as parking facility affect the water drainage and so the biodiversity? c) Does the afforestation programme to conserve the local and other fruit trees. d)does the flora of the campus identified and properly maintained.

2. Water Audit

Water audit analyses the conditions of water sources and their storage capacity. Identify the water storage system like rain water harvesting and to understand the water management practices in the campus and thus to reduce the wastage of water.

3. Energy Audit

Energy audit will monitor the usage of electricity and analyse the methods and ways by which the energy gets utilized in the campus and calculate how much energy wastage and what are the methods adopted to reduce the wastage of energy.

4.Waste Audit

Waste audit mainly aims to know different types of waste generated in the campus. Disposal, storage, recycling and reuse of solid waste including degradable organic wastes and non degradable plastic wastes, liquid waste from laboratories and E waste etc. under consideration of waste audit.

Operational Procedure

a. Green Audit Team is the authority of monitoring green initiatives
b. First meeting will be held at the beginning of an academic year.
c. Convener shall plan the Audits and assign the Audit Teams during the first meeting.
d. Questionnaires will be distributed among the staff and students after the notification.

e. Audit result will be shared to the students and staff after discussing it in the first committee meeting after the audit.
f. Actions will be planned after the analysis of the audit.
g. Plans on execution of the actions will be discussed with the principal authority of the College.

Survey by Questionnaire: Data for green audit report preparation was collected by questionnaire survey method. Questionnaires prepared for actual green auditing in the college campus is based on the guidelines, rules, acts and formats prepared by Ministry of Environment and Forest, New Delhi,Central Pollution Control. Most of the guidelines and formats based on broad aspects and some of the issues or formats were not applicable for college campus. Therefore, using these guidelines and formats, combinations, modifications and restructuring was done and sets of questionnaires were prepared as solid waste, energy, fuel, water, hazardous waste, and e-waste, etc. With the help of questionnaires some data related to Green Audit is collected from students, employers by interaction with them.

Control objective	**Control(s)**	**Compliances (Please answer Yes/No). If Yes please explain the process and procedure.**
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Reduce the absolute amount of waste that it produces from college kitchens, buttery, staff offices and student accommodation.	• Yes. Biogas plant is working for the proper recycling biodegradable waste. Reduced use of plastic materials
Maximize the proportion of waste that is recycled & minimize the quantity	Make full use of all recycling facilities provided by City Municipality and private suppliers, including glass, cans, white, colour and brown paper, plastic bottles,	• Yes. Segregation unit is working.

of non-recyclable refuse	batteries, print cartridges, cardboard and furniture.	
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Compost, or cause to be composted, all organic waste, green waste and un-recycled cardboard produced in or collected from kitchens, gardens, offices and rooms.	
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Recycle or safely dispose of white goods, computers and electrical appliances.	• Yes. Hand overing the materials to agents involving in recycling
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Use reusable resources and containers and avoid unnecessary packaging where possible.	Yes. Using eco friendly cloth bags. Use of stainless steel reusable plates and glasses.
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Always purchase recycled resources where these are both suitable and available.	No
Maximize the proportion of waste that is recycled & minimize the quantity	Provide sufficient, accessible and well-publicized collection points for recyclable waste, with responsibility for recycling clearly allocated.	• Yes. Separate dust bins to collect degradable and non degradable waste

of non-recyclable refuse		materials.
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Make specific arrangements for events, such as cultural Events, internal and external seminars and conferences, where significant recyclable waste is likely to be produced, in order to both minimize the waste produced and maximize what is recycled/reused.	Yes. Avoid plastic materials in public functions.
Control objective	Control(s)	
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Promote reuse of items and waste recycling among staff, students and conference guests through training, posters and incentives.	• Yes. Through green campus campaign, awareness classes among students and teachers.
Maximize the proportion of waste that is recycled & minimize the quantity of non-recyclable refuse	Dispose all waste, whether solid or otherwise, in a scientific manner and ensure that it is not released directly to the environment.	• Yes. For the proper disposal of biodegradable waste biogas plant and vermicompost unit is used. Incinerators installed in wash rooms.
Reduce energy consumption, especially of energy derived from fossil fuels,	Support renewable and carbon-neutral electricity options on any energy-purchasing consortium, with the aim of supplying all college properties with electricity that can be attributed to	• Yes. Solar energy utilized.

	renewable and carbon-neutral sources.	
Reduce energy consumption, especially of energy derived from fossil fuels,	Appreciate that it is preferable to purchase electricity from a company that invests in new sources of renewable and carbon-neutral electricity.	• Yes. 10kw solar power system installed in academic building. Solar panel installed in ladies hostels also
Reduce energy consumption, especially of energy derived from fossil fuels,	Look in to the possibility of on-site micro-generation of renewable electricity.	• Yes. Solar energy system installed
Reduce energy consumption, especially of energy derived from fossil fuels,	Give preference to the most energy efficient and environmentally sound appliances available, this includes only using energy-saving light bulbs.	• Yes. Use of LED bulbs.
Control objective	Control(s)	
Reduce energy consumption, especially of energy derived from fossil fuels,	Provide energy efficient heating systems, with adjustable controls for individual heating appliances wherever possible, and ensure that comprehensible instructions are available to staff and students on the use of heating controls.	• No need to use of heating systems.
Reduce energy consumption, especially of energy derived from fossil	Encourage staff, students and conference guests to save energy through visible reminders, incentives and information to increase awareness. This particularly	Yes. Displayed proper instructions to switch off all the equipments when not in use.

fuels,	concerns turning off electrical appliances when not in use in both communal and residential rooms.	
Reduce energy consumption, especially of energy derived from fossil fuels,	Monitor and understand the importance of different sources of college energy consumption, and set appropriate and measurable targets for a reduction in certain areas of consumption and/or in the overall consumption of energy.	Yes. Energy conservation awareness and energy audit will be conducted four times in an year. Thus the energy consumption can be reduced.
Reduce energy consumption, especially of energy derived from fossil fuels,	Conduct switch off drills at regular intervals.	No
Reduce energy consumption, especially of energy derived from fossil fuels,	Ensures that all electronic and electrical equipment's, such as computers, are switched off when not in use, and is generally configured in power saving mode when such option is available.	Yes. Displayed proper instructions to switch off all the equipments when not in use.
Reduce energy consumption, especially of energy derived from fossil fuels,	If there are equipment's running on standby mode, reduce the energy consumption on standby mode or minimize the running of equipment's on standby mode.	No

Ensure that improvements, purchases and developments are environmentally sound	Seek and act upon professional advice in order to minimize the adverse environmental impact of any new developments and exceed government regulatory requirements. This includes efficient heating and water systems, appropriate space for recycling, and the use of recycled and/or sustainable building materials where possible.	• Yes. Consulting different authorized agencies .
Control objective	Control(s)	
Ensure that improvements, purchases and developments are environmentally sound	Purchase efficient and environmentally sound appliances in order to fulfil the commitments in section 2, and consider replacing old stock with 'greener', more efficient alternatives.	Yes. Purchasing new versions of equipments and electrical items with high efficiency.
Ensure that improvements, purchases and developments are environmentally sound	Purchase food that has been produced and delivered with minimal impact on the environment, this includes buying locally produced, organic and free-range food wherever possible.	Yes. Majority of purchases stick on environmentally safe, locally produced and organic items.
Minimize the use of unsustainable transport	Make available information about bicycle and pedestrian routes, public transport services and car share schemes to staff and students.	Yes. Students and staff uses public transport system. Bicycle facility inside campus.
Minimize the use of unsustainable transport	Reduce the proportion of travel on College business carried out in private transport and eliminate unnecessary and inefficient use of college vehicles.	NA
Minimize the use of unsustainable transport	Promote car sharing / car pool among the students and faculty members.	Yes. Car sharing and car pool among staff and students.

Minimize consumption of water.	Repair sources of water leakage, such as dripping taps and showers as quickly as possible.	Yes.
Minimize consumption of water.	Install appliances which reduce water consumption.	Yes. Use of sprinklers, Rose cane for irrigation purposes in gardening.
Minimize consumption of water.	Encourage a decrease in water usage among staff, students and conference guests.	Yes. Display boards stressing the need of the conservation of water.
Minimize consumption of water.	Purchase the most efficient washing machines and dishwashers available which have an economy setting as default.	NA
Control objective	Control(s)	
Minimize consumption of water.	Use an efficient and hygienic water storage mechanism is to minimize the loss of water during storage.	Yes. Fixed efficient water tanks.
Minimize consumption of water.	Minimize wastage of water and use of electricity during water filtration process, if used, such as RO filtration process and ensure that the equipment's used for such usage, are regularly serviced, and the wastage of water is not below the industry average for such equipment's used in similar capacity.	• Yes. RO Filtration process and proper maintenance and services
Minimize consumption of water.	Install Water recycling mechanism, such as rain water harvesting system.	Yes. Rain water harvesting system is working. Rain pits in

		campus.
Minimize the use of chemical pollutants	Ensure that all cleaning products used by college staff have a minimal detrimental impact on the environment, i.e. are biodegradable and non-toxic, even where this exceeds the Control of Substances Hazardous to Health (COSHH) regulations.	Yes. Less use of chemicals for cleaning.
Minimize the use of chemical pollutants	Minimize the use of fertilizers and pesticides in college grounds, opting for the use of compost produced on site wherever possible.	Organic farming using compost.
Minimize the use of chemical pollutants	Dispose the chemical waste generated from the laboratories in a scientific manner.	• Yes.
Minimize the use of chemical pollutants	Reduce the practice of burning plastic and other material that emits harmful gas on burning is prevented in the campus.	Yes. Plastic wastes handover to muncipality
Control objective	Control(s)	
Minimize the use of chemical pollutants	Establish a Garden in the campus.	Yes. Maintaining gardens in the campus without using chemical fertilizers.
Minimize the use of chemical pollutants	Encourage the faculties and students to plant trees in the garden.	Yes. Afforestation programmes in connection with environmentally significant days.
Minimize the use of chemical pollutants	Reviews periodically the list of trees planted in the garden.	Yes. Conducting surveys and projects on campus flora
Ensure that	Conduct environmental awareness	• Yes. Workshops

environmental awareness is created.	workshops as a part of the program.	conducted.
Ensure that environmental awareness is created.	Conduct events such as plant trees to spread environmental awareness among the students.	Yes. Institution planting and afforestation programmes.
Ensure that environmental awareness is created.	Create awareness of environmental sustainability and takes actions to ensure environmental sustainability.	• Yes. Cleaning of natural water sources by students.
Ensure that environmental awareness is created.	Reduce the rate at which the College contributes to the depletion and degradation of natural resources.	• Yes. Conservation of campus flora and natural vegetation. Use of rainwater harvesting system
Ensure that environmental awareness is created.	Promote environmental awareness as a part of course work in various curricular areas, independent research projects, and community service.	• Yes. Conducted drinking water quality analysis. Disinfection of public wells by students.
Ensure that the buildings conform to green standards.	Review architecture of existing buildings and reviews ways, in consultation with experts, to reduce usage of energy for such buildings, offering greatest efficiency for energy and water usage, and reducing carbon emission.	• Yes. Buildings with solar panels,rain water harvesting system, proper ventilation
Control objective	Control(s)	
Ensure that the Environmental Policy is enacted, enforced	Establish a College Environmental Committee that will hold responsibility for the enactment, enforcement and	• Yes. College Environmental committee gives

and reviewed	review of the Environmental Policy. The Environmental Committee shall be the source of advice and guidance to staff and students on how to implement this Policy.	advice to staff and students to implement the environmental policy.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Ensure that on the Nature Club there will be appropriate representatives of the relevant college departments and authorities – such as catering, gardening, maintenance, cleaning and finance.	Yes. Nature club is functioning inorder to organize environment friendly activities
Ensure that the Environmental Policy is enacted, enforced and reviewed	Ensure that on the Environmental Committee there will be the Green Officer from an external agency who is engaged in the profession of providing guidance on environmental impact.	Yes.The environmental committee seek advices from green officer regarding different activities in the campus.
Ensure that the Environmental Policy is enacted, enforced and reviewed	Ensure that the Environmental Committee will review the Environmental Policy on an annual basis, and will monitor progress and set measurable targets wherever possible.	Yes. Annual monitoring is done by the committee
Ensure that the Environmental Policy is enacted, enforced and reviewed	Ensure that the Environmental Policy is enforced regardless of whether its requirements exceed the mandate of the law.	Yes.Policy is enforced.
Control objective	Control(s)	
Ensure that the Environmental Policy	Require that every staff and student member recognizes their responsibility to	• Yes. Awareness classes given to staff

is enacted, enforced and reviewed	ensure that the commitments in the Environmental Policy are properly put into practice.	and students by members of the committee
Ensure that the Environmental Policy is enacted, enforced and reviewed	Ensure that an audit is conducted annually and action is taken on the basis of audit report, recommendation and findings.	Yes.

Campus Biodiversity

Numerical representation of the plant species observed in the MES KalladiCollege,Mannarkkad.

Numerical representation of the flora

Plant groups	**Nos.**
Angiosperms	500
Gymnosperms	02
Pteridophytes	7
Bryophytes	5
Lichens	4
Algae	15
Mushrooms/Fungi	100

Green Belt

The campus has a rich collection of trees. About 53 tree species were identified and labelled.

Most of the plants have important role in the maintenance of biodiversity and are the good carbon assimilators. Vegetable garden, Herbal garden and other ornamental gardens were maintained in the campus.

Animal diversity

The campus possesses different birds, butterflies, spiders, amphibians, insects and other animals.

Representation of faunal diversity

Faunal groups	**Nos.**
Spiders	50
flies	25
Moth	20
Butterflies	45
Ants	13
Amphibians	12
Birds	100

Purchasing and administration

The green protocol insist to purchase the materials and that are durable, reusable, recyclable materials or easily and sustainably disposed off anlo to purchase only environmentally friendly products such as microscopes with natural light source, natural stain, natural media, etc. Only energy saving equipments are used . Use of LED bulbs manufactured in the college are used in every departments. The college also purchased and stored stainless steel vessels to use in public functions. The college encourages the use of cloth banners instead of flexes in all the programmes organized by the departments and students

Solid waste reduction and recycling

Installed separate dust bins to collect degradable and non degradable wastes of the campus.Inorder to degrade solide waste a compost unit is working in the campus.

Energy Conservation

The energy conservation is practiced by the reduced use of electricity. This is done by the use of energy saving electrical equipments. Extensive usage of LED bulbs. Use of solar energy as an alternative energy source,for this installed solar panels in the campus.

Water Management

The effective water management and water conservations methods are adopted in the campus.Rain water harvest system and rain digs are there to collect the maximum amount of rain water. Water purifiers are used in all the departments. Sprinklers and drip irrigation are used in the gardens to reduce the wastage of water.

Environment Protection

In connection with World environment day every year planting tree saplings in different localities of the campus for the conservation of biodiversity.. Maintaining Herbal garden and organic vegetable garden to make campus eco-friendly. Reduced use of plastic materials and proper disposal of waste materials are practiced.

Transport

Most of the staff residing near the campus.Students and the staff using public transport system. Bicycles purchased in the campus are used by the students for local transport.

RAIN WATER HARVESTING

LED BULB

SOLAR PANELS

Recommendations

1. Periodically monitor the condition of plants cultivated as a part of afforestation programme and conserve by naming and numbering.
2. Create awareness among students about the sustainable utilization of resources as the college having minimum resources.

3. ensure green protocol in every aspects of the campus
4. Organize the programmes giving importance to conserve the environment.
4. Adopt more ecofriendly practices suitable for the college.
5. Install more waste disposal units and incinerators.
6. Methods for the proper segregation of E waste generated in the campus.