



COCHIN ARTS & SCIENCE COLLEGE

"Unleashing Potential, Shaping Futures"

AN ISO 9001:2015 CERTIFIED INSTITUTION

Affiliated to MG University, Approved by Govt. of Kerala
Manakkakadavu, Near Wonderla, Pallikkara, Kakkanad - 683565

GREEN AUDIT REPORT

Prepared by

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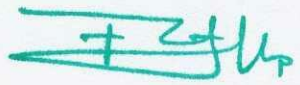


ECOMOUNT
ENGINEERING

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TABLE OF CONTENT

- CERTIFICATE
- ACKNOWLEDGEMENT
- DISCLAIMER
- 1. CONTEXT & CONCEPT
- 2. INTRODUCTION
- 3. OVERVIEW OF COLLEGE
- 4. VISION AND MISSION
- 5. EXECUTIVE SUMMARY
- 6. GREEN AUDIT ANALYSIS
 - 6.1 GENERAL INFORMATION OF COLLEGE
 - 6.2 WASTE MINIMIZATION AND RECYCLING
 - 6.3 GREENING THE CAMPUS
 - 6.4 WATER & WASTEWATER MANAGEMENT
 - 6.5 CARBON FOOTPRINTS
- 7. RECOMMENDATION
- 8. CONCLUSION



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AUDIT CERTIFICATE

PRESENTED TO

COCHIN ARTS AND SCIENCE COLLEGE

Manakkakadavu, Pallikkara, Kakkanad,
Near Wonderla Amusement Park Cochin, Ernakulam, 683565

This certificate is awarded following a comprehensive assessment by Ecomount engineering Services for the implementation of institutional green framework to fulfil the requirement of ongoing

GREEN AUDIT

The green initiatives carried out by the institution have been verified on the report submitted and was found to be satisfactory

The efforts taken by the management and the faculty towards environment and sustainability are appreciated and noteworthy



Prof. Dr Nisam Rahman A.
Chartered Engineer
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(EMC/BESE/2022/126)

Date: - 29-04-2023



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ACKNOWLEDGEMENT

Ecomount engineering Services would like to thank the management of Cochin Arts and Science College for assigning this important work of Green Audit. We appreciate the cooperation of the teams for completion of assessment. We would also like to thank Mrs. Lakshmi Seethal, IQAC coordinator, for her continuous support and guidance, without which the completion of the project will not be possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

Also, we would like to thank Dr. Renjith K Philip, (Principal), Dr. Benzir Hussain, (Manager) and Mr. Shameer K (Director) of Cochin Arts and Science College for giving us an opportunity to evaluate the environmental performance of the campus.



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DISCLAIMER

Ecomount Engineering Services Audit Team has prepared this report for Cochin Arts and Science College based on input data submitted by the representatives of College complemented with the best judgement capacity of the expert team.


While all sensible care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived at by best estimates and no representation, warranty or undertaking, express or implied, is made and no responsibility is accepted by the Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

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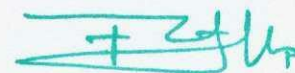
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1. CONTEXT AND CONCEPT

In alignment with the directives of the National Assessment and Accreditation Council (NAAC), New Delhi, it has become imperative for Higher Educational Institutions to undertake annual Green, Environment, and Energy Audits. These audits are crucial for maintaining our commitment to Corporate Social Responsibility and play a significant role in mitigating global warming through effective Carbon Footprint reduction strategies.

The Green Audit encapsulates a comprehensive evaluation of environmental practices within the campus, assessing their direct and indirect impact on the ecosystem. It serves as a systematic approach to identify, quantify, and analyse the environmental footprint of the institution, thereby fostering a culture of sustainability and ecological responsibility.

This audit is designed to scrutinise various aspects such as waste minimization, recycling efforts, greening initiatives, water and wastewater management, and carbon footprints. It aims to provide actionable insights and recommendations that can significantly enhance the institution's environmental performance.



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2. INTRODUCTION

Educational institutions are recognizing the importance of environmental stewardship. This has led to a surge in innovative practices aimed at creating sustainable and eco-friendly campuses. Green audits play a crucial role in achieving these goals by providing a comprehensive assessment of an institution's environmental impact.


What is a Green Audit?

A green audit, also known as an environmental audit or eco-audit, is a systematic review of an educational institution's environmental performance. It analyses how the institution interacts with the environment, focusing on key areas:

- **Energy Consumption:** This includes electricity, heating, and cooling costs. The audit evaluates energy efficiency of buildings, equipment, and practices.
- **Water Usage:** The audit assesses water consumption patterns for various purposes (e.g., irrigation, sanitation, labs). It identifies opportunities for water conservation and rainwater harvesting.
- **Waste Management:** The audit analyses the types and volumes of waste generated. It evaluates recycling practices, composting options, and waste minimization strategies.
- **Land Use and Biodiversity:** The audit assesses the institution's impact on land use, green spaces, and local flora and fauna. It may recommend sustainable landscaping practices and biodiversity conservation initiatives.

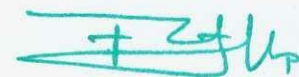
Benefits of Green Audits:

- **Reduced Environmental Impact:** Green audits provide valuable insights to minimise energy use, water consumption, and waste generation. This translates into a lighter environmental footprint for the institution.



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- **Financial Savings:** Conservation efforts identified through green audits can lead to significant cost savings on utilities and waste disposal. These savings can be directed towards further sustainability initiatives.
- **Increased Environmental Awareness:** Green audits raise awareness about environmental issues among students, staff, and faculty. This fosters a culture of sustainability within the institution.
- **Compliance with Regulations:** Green audits help ensure compliance with environmental regulations, avoiding potential fines and legal issues.
- **Improved Public Image:** Educational institutions committed to sustainability practices attract environmentally conscious students, staff, and funding opportunities.
- **Promotes a Sense of Ownership:** Green audits actively involve students and staff in the process. This fosters a sense of responsibility for environmental practices within the institution.



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3. OVERVIEW OF COCHIN ARTS AND SCIENCE COLLEGE

Cochin Arts and Science College, nestled in the vibrant city of Cochin, is a beacon of higher education dedicated to fostering a society free from the shackles of ignorance, inequality, and poverty. Established with a vision to democratise education, the college serves as a crucible for sustainable development through a blend of training, education, research, and action.


The institution prides itself on its commitment to academic excellence, offering a diverse array of programs that cater to the evolving needs of society. With a curriculum designed to enhance knowledge and foster critical thinking, students are equipped to navigate the complexities of the modern world.

Innovative Learning Environment At Cochin Arts and Science College, education transcends the traditional boundaries of learning. The college boasts state-of-the-art facilities and a stimulating environment that encourages students to think rationally, communicate effectively, and engage in lifelong learning.

Global Opportunities Understanding the importance of global exposure, the college provides ample opportunities for students to gain international experience. This global outlook ensures that graduates are well-prepared to work and thrive in various settings around the world.

Community Engagement The college is deeply rooted in the community, emphasising the importance of social responsibility and action. Through various initiatives and partnerships, students are encouraged to apply their knowledge in real-world scenarios, contributing to the betterment of society.




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4. VISION AND MISSION

Vision

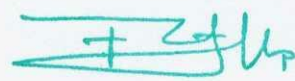
To emerge as an institution par excellence, integrating innovative technological capabilities to develop individuals with the right blend of knowledge, skill sets, and professional attitude, and to uphold ethical values and societal commitments.

Mission

Cochin Arts and Science College strives to achieve excellence in education by practising an innovative teaching-learning pedagogical approach, creating a unique atmosphere blended with dedicated faculty and excellent infrastructure for developing young professionals, and empowering them to manage future challenges and fulfil societal commitments.

Courses provided by Cochin Arts and Science College:

- **BBA:** Focuses on key business domains like Financial and Cost Accounting, Management, Marketing, Banking, and Insurance, along with Corporate and Business Law.
- **BCA:** Covers computer science and IT subjects such as Programming, Data Structures, DBMS, Operating Systems, Web Development, and Cyber Security.
- **B.Com:** Combines Commerce with computer applications, offering knowledge in Business Law, Company Law, Entrepreneurship, Economics, Statistics, and accounting software.
- **M.Com.:** Postgraduate program specialising in finance and taxation, providing comprehensive knowledge and skills for careers in finance.
- **B.Sc. Specialisations:** Offers courses in Cyber Forensics, Psychology, and Food Technology, each designed to equip students with industry-relevant skills and knowledge.



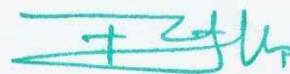
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5. EXECUTIVE SUMMARY

Green auditing is an essential step to identify and determine whether the institution's practices are sustainable and ecological. Traditionally, we were upright and efficient users of natural resources. But over the period of time, excessive usage of resources like water, electricity, petrol, etc. have become habitual for everyone especially, in urban and semi-urban areas. Is it actually the right time to check if we (our process) are consuming more than required resources? Whether we are using resources sensibly?

Green audit standardised all such practices and provides an efficient way to use natural resources. In the time of climate change and resource exhaustion it is necessary to re-check the processes and convert it into green and sustainable. Green audit provides an approach for it. It also increases overall awareness among the folks working in institutions towards the eco-friendly environment.

This is the First attempt to conduct a green audit of this College campus for fulfilment of NAAC criteria. This audit was mainly focused on greening indicators like consumption of energy in terms of electricity and fossil fuel, quality of soil, water usage, vegetation, waste management practices and carbon footprint of the campus. Initially a questionnaire was shared to know about the existing resources of the campus and resource consumption pattern of the students and staff in the College.



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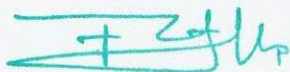
The Data summary

Parameter	Electricity	Diesel (Generator)	LPG	Total
Annual Consumption	45850	1040	256.4	
Unit of Measurement	kWh	Ltr.	Kg	
Present Gross CO2 Emission (Tons)	38.4	2.78	0.76	41.94
Present Net CO2 Emission (Tons)				39.644
Estimated CO ₂ Emission after Implementing decarbonisation Proposals				
Per Capita Water Demand (Ltr/person/day)				89.25
Annual Savings by replacement/ Production	1850		200	
Unit of measurement	kWh		Kg	

Recommendation

The performance of the campus is good considering the measures that support the green practices and this can be further improved by implementing the energy saving proposals listed in the energy audit report and also by the recommendations below.

SL no	Recommendation	Reduction in emission (Ton)
1	Upgradation of biogas Plant	0.6
2	Energy saving proposals	1.554
3	Replace of 3 star AC to 5 Star	1.512

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6. GREEN AUDIT - ANALYSIS

6.1 GENERAL INFORMATION

1. Has any Green Audit been conducted earlier?

Ans: No, this is the second external audit organised by the college.

2. What is the total strength (people count) of the Institute?

Ans:

<i>No. of students enrolled in 22-23</i>	<i>244</i>
<i>No. of teaching staffs</i>	<i>35</i>
<i>No. of non-teaching staffs</i>	<i>10</i>
<i>No. of boys admitted in Hostel (2022 Admission)</i>	<i>33</i>
<i>No. of girls admitted in Hostel (2022 Admission)</i>	<i>07</i>

3. What is the total number of working days of your campus in a year?

Ans : There are one hundred eighty working days in a year

4. Where is the campus located?

Ans: Manakkakadavu, Pallikkara, Kakkanaad, Near Wonderla Amusement Park Cochin, Ernakulam, 683565

5. Which of the following are available in your institute?

<i>Garden area</i>	<i>- Available</i>
<i>Playground</i>	<i>- Available</i>
<i>Kitchen</i>	<i>- Available</i>
<i>Toilets</i>	<i>- Available</i>
<i>Garbage Or Waste Store Yard</i>	<i>- Available</i>
<i>Laboratory</i>	<i>- Available</i>
<i>Canteen</i>	<i>-Available</i>
<i>Hostel Facility</i>	<i>-Available</i>
<i>Guest House</i>	<i>-Available</i>



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Page 13

6. Which of the following are found near your institute?

<i>Municipal dump yard</i>	<i>Not in vicinity of institute</i>
<i>Garbage heap</i>	<i>No Garbage heaps</i>
<i>Public convenience</i>	<i>Public convenience is available</i>
<i>Sewer line</i>	<i>Approximately 100 M sewer line within campus for connecting the future city centralised sewer line.</i>
<i>Stagnant water</i>	<i>No stagnant water</i>
<i>Open drainage</i>	<i>yes - Approximately 100m (Connected to public drainage)</i>
<i>Industry – (Mention the type)</i>	<i>No</i>
<i>Bus / Railway station</i>	<i>Bus/taxi connectivity</i>
<i>Market / Shopping complex</i>	<i>Available</i>

6.2 WASTE MINIMIZATION AND RECYCLING

1. Does your institute generate any waste? If so, what are they?

Ans: Yes, Solid waste, Canteen waste, paper, plastic, laboratories waste, e-waste, etc.

2. What is the approximate amount of waste generated per day? (in KG approx.)

Biodegradable waste - = 25 Kg

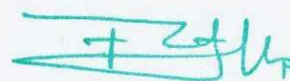
Non-biodegradable waste - 5 Kg

Hazardous Waste < 0.5 Kg.

3. How is the waste managed in the institute? By Composting, Recycling, Reusing, Others (specify)

1. Recycling:

- **Recycling Bins:** Colleges typically have designated recycling bins placed strategically across campus.
- **Awareness Campaigns:** Awareness campaigns to educate students and staff about the importance of recycling.

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PRINCIPAL Page 14
COCHIN ARTS AND SCIENCE COLLEGE
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2. **Composting:**

- **Campus Composting:** Organic waste from dining halls, food courts, and landscaping is collected and composted. The campus has a 10 kg Bio gas plant.
- **Compost Bins:** Compost bins are placed near dining areas, encouraging students to dispose of food scraps, and other organic matter separately.
- **Benefits:** Composting reduces landfill waste, enriches soil, and supports sustainable gardening practices.

3. **Reuse Initiatives:**

- **Textbook Exchange Programs:** Students can exchange or sell their textbooks to fellow students, reducing the need for new book purchases each semester.

4. **E-Waste Management:**

- **Electronic Recycling:** Colleges handle electronic waste (e-waste) responsibly. Old computers, printers, and other devices are recycled or refurbished.

5. **Reducing Single-Use Plastics:**

- **Water Bottle Refill Stations:** Installing water bottle refill stations reduces the use of disposable plastic water bottles.
- **Reusable Containers:** Encouraging students to use reusable containers for takeout meals minimises plastic waste.

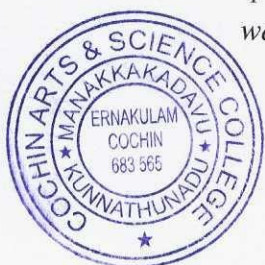
6. **Collaboration with Local Authorities:**

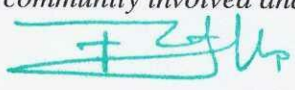
- **Municipal Services:** Colleges collaborate with local waste management services to ensure proper disposal of non-recyclable waste.
- **Hazardous Waste:** Hazardous materials (e.g., chemicals from labs) are handled according to safety guidelines.

5. How would you spread the message of recycling to others in the community?

Following are the ways through which college is spreading the awareness about recycling

1. **Campaigns:** These are organised efforts to promote recycling. They might include initiatives like setting up recycling bins around campus, encouraging students to use reusable water bottles, or promoting the use of recycled materials in art projects.
2. **Rally:** A rally is a public gathering to promote a cause. A recycling rally might involve speeches, demonstrations, and the distribution of educational materials. It's a great way to get the community involved and make a public commitment to recycling.

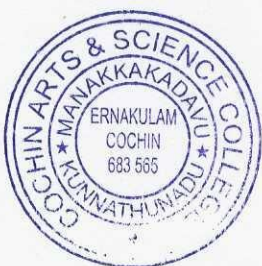


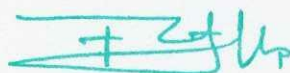

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3. *Webinars and Seminars: These are educational events where experts can share information about the importance of recycling and how to do it effectively. They can be held in-person or online, making them accessible to a wide audience.*

6. Can you achieve zero garbage in your institute? If yes, how?

Not yet achieved. Possible through waste management policy and planning.





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6.3 GREENING THE CAMPUS

1. Is there a garden in your institute?

Yes, about 1110 Sq mtr areas are developed as Gardens. 600 Sq mtr are going to be used for gardening in the coming year.

2. Do students spend time in the garden?

Yes, students spend around 1-2 Hours in morning and evening.

3. Total number of Plants on Campus?

Plant type with approx. count

Full grown Trees - 22 Nos

Small Trees 20 Nos

Hedge Plants 100 Nos

Vegetable/fruit plans - 150 Nos

Grass Cover 450 SQM

4. Is the College campus having any Agricultural/horticulture departments (If yes, give details).

Yes, Total 2 staff deployed in Agriculture/horticulture departments, And the students will participate and maintain day-to-day activities, it helps them to increase the interest and awareness of agriculture.

5. How many Tree/vegetable Plantation Drives organised by campus per annum?

Five Two Plantation Drives were Organised by campus in the last FY. Total 15 trees and 200 vegetable/fruit plants planted in this Financial Year with more than 80% survival rate.

6. Is there any Plant Distribution Program for Students and Community?

Landscape, Plantation Of trees outside the campus with the help and coordination of National service scheme departments.

7. Are there any green initiatives taken by college?

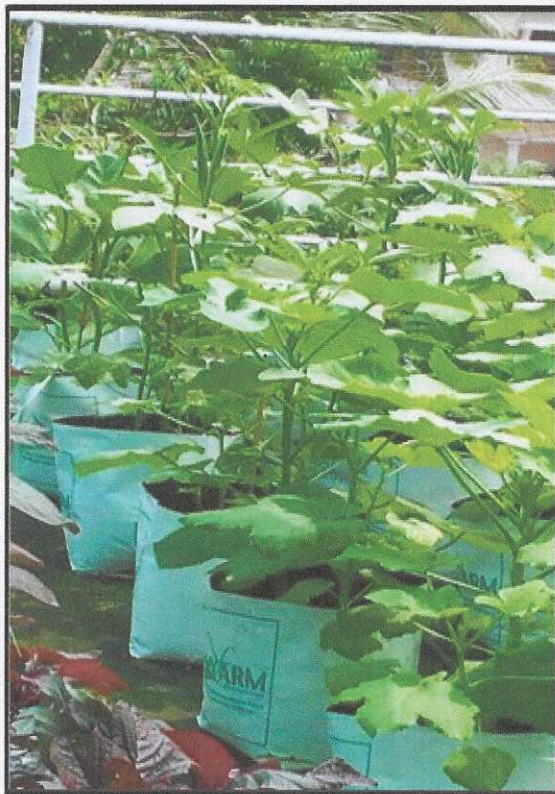
The college has already taken some green initiatives for a better future

- 1. The management has initiated to use Renewable Energy by fixing 10 kW Solar power.*




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2. *Environmental Day Celebration - On June 5th, the world celebrates Environmental Day, a time to reflect on the importance of environmental conservation and take meaningful actions to protect our planet.*



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6.4 WATER AND WASTEWATER MANAGEMENT

1. List uses of water in your institute

Basic use of water in campus:

Drinking – 30 KL/month

Gardening – 35 KL/month

Kitchen and Toilets – 594 KL/month

Others – 6 KL/month

Hostel – 216 KL/Month

Total = 881 KL/Month

Per capita water demand = Daily water consumption / Number of person

$$= 29366/329 = 89.25 \text{ Litter}$$

SL NO	STORAGE TYPE	CAPACITY (L)	QUANTITY	TOTAL (L)
1	Overhead water tank	15000	2	30000
TOTAL CAPACITY				30000 L

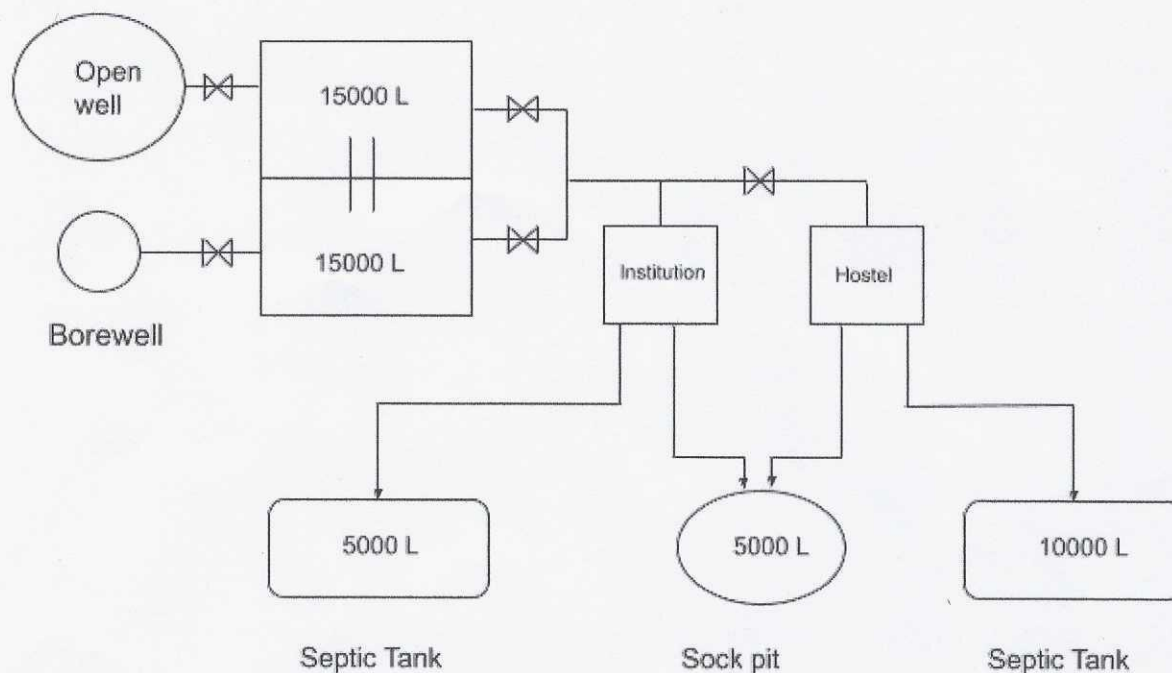
Saving Techniques:-

1. Avoid overflow of water, controlled valves are provided in the water supply system.
2. Close supervision for the water supply system.
3. Water Conservation awareness for new students
4. Sprinklers usage for gardening and grass cover



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Water Flow Diagram



Recommendation:-

1. To implement STP/ETP - The output water can be used for Irrigation purpose, it will significantly reduce the usage of water for irrigation purpose .
2. To be provided WTP (after water test if required)
3. founded damages and leakage , need to change all the CP and sanitary fixtures (Water taps , Health faucet, shower with mixer , Urinals, Water closet and flush system etc .)
4. Suggested submersible pumps with more than 80% efficiency
5. Need to provide manhole for sock pit
6. Recommended to implement rainwater harvesting tank or rain water percolation pit
7. Suggested to provide grease trap in kitchen waste water outlet
8. Suggested to use ETP/STP outlet water in fleshing system for toilet usage
9. Recommended to add clean out provision for waste water line and soil water line



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6.5 CARBON FOOTPRINT - EMISSION & ABSORPTION

EMISSION

1. Electricity used per year - CO₂ emission from Electricity

(electricity used per year in kWh/1000) x 0.84

45850 kWh/1000*0.84

$(45850/1000)*0.84 = 38.514 \text{ Ton}$

2. LPG/PNG used per year - CO₂ emission from LPG/PNG

(LPG/PNG used per year in KG) x 2.99

256.4*2.99= 0.76 Ton

3. Diesel used per year CO₂ emission from HDS (Diesel)

(Diesel used per year in litres/1000) x 2.68

1040/1000*2.68 = 2.78 Ton

4. Transportation per year (car) CO₂ emission from transportation (Bus and Car)

College doesn't have any owned vehicles, so emission because of the transportation is Zero

Total CO₂ emission per year - (38.514+0.76+2.78) = 42.054 Ton

ABSORPTION BY THE INSTITUTION LAND

The Data

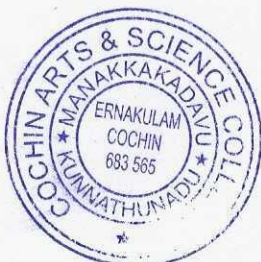
Full grown Trees - 22 Nos

Small Trees 20 Nos

Hedge Plants 100 Nos

Vegetable/fruit plans - 150 Nos

Grass Cover 450 SQM



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Reference and calculations

- There are 22 full grown trees and 20 semi grown trees of different species, (Carbon absorption capacity of one full grown tree 22 kg CO₂, Semi grown tree is 5.9 Kg)
- There are approximately 100 Hedge Plants of various species being raised in the gardens and grown in the areas where no buildings are built (Carbon absorption of bush plants varies widely with their species. Certain bushes absorb very high levels of CO₂ whereas some others absorb very low levels of CO₂. In the absence of a detailed scientific study, 200g of CO, absorption is taken per bush and can be considered 150g for the vegetations (in consultation with Environmental Science specialists).)
- The lawns on the campus have buffalo grass, Mexican grass and indigenous grass species and cover a total area of 4842 sq. ft. Carbon absorption capacity of a 10 sq. ft. area of lawn is 1 g per day

Full grown Trees -	=22*22/1000 = 0.484 Ton
Small Trees	=20*5.9/1000 = 0.118 Ton
Hedge Plants	=100*0.2 /1000 = 0.02 Ton
Vegetable/fruit plans	=150*0.15/1000 = 0.0225 Ton
Grass Cover	=(4842/10)*0.01*365 /1000 = 1.7673 Ton

Total Absorption by the institution = 2.41 Ton


CARBON FOOTPRINT

The carbon footprint of the campus is calculated by adding the carbon emissions from various energy sources.

Parameter	Tons of Co ₂
Gross Carbon Emission	42.054
Carbon Sequestration	2.41
Net Carbon Emission	39.644

We can reduce Approx 12 tons of carbon emission by using the initiated solar power plant.




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Carbon Mitigation Plans

RECOMMENDATION

The energy audit report includes some energy-saving recommendations. Implementing these proposals not only reduces the facility's energy consumption but also its carbon footprint.

Tree Plantation

1. **Carbon Sequestration:** Planting more trees, we can enhance carbon sequestration, effectively reducing atmospheric CO₂ levels.
2. **Oxygen Production:** Trees release oxygen (O₂) into the atmosphere. This not only supports human and animal life but also balances the carbon-oxygen cycle.
3. **Shade and Cooling:** Trees provide shade, reducing the need for energy-intensive air conditioning. Additionally, they cool the surrounding environment by releasing water vapour through transpiration.
4. **Soil Health:** Tree roots stabilise soil, preventing erosion and promoting healthy soil structure. Healthy soils store carbon and enhance overall ecosystem health.
5. **Urban Carbon Sink:** Urban tree planting helps offset carbon emissions from vehicles, industries, and buildings. Strategically placed trees absorb pollutants and improve air quality.

Waste Management

The significance of proper waste management in the context of sustainable development and environmental preservation cannot be overstated.. Adopting a holistic waste management approach is not only beneficial for college, but it is also critical for creating a greener, cleaner, and more sustainable future for future generations.. We recommend upgrading the biogas plant from 1 m³ to 10 m³ to properly manage waste and reduce the use of LPG. *The recommended LPG can produce approx 200 kg of LPG annually.* It will reduce **0.6 Ton** of carbon emission.



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Energy Management

- 1) The replace of T8 and T12 Light with LED Tube
- 2) Replace 10% old fan(60W) with with BLDC Fan(36W)
- 3) Implementing Solar Power Plant of 10 kW

Implementing energy saving proposals listed = **13.554 Ton**

Carbon reduction by replacing the AC = **1.512 Ton**

Environment

Air Conditioners

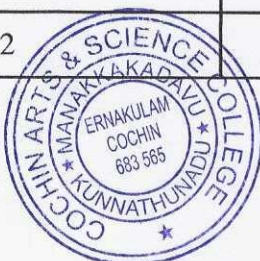
The facility employs split air conditioners in different areas The details are given below.

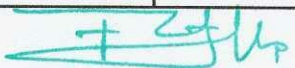
The facility primarily uses R32 refrigerant air conditioners. The refrigerant's global warming potential (GWP) and ozone depletion potential (ODP) are listed below.

SL NO	LOCATION	FLOOR	MAKE	TR	STAR	EER	POWER (W)	REFRIGERANT	YEAR
1	Principal Room	GF	Lloyd Inverter	1 TR	3	3.93	1050	R 32	2023
2	Conference Room	SF	LG	1.5TR	5	4.73	1440	R 32	2019
3	Conference Room	SF	LG	1.5TR	5	4.73	1440	R 32	2019
4	Conference Room	SF	Lloyd	1.5 TR	3	2.73	1100	R 32	2018

Refrigerant :-

SL NO	REFRIGERANT	GWP	ODP	CLASS
1	R 32	675	0	A2L
2	R-410 a	2088	0	A1



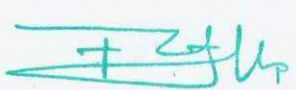

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R22 is a hydrochlorofluorocarbon (HCFC) refrigerant that is commonly used in air conditioning and refrigeration systems. It is also known as chlorodifluoromethane. In accordance with the Montreal Protocol on Substances that Deplete the Ozone Layer, the Indian government has taken steps to phase out the use of ozone-depleting substances, including HCFCs. As part of these efforts, R22 production and importation have been prohibited in India. Instead, the country has switched to more environmentally friendly refrigerants like R410A, which have less of an impact on ozone depletion. As a result, it is recommended that existing R22 used AC be replaced with the most recent energy efficient 5 star AC with environmentally friendly refrigerant. The savings calculation is shown below

Saving Calculation for Replacing Air Conditioners:-

PARTICULARS	UNIT	PRINCIPAL ROOM	CONFERENCE ROOM
Present 3 star AC	Watts	1050	1440
Proposed 5 star AC	Watts	900	1000
Difference in wattage	Watts	150	440
Average of Working Hours	Hrs	6	6
Number of AC	Nos	1	3
Working days per year	Days	200	200
Daily power saving	Kwh	1	8
Kwh Saving per annum	Kwh	200	1600
Cost per Kwh	Rs	6.8	6.8
Annual Financial saving	Rs	1360	10880
Cost Of AC	Rs	31000	36000
Investment for AC	Rs	31000	108000
Simple payback period	Months	275	120
Saving in emission	Ton of Co2	0.168	1.344




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7. GENERAL RECOMMENDATION

1. Environmental Parameters in Purchase Policy:

- Incorporate environmental criteria into your institution's purchase policy. Consider factors like product lifecycle, recyclability, and energy efficiency. This ensures a cradle-to-grave approach, promoting sustainable practices.
- Implement energy-saving practices such as using LED lighting, optimising HVAC systems, and promoting energy-conscious behaviour among staff and students.

2. Water Balancing and Audit:

- Conduct a water audit to monitor water usage and identify areas of wastage. Implement water-saving measures and raise awareness among staff and students about responsible water consumption.
-

3. Water Meter Installation:

- Install water metres in every building to track water consumption per capita. Regular monitoring allows for better management and conservation efforts.

4. Drip Irrigation Implementation:

- Adopt drip irrigation systems for landscaping and green spaces. Drip irrigation delivers water directly to plant roots, minimising wastage and promoting efficient water use.

5. Sprinklers for Gardening:

- Increase the use of sprinkler systems for maintaining gardens and lawns. Properly timed sprinklers can reduce water usage while keeping the campus green.

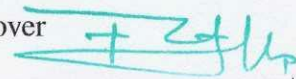
6. Flow Rate Regulation:

- Regularly check tap flow rates. Ensure they do not exceed 2.5 litres per minute. Repair any leaks promptly to prevent water loss.

7. Community Plantation Drives:

- Collaborate with nearby villages, local bodies, NGOs, and municipal corporations to organise tree plantation drives. Increasing green cover contributes to carbon sequestration and biodiversity.




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8. Environmental Training Programs:

- Arrange training sessions on environmental management systems and nature conservation. Involve schools and local communities to create awareness and foster sustainable practices.
- Regularly educate students, faculty, and staff about environmental issues, conservation, and sustainable practices.

9. Waste Collection Center:

- Establish an e-waste collection centre on campus. Proper disposal and recycling of electronic waste are essential for minimising environmental impact.
- Set up efficient waste segregation and recycling systems. Encourage the use of reusable containers and minimise single-use plastics.

10. Green Building Guidelines:

- Develop green building guidelines for future expansion projects. Consider energy-efficient designs, renewable energy sources, and sustainable materials.

8. CONCLUSION

This audit involves considerable team discussions and meetings with key staff members on a variety of environmental-related topics.

Overall 20% of the Total land is College campus and 25 % used for landscaping and green cover the remaining used for amenities . The College makes a significant effort to act in an environmentally responsible manner and takes into account the environmental effects of the majority of its activities. The recommendations in this report suggest some more ways in which the College can work to improve its practices and develop into a more sustainable institution, despite the fact that it performs rather well overall.

It's important to begin a few things, such as drip irrigation and checking the water flow from the taps. Additionally, we strongly advise installing water metres at each building/block and water balancing report. Also the effective completion of the Energy audit report recommendations.



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