



Quality Audit Reports and Certificate

SL No.	Reports
1.	Green Audit Certificate 2022-2023
2.	Green Audit Certificate 2021-2022
3.	Green Audit Report 2022-2023
4.	Green Audit Report 2021-2022





Green Audit Certificate 2022-2023

No: 2023051310001



Certification & Inspection
ISO/IEC 17020: 2012



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035-CB-EMS
ISO 9001 : 2015 Certified (22DQJE85)
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OTTOTRACTIONS
Energy-Engineering-Environment

Green Audit Certificate

This is to certify that the Korambayil Ahamed Haji Memorial Unity Women's College, Manjeri has conducted "Green Audit " to assess the Carbon foot print, Green initiatives, Waste management, Water management, Energy management , Environment awareness activities etc.

The data collection has been carried out diligently and truthfully.

All reasonable professional skill, care and diligence had been taken in preparing the green audit report and the contents thereof are a true representation of the facts; Adequate training provided to personnel involved in daily operations after implementation of recommendations; and the college has submitted necessary data and credentials for verification. The green audit for the year 2022-23 has been carried out in accordance with the various rules and regulations in India.

The efforts taken by the management, faculty and the students towards environment and sustainability are highly appreciated.

Dated this 13th day of May 2023.

SURESH BABU B V
ACCREDITED ENERGY AUDITOR
AEA-33, BUREAU OF ENERGY EFFICIENCY
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Green Audit Certificate 2021-2022

No: 2023051310004



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GREEN AUDIT REPORT

KORAMBAYIL AHAMED HAJI MEMORIAL UNITY WOMEN'S COLLEGE

MANJERI

Executed by



2023


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Accredited Energy Auditor:AEA-33
Bureau of Energy Efficiency
Government of India.



Empanelled Energy Auditor:EMCEEA-0211F
EMC (Energy Management Centre-Kerala)



ISO 9001 : 2015 Certified (22DQJE85) ISO
14001:2015 Certified (22DEJE84)



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GREEN AUDIT REPORT

KORAMBAYIL AHAMED HAJI MEMORIAL UNITY WOMEN'S COLLEGE

MANJERI




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Green Audit Report
KAHM Unity Women's College, Manjeri
Report No: EA 1000/GA
2023-March

About OTTOTRACTIONS

OTTOTRACTIONS established in 2005, is an organization with proven track record and knowledge in the field of energy, engineering, and environmental services. They are the first Accredited Energy Auditor from Kerala for conducting Mandatory Energy Audits in Designated Consumers as per Energy Conservation Act-2001. Government of Kerala recognized and appreciated OTTOTRACTIONS by presenting its prestigious "The Kerala State Energy Conservation Award 2009" for the best performance as an Energy Auditor. Ottotractions is an ISO 9001-2015, ISO 17020-2012 and ISO 14001-2015 Certified organization, which ensures the quality of its services.




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Acknowledgment

We were privileged to work together with the administration and staff of KAHM unity Women's College, Manjeri for their timely help extended to complete the audit and bringing out this report.

With gratitude, we acknowledge the diligent effort and commitments of all those who have helped to bring out this report.

We also take this opportunity to thank the bona-fide efforts of audit team for unstinted support in carrying out this audit.

We thank our consultants, engineers and backup staff for their dedication to bring this report.

Thank you.

B V Suresh Babu
Accredited Energy Auditor
AEA 33, Bureau of Energy Efficiency




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Preface

Educational institutions always had an important leadership role in society in demonstrating types of changes that used to occur with respect to the prime issues of the time. All around the world, educational institutions are taking steps to declare themselves the next carbon neutral school as a part of the global trend of becoming sustainable. In 2007, Victoria University School of Architecture and Design declared themselves the first carbon neutral campus in the world through the purchase of carbon credits. This concept is not a sustainable model as it does not guarantee the capture of carbon forever and also it is expensive.

The potential for any academic institution- (may be a school in a remote village or a university in an urban setting) - to become the driver for change is huge. Its role of practicing leadership in its community can be utilized to encourage and influence carbon neutral living.

The biggest factors that contribute towards emission are Energy, Transportation and Waste. Any reduction in the carbon emission by the above sectors, starts with the behavioral changes (Low cost) and/or technological investments (High cost). In order to make these changes, the students are to be educated properly on the concept of carbon neutral campuses and methods to reduce it.

In India, the concept of carbon neutral campuses is gaining momentum. Green Audit in Campuses measures the amount of Green House Gases (GHG) emissions produced as a result of its operations through an accounting like inventory of all the sources of GHGs and carbon sequestration in the school campus. Based on this, the total carbon footprint is estimated. Measures are recommended to bring down the carbon footprint of the campus and to make it a carbon neutral campus.

B Zachariah

Director, OTTOTRACTIONS




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1

Introduction



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Background

All across the developed countries, educational institutions are now moving to a sustainable future by becoming carbon neutral and greener spaces. They are taking responsibility for their environmental impact and are working to neutralize those effects. To become carbon neutral, institutions are working to reduce their emissions of greenhouse gases, cut their use of energy, use energy efficient equipment, use more renewable energy, plant and protect green cover and emphasize the importance of sustainable energy sources. Institutions that have committed to becoming carbon neutral have recognized the threat of global warming and are therefore committing to reverse the trend. Studies on this line has not struck roots in most of the developing countries-especially among students.

The Sustainable Development Goals (SDGs), launched by the United Nations in 2015, are an excellent vehicle for driving this change. They represent an action plan for the planet and society to thrive by 2030. The SDGs provide a window of opportunity for creating multidimensional operational approaches for climate change adaptation. They address poverty, hunger and climate change, among other issues central to human progress and sustainable development, such as gender equality, clean water and sanitation, and responsible consumption and production.



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The Green Audit of **KAHM Unity Women's College, Manjeri** aims to assist campus to reduce their carbon footprint and educate tomorrow's leaders about strategies for carbon mitigation using their campus as a model. Also, this audit covers institutes responses towards SDGs by covering SDG 3,6,7,11,13,15. The green audit also aims to educate students and teachers on the concept of carbon footprint and to enable the students to collect data pertaining to the carbon emissions and carbon sequestration in their campus and to calculate the specific carbon footprint of the campus.

The project also suggests plans to make the campus carbon neutral or even carbon negative by implementing carbon mitigation strategies in areas such as,

- a. Energy
- b. Transportation
- c. Waste minimisation
- d. Carbon Sequestration etc.

The major objectives of the audit are:

- To make aware students and teachers on the concept of carbon footprint.
- To calculate the specific carbon footprint of the campus and classify it as carbon negative, neutral or positive.
- To create carbon mitigation plans to reduce their footprint based on the data generated.

KAHM UNITY WOMEN'S COLLEGE, MANJERI

K.A. H. M. Unity women's College, Manjeri was established in 1991 and is run by Muslim Educational and Cultural Association (MECA), a registered society and as the first women's educational institution in the field of higher education in Malappuram district in Kerala. The college was founded by the visionary, Janab Korambayil Ahamed Haji. He envisaged the institution as a center based on the values of integrity and social commitment, promoting learning and culture. The college strives to produce intellectually competent, morally upright and spiritually inspired citizens in the service of the nation.

A sprawling green campus spread over 17 acres; the college is located in Pulpatta village about 1.6 kilometers away from Manjeri- Calicut Road. Affiliated to Calicut



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University, Thenhiipalam, the institution is known for its academic excellence and research potential. The college has 10 academic departments, with around 1600 students and 72 faculty members.

The college has been rated as a 'B++' Grade institution by the National Assessment and Accreditation Council (NAAC) in the third cycle with 2.77 points.

Occupancy Details		
Particulars	2021-22	2022-23
Total Students	1667	1704
Staffs	104	104
Total Occupancy of the college	1771	1808

For calculating per capita carbon emission estimation, only the student strength is taken into account.

BASELINE DATA SHEET FOR GREEN AUDIT							
1	Name of the Organisation	KAHM Unity Women's College, Manjeri					
2	Address (include telephone, fax & e-mail)	KAHM Unity Women's College P.O. Narukara, Manjeri, Malappuram Kerala 676 122 info@unitywomenscollege.in 0483 – 2768030 (Principal)					
2	Year of Establishment	1991					
3	Name of building and Total No. of Electrical Connections/building	KAHM Unity Women's College					
4	Total Number of Students	Boys		Girls	1704	Total 1704	
5	Total Number of Staff	104					
6	Total Occupancy	1808					
7	Total area of green cover	50%					
8	Type of Electrical Connection	HT	0	LT	7		
9	Total Connected Load (kW)	105					
10	Average Maximum Demand (KVA)	-					
11	Total built up area of the building (M ²)	5158					
12	Number of Buildings	12					
13	Average system Power Factor	0.98					
14	Details of capacitors connected	NA					
15	Transformer Details (Nos., kVA, Voltage ratio)	TR 1					
		NA					
15	DG Set Details (kVA)	DG1	DG2	DG3	DG4	DG5	Remarks
		62.5					
16	Details of motors	Rating		Nos.		Remarks	
		5 to 10					
		10 to 50					
		Above 50					
17	Brief write-up about the firm and the energy/environmental conservation activities already undertaken.	Installed LED Lights, 45kWp Solar power plant etc.					
18	Contact Person & Telephone number	Principal					
		0483 – 2768030					



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2

METHODOLOGY



2.1. Sensitisation

Low Carbon campus initiatives are successful when everyone in the campus is engaged including students, teachers and staff. A team of students, teachers and staff were formed to participate in the audit. A sensitisation among students and teachers on the concept of carbon footprint was conducted.



During the audit the students and staffs were sensitised on the project and trained to be a part of the data collection team. This helped in conducting the survey in a participatory mode so that the awareness will penetrate to the grass root level. During the data collection field visit it was stressed that the team will spread these ideas to their homes and friends. This will help in a horizontal and vertical spread of the message to a wider group. It is assumed that through 1448 occupants of this campuses will reach same number of households. This message will spread to at least 4350 individuals approximately.

2.2 Estimation of carbon footprint

A carbon footprint is the amount of greenhouse gases—primarily carbon dioxide—released into the atmosphere by a particular human activity. A carbon footprint can be a broad measure or be applied to the actions of an individual, a family, an event, an organization, or even entire nation. It is usually measured as tons of CO₂ emitted per year, a number that can be supplemented by tons of CO₂-equivalent gases, including methane, nitrous oxide, and other greenhouse gases.

Global Warming Potential (GWP) is a measure of how much more a greenhouse gas traps in the atmosphere up to a specific time horizon, relative to carbon dioxide. The

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Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of carbon dioxide (CO₂).

Global Warming Potentials (IPCC Second Assessment Report)					
Species	Chemical formula	Lifetime (years)	Global Warming		
			20 years	100 years	500 years
Carbon dioxide	CO ₂	variable §	1	1	1
Methane *	CH ₄	12±3	56	21	6.5
Nitrous oxide	N ₂ O	120	280	310	170
HFC-23	CHF ₃	264	9100	11700	9800
HFC-32	CH ₂ F ₂	5.6	2100	650	200
HFC-41	CH ₃ F	3.7	490	150	45
HFC-43-10mee	C ₅ H ₂ F ₁₀	17.1	3000	1300	400
HFC-125	C ₂ H ₂ F ₅	32.6	4600	2800	920
HFC-134	C ₂ H ₂ F ₄	10.6	2900	1000	310
HFC-134a	CH ₂ FCF ₃	14.6	3400	1300	420
HFC-152a	C ₂ H ₄ F ₂	1.5	460	140	42
HFC-143	C ₂ H ₃ F ₃	3.8	1000	300	94
HFC-143a	C ₂ H ₃ F ₃	48.3	5000	3800	1400
HFC-227ea	C ₃ H ₂ F ₇	36.5	4300	2900	950
HFC-236fa	C ₃ H ₂ F ₆	209	5100	6300	4700
HFC-245ca	C ₃ H ₃ F ₅	6.6	1800	560	170
Sulphur hexafluoride	SF ₆	3200	16300	23900	34900
Perfluoromethane	CF ₄	50000	4400	6500	10000
Perfluoroethane	C ₂ F ₆	10000	6200	9200	14000
Perfluoropropane	C ₃ F ₈	2600	4800	7000	10100
Perfluorobutane	C ₄ F ₁₀	2600	4800	7000	10100
Perfluorocyclobutane	c-C ₄ F ₈	3200	6000	8700	12700
Perfluoropentane	C ₅ F ₁₂	4100	5100	7500	11000
Perfluorohexane	C ₆ F ₁₄	3200	5000	7400	10700

The methodology for carbon footprint calculations are still evolving and it is emerging as an important tool for green house management. In the present study carbon emission data from the campus is estimated under four categories viz.

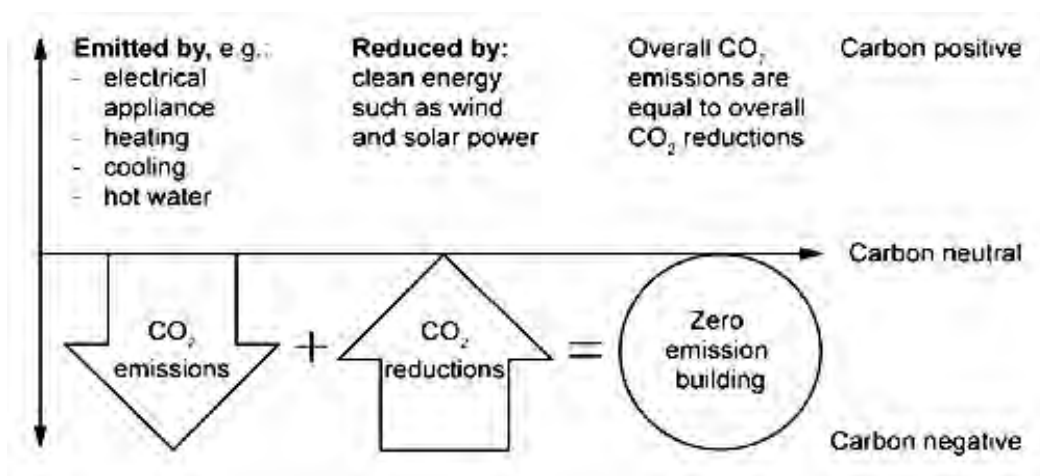
- a. Energy
- b. Transportation
- c. Waste minimisation
- d. Carbon Sequestration



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Carbon neutrality refers to achieving net zero GHG emission by balancing the measured amount of carbon released into atmosphere due to human activities, with an equal amount sequestered in carbon sinks. It is crucial to restrict atmospheric concentrations of GHGs released from various socio-economic, developmental and life style activities using biological or natural processes. It is recognized that addressing climate change is not as simple as switching to renewable energy or offsetting GHG emissions. Rather, providing an opportunity for innovation in new developmental activities for viable and effective approach to address the problem.



Energy

In the campus carbon emission from energy consumption is categorised under two headings viz. energy from Electrical and Thermal. Energy used for transportation is calculated under transportation sector.



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A detailed energy audit is conducted to understand the energy consumption of the campus. Information on total connected loads, their duration of usage and documents like electricity bills are evaluated. Connected loads are calculated by conducting a



survey on electrical equipment on each location. Duration of usage was found out by surveying the users. The survey of equipment was conducted in a participatory mode.

The fuel consumption for cooking, like LPG, was studied by analysing the annual fuel bills and usage schedules during the study. Discussions were carried out with the concerned individuals who actually operate the cooking system.

Transportation

Carbon emission from transportation to be calculated by using the following formula:

Carbon Emission = Number of each type of vehicles × Avg. fuel consumed per year
× Emission factors (based on the fuel used by the vehicle)

Waste Minimisation

The waste generated from the campus is also responsible for the greenhouse gas emission. So, in order to calculate the total carbon foot print of the campus it is necessary to estimate the greenhouse gas emission from the waste generated in the campus by the activity of the students, teachers and staffs.

The calculation of the waste generated has been conducted by keeping measuring buckets for collecting the waste generated in a day. This waste so generated was calculated by weighing it.




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Carbon Sequestration

Carbon sequestration is the process involved in the long-term storage of atmospheric carbon dioxide. Trees remove carbon dioxide from the atmosphere through the natural process of photosynthesis and store the carbon in their leaves, branches, stems, bark, and roots.

Carbon sequestered by a tree can be found out by using different methods. Since this study is employed the volumetric approach, the calculation consists of five processes.

- Determining the total weight of the tree
- Determining the dry weight of the tree
- Determining the weight of carbon in the tree
- Determining the weight of CO₂ sequestered in the tree
- Determining the weight of CO₂ sequestered in the tree per year

Detailed calculations and results are given below.

Step 1: Determine the total green weight of the tree

The green weight is the weight of the tree when it is alive. First, you have to calculate the green weight of the above-ground weight as follows:

$W_{\text{above-ground}} = 0.25 D^2 H$ (for trees with $D < 11$)

$W_{\text{above-ground}} = 0.15 D^2 H$ (for trees with $D > 11$)

$W_{\text{above-ground}}$ = Above-ground weight in pounds

D = Diameter of the trunk in inches

H = Height of the tree in feet

The root system weight is about 20% of the above-ground weight. Therefore, to determine the total green weight of the tree, multiply the above-ground weight by 1.2:

$W_{\text{total green weight}} = 1.2 * W_{\text{above-ground}}$

Step 2: Determine the dry weight of the tree

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The average tree is 72.5% dry matter and 27.5% moisture. Therefore, to determine the dry weight of the tree, multiply the total green weight of the tree by 72.5%.

$$W_{\text{dry weight}} = 0.725 * W_{\text{total green weight}}$$

Step 3: Determine the weight of carbon in the tree

The average carbon content is generally 50% of the tree's dry weight total volume. Therefore, in determining the weight of carbon in the tree, multiply the dry weight of the tree by 50%.

$$W_{\text{carbon}} = 0.5 * W_{\text{dry weight}}$$

Step 4: Determine the weight of carbon dioxide sequestered in the tree

CO₂ has one molecule of Carbon and 2 molecules of Oxygen. The atomic weight of Carbon is 12 (u) and the atomic weight of Oxygen is 16 (u). The weight of CO₂ in trees is determined by the ratio of CO₂ to C is 44/12 = 3.67. Therefore, to determine the weight of carbon dioxide sequestered in the tree, multiply the weight of carbon in the tree by 3.67. $W_{\text{carbon-dioxide}} = 3.67 * W_{\text{carbon}}$




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RESULTS AND DISCUSSIONS



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3.1 CARBON FOOTPRINT ESTIMATION

3.1.1 ENERGY

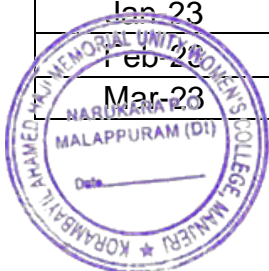
a. Electricity

Electricity is purchased from KSEB under 7 LT Connections, the details are given below.

Electricity Connection Details		
KAHM Unity Women's College, Manjeri		
1	Name of the Consumer	KAHM Unity Women's College, Manjeri
2	Tariff	LT-6A 3Ph
3	Consumer Numbers	1165467009325, 1165460033834, 1165465013047, 1165467065227, 1165464065206, 1165460013720, 1165463063712
5	Connected Load Total (kW)	98
6	Annual Electricity Consumption (kWh)	53945

Electricity Bill Analysis

2022-2023					
Name of the Consumer		KAHM Unity Women's College, Manjeri			
Connected load	80	Consumer no	1165467009325		
Tariff	LT-6A 3Ph	Section	Manjeri South		
Month	kWh	kWh		Rs (Total)	Rs/kwh
	Import	Export			
Apr-22	1800	60		15826	8.79
May-22	3980	20		33514	8.42
Jun-22	2078	55		17500	8.42
Jul-22	3672	20		31800	8.66
Aug-22	3705	23		32978	8.90
Sep-22	2648	68		24200	9.14
Oct-22	2283	41		21414	9.38
Nov-22	2742	39		26375	9.62
Dec-22	2515	44		24800	9.86
Jan-23	2539	49		25646	10.10
Feb-23	2652	75		27420	10.34
Mar-23	3454	18		36545	10.58



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2022-2023			
Name of the Consumer		KAHM Unity Women's College, Manjeri	
Connected load	8	Consumer no	1165460033834
Tariff	LT-6A 3Ph	Section	Manjeri South
Month	kWh	Rs (Total)	Rs/kwh
May-22	1220	7594	6.22
Jul-22	2114	14214	6.72
Sep-22	2064	15255	7.39
Nov-22	2900	21429	7.39
Jan-23	3087	25904	8.39
Mar-23	3243	27196	8.39

2022-2023			
Name of the Consumer		KAHM Unity Women's College, Manjeri	
Connected load	10	Consumer no	1165465013047
Tariff	LT-6A 3Ph	Section	Manjeri South
Month	kWh	Rs (Total)	Rs/kwh
May-22	352	3542	10.06
Jul-22	333	3346	10.06
Sep-22	396	3981	10.06
Nov-22	421	4236	10.06
Jan-23	645	6488	10.06
Mar-23			

2022-2023			
Name of the Consumer		KAHM Unity Women's College, Manjeri	
Connected load	3	Consumer no	1165460013720
Tariff	LT-6A 3Ph	Section	Manjeri South
Month	kWh	Rs (Total)	Rs/kwh
May-22			
Jul-22	219	1952	8.90
Sep-22	110	977	8.90
Nov-22	198	1762	8.90
Jan-23	151	1340	8.90



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Annual Electricity Consumption (kWh)			
Consumer No	2021-22	2022-23	Connected Load (kW)
1165467009325	27099	33557	80
1165460033834	29258	14698	8
1165465013047	4299	5150	10
1165467065227	0	0	1
1165464065206	0	0	1
1165460013720	1016	502	3
1165463063712	325	38	2
Total	61997	53945	105

Diesel

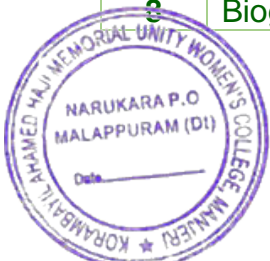
Diesel Consumption Details				
	Transportation	Generator	Total	cost
	in L	in L	in L	in Rs
21-22	7349	753	8102	769646
22-23	14452	581	15033	1443157

LPG

LPG Consumption Details		
	2021-22	2022-22
No Cylinders	13	11
Canteen/Lab LPG Consumption in kg	195	165
Total in kg	195	165

Base Line Energy Data			
KAHM Unity Women's College, Manjeri			
		2021-22	2022-23
1	Electricity KSEB (kWh)	61997	53945
2	Electricity DG (kWh)	2259	1742
3	Electricity Solar , Off grid (kWh)	0.00	0.00
4	Electricity (KSEB + DG + Off grid) kWh	64256	55687
5	Electricity Grid Tied (kWh)	54613	57488
6	Diesel (L)	7349	14452
7	LPG (kg)	195.00	165.00
8	Biogas (m3)	0.00	0.00

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Energy Consumption Profile			
SI No	Fuel	2021-22	2022-23
		(kCal)	
1	Electricity	55260429	47891163
2	Diesel	77159305	151746984
3	LPG	2340000	1980000
4	Biogas	0	0
Total		134759735	201618147

Thermal Fuel Consumption		
KAHM Unity Women's College, Manjeri		
	2021-22	2022-23
Annual LPG consumption in kg	195	165
Annual Diesel consumption in L	8102	15033
Annual petrol consumption in L	0	0
Annual Biogas consumption in m3	0	0

Renewable Energy



Solar Power Plant		
Capacity (kWp)	Annual Generation	
	2021-22	2022-23
45	54613	57488

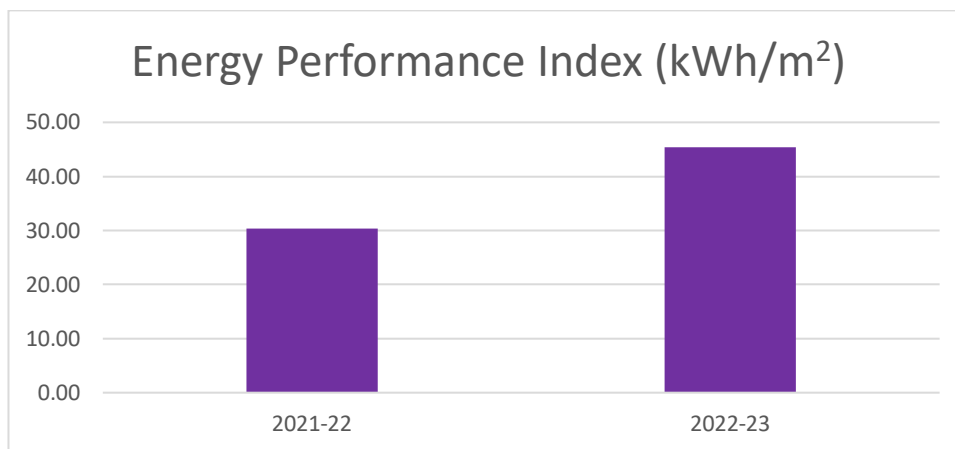


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Specific Energy Consumption

OTTOTRACTIONS- ENERGY AUDIT			
KAHM Unity Women's College, Manjeri			
Energy Performance Index (EPI)			
SI No	Particulars	2021-22	2022-23
1	Total building area (m ²)	5158	5158
2	Annual Energy Consumption (kCal)	134759735	201618147
3	Annual Energy Consumption (kWh)	156697	234440
4	Total Energy in Toe	13.48	20.16
5	Specific Energy Consumption kWh/m ²	30.38	45.45

The specific energy consumption in 2022-23 may be taken as benchmark.



3.3. Waste Generation total

The major concern of waste management will be focused on the solid waste produced by the campus. Solid wastes produced in the campus are mainly of three types, food waste, paper waste, and plastic waste. Food wastes produced in the campus are mainly by two means. The vegetable wastes produced in the kitchen during the food preparation. The food waste produced by the students and staffs of the campus after the consumption of meals.



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Degradable Waste

Degradable Waste Generation		
KAHM Unity Women's College, Manjeri		
Particulars	2021-22	2022-23
Total Occupancy	1771	1808
Waste generated in kg /day	35.42	36.16
Waste generated in kg /Yr	7792.4	7955.2

Non-Degradable waste

Solid non degradable Waste Generation		
KAHM Unity Women's College, Manjeri		
Particulars	2021-22	2022-23
Total Occupancy	1771	1808
Waste paper generated in kg /day	0.3542	0.3616
Waste plastic generated in kg /day	0.5313	0.5424
Waste paper generated in kg /Yr	77.92	79.55
Waste plastic generated in kg /Yr	116.89	119.33

3.4. Transportation

The college have 4 vehicles for Transportation. The diesel consumption of these vehicles is used for calculating carbon emission.




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Carbon Emission Profile (2022-23)

Carbon emissions in the campus due to the day-to-day activities are calculated and is discussed below. The emission factors considered for estimation and its units are given.

Emission Factors		
Item	Factor	Unit
Electricity	0.00082	tCo ₂ e/kWh
LPG	0.0015	tCo ₂ e/kg
Diesel	0.0032	tCo ₂ e/kg
Petrol	0.0031	tCo ₂ e/kg
Food Waste	0.00063	tCo ₂ e/kg
Paper Waste	0.00056	tCo ₂ e/kg
Plastic Waste	0.00034	tCo ₂ e/kg

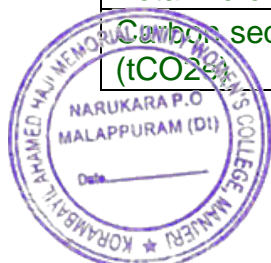
Carbon Foot Print 2022-23

Carbon Foot Print					
Sl. No.	Particulars	2021-22	tCO ₂ e	2022-23	tCO ₂ e
1	Electricity (kWh)	64256	52.69	55687	45.66
2	Diesel (L)	6072	19.43	11942	38.21
3	LPG (kg)	195.00	0.29	165.00	0.25
4	Biogas (m ³)	0.00	0.00	0.00	0.000
5	Degradable Waste in kg/yr.	7792.4	4.91	7955.2	5.01
6	Paper Waste in kg/yr	77.92	0.04	79.55	0.04
Total Carbon Foot Print tCO₂e/yr			77.37		89.18

3.5. CARBON SEQUESTRATION

All the activities including energy consumption and waste management have their equivalent carbon emission and they positively contribute to the carbon footprint of the campus. Carbon sequestration is the reverse process, at which the emitted carbon dioxide will get sequestered according to the type of carbon sequestration employed. Even though there are many natural sequestration processes are involved in a campus, the major type of sequestration among them is the carbon sequestration by trees.

Carbon Sequestration		
Particulars	2021-23	2022-23
Total No of Trees	244	244
Carbon sequestered by trees in the campus (tCO ₂ e)	10.3	10.80



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Trees sequester carbon dioxide through the biochemical process of photosynthesis and it is stored as carbon in their trunk, branches, leaves and roots. The amount of carbon sequestered by a tree can be calculated by different methods. In this study, the volumetric approach was taken into account, thus the details including CBH (Circumference at Breast Height), height, average age, and total number of the trees, are required. Details of the trees in the campus compound are given in the Table. Detailed table is included in the technical supplement.

Carbon sequestered by a tree can be found out by using different methods. Since this study is employed the volumetric approach, the calculation consists of five processes.

- Determining the total weight of the tree
- Determining the dry weight of the tree
- Determining the weight of carbon in the tree
- Determining the weight of CO₂ sequestered in the tree
- Determining the weight of CO₂ sequestered in the tree per year

List of Trees in Campus

List of Trees and Plants		
Sl. No.	Scientific Name	QTY
1	Phyllanthus emblica	18
2	Tecoma stans	1
3	Murraya paniculata	6
4	Ficus benjamina	1
5	Elaeis guineensis	3
6	Peltophorum pterocarpum	0
7	Polyalthia longifolia	2
8	Pongamia pinnata	3
9	Mangifera indica	5
10	Averrhoa bilimbi	2
11	Tamarindus indica	4
12	Psidium guajava	6
13	Hevea braziliensis	2
14	Pterocarpus marsupium	7
15	Syzygium cumini	1
16	Ficus religiosa	2
17	Caesalpinia coriaria	1



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18	Leucaena leucocephala	2
19	Saraca asoca	5
20	Caesalpinia pulcherrima	2
21	Acacia auriculiformis	3
22	Albizia saman	4
23	Callistemon citrinus	4
24	Anacardium occidentale	4
25	Hamelia patens	4
26	Chrysophyllum cainito	4
27	Ficus auriculata	5
28	Bougainvillea spectabilis	2
29	Casuarina equisetifolia	3
30	Tabernaemontana divericata	7
31	Cycas circinalis	4
32	Cocos nucifera	1
33	Ficus benghalensis	1
34	Swietenia mahagony	2
35	Plumeria rubra	5
36	Plumeria pudica	1
37	Allamanda cathartica	1
38	Codiaeum variegatum	1
39	Hibiscus rosa-sinensis	5
40	Terminalia catappa	7
41	Terminalia bellerica	3
42	Alstonia scholaris	2
43	Ixora javanica	2
44	Asperagus recemoses	1
45	Annona squamosa	1
46	Dracaena marginata	1
47	Dracaena Jragrans	3
48	Jatropha curcas	5
49	Gmelina arborea	8
50	Syzygium malaccense	1
51	Senna auriculata	4
52	Caesalpinia sappan	7
53	Hydnocarpus pentandra	1
54	Vernonia elliptica	1
55	Heliconia acuminata	2
56	Mimusops elengi	1
57	Euphorbia thirukkalli	1
	Delonix regia	1
59	Glyricidia sepium	1
60	Simarouba amara	3
61	Passiflora edulis	1



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62	Acacia mangium	4
63	Manilkara zapota	1
64	Santa/um album	1
65	Eucalyptus globulus	1
66	Tectona grandis	3
67	Briedelia retusa	1
68	Bambusa bambos	2
69	Bambusa arundinacea	6
70	Hibanobambusa tranquillans 'shiroshima'	4
71	Hymenocal/is littoralis	5
72	Vitex nigundu	2
73	Macaranga peltata	7
74	Abrus precatorius	2
75	Helicteres isora	3
76	Azadiracta indica	2
77	Lawsonia inermis	4
78	Justicia adathoda	1
79	Justicia gendarossa	4
80	Holarrhena antidysenterica	1
81	Cinnamomum zelanicum	3
82	Pimenta dioica	2
83	Annona reticulata	2
84	Moringa oleifera	2
85	Pterocarpus santalinus	1
86	Touteria campechiana	1
Total		244

CARBON FOOTPRINT OF THE CAMPUS (2022-23)

Various carbon emitting activities such as consumption of energy, transportation and waste generation leads to the total emission of **89.18 tCO₂e** per year by the campus. The total carbon sequestration by trees in the campus compound is **10.80tCO₂e**. Thus, the current carbon footprint of the campus will be the difference of total carbon emission and total carbon sequestration/mitigation. The following table shows the carbon footprint level




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Specific CO2 Footprint

Amount of Carbon to be mitigated for Low Carbon Campus			
Sl No	Particulars	2021-22	2022-23
1	Total carbon emission tCO ₂ e	77.37	89.18
2	Total carbon sequestration tCO ₂ e	10.26355981	10.80
3	Amount of carbon mitigated through renewable energy tCO ₂ e	44.78	47.14
4	To be mitigated tCO ₂ e	22.32	31.24
5	Total No of Students	1771	1808
6	Specific Carbon Footprint kg CO ₂ e/Student/Yr	12.60	17.28

The total specific carbon footprint is estimated as **17.28** kg of CO₂e per student for the year 2022-23.



Rain Water Harvesting




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Carbon Mitigation Plans



The total emission of the carbon dioxide per student is **17.128** kg per year (2022-2023). Emission reduction plans were prepared to bring the existing per capita carbon footprint to zero or below so as to bring the campus a carbon neutral or carbon negative campus.

This can be achieved in many ways but, every alternate plan must be in such a way that, it must fulfill the actual purpose of each activity that is considered.

Here, three major methods are taken in to account as the plans for reducing the carbon emission of the campus.

- Resource optimisation
- Energy efficiency
- Renewable energy

RESOURCE OPTIMISATION

The effective use of resources can limit its unnecessary wastage. Optimal usage of the resources (such as fuels) can save the fuel and can also reduce the carbon emission due to its consumption. This technique can be effectively implemented in the 'transportation' and 'waste' sectors of the campus.

WASTE MINIMISATION

Optimal utilisation of paper and plastic stationaries can reduce the frequency of purchase of items. This can reduce the unnecessary wastage of money as well as the excess production of waste. In the case of food, proper food habits and housekeeping practices can optimise its usage.

Currently, the campus is taking an appreciable effort to reduce the unnecessary production of wastes. But the campus still has opportunities to reduce the generation of waste and can improve much more. Resource optimisation can be effectively implemented in all type of waste generated in the campus and the campus can expect about 50% reduction the total waste produced.


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ENERGY EFFICIENCY

Energy efficiency is the practice of reducing the energy requirements while achieving the required energy output. Energy efficiency can be effectively implemented in all the sectors of the campus.

FUELS FOR COOKING

The campus uses commercial LPG cylinders for its cooking purpose. The campus can install a biogas plant to treat food waste and the biogas thus generated can be used in kitchen. Installation of a solar water heater to rise the water temperature to a much higher level, then it has to consume only very less amount of thermal energy for preparing the same amount of food is another method. This can make a positive benefit to the campus by saving money, energy and can reduce the carbon emission of the campus due to thermal energy consumed for cooking.

TRANSPORTATION

Energy efficiency of the transportation sector is mainly depended on the fuel efficiency of the vehicles used. Here mileage of the vehicle (kmpl - Kilometres per Litre) is calculated to assess the fuel efficiency of the vehicle.

Percentage of closeness is the ratio of actual mileage of the vehicle to its expected mileage. If the percentage of closeness of mileages of each vehicle is greater than that of its average, then the efficiency status of the vehicle is considered as 'Above average' and else, it is considered as 'Below average'.




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Carbon Mitigation Proposals

After analyzing the historical and measured data the following projects are proposed to make the campus carbon neutral. The projects are from energy efficiency and renewable energy. The further additions in the green cover increase will also give positive impact in the carbon mitigation.

OTTOTRACTIONS- ENERGY AUDIT						
KAHM Unity Women's College, Manjeri						
Greenhouse Gas Mitigation through Major Energy Efficiency Projects						
Sl No	Projects	Energy saved (Yearly)		Sustainability (Years)	First year ton of CO2 mitigated	Expected Tons of CO2 mitigated throughout life cycle
		(kWh)	MWh	Years		
1	Energy Saving in Lighting by replacing existing 6 No's T5 (28W) Lamps to 18W LED Tube	95	0.10	10	0.07	0.69
2	Energy Saving in Lighting by replacing existing 69 No's T8 (40W) Lamps to 18W LED Tube	1093	1.09	10	0.80	7.98
3	Energy Saving in Lighting by replacing existing 17 No's CFL(15W) Lamps to 9W LED Bulb	73	0.07	10	0.05	0.54
4	Energy Saving by replacing existing 276 No's in-efficient ceiling fans with Energy Efficient Five star fans	7790	7.79	10	5.69	56.87
Total		9051	9	10	6.61	66.07




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OTTOTRACTIONS- ENERGY AUDIT						
KAHM Unity Women's College, Manjeri						
Greenhouse Gas Mitigation through Renewable Energy Projects						
Sl No	Projects	Energy saved (Yearly)		Sustainability (Years)	First year ton of CO2 mitigated	Expected Tons of CO2 mitigated throughout life
		(kWh)	MWh			
1	Installation of 25kWp Solar Power Plant	34219	34.22	25	24.98	624.49
	Total	34219	34	25	24.98	624

OTTOTRACTIONS- ENERGY AUDIT	
Energy Saving Proposal 1	
Energy Saving in Lighting by replacing existing 6 No's T5 (28W) Lamps to 18W LED Tube	
Existing Scenario	
6 numbers of T5(28 W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%.	
Proposed System	
The existing T5 may be replaced to LED Tube of 18W in phased manner and the savings will be of 55% (inclusive of improved light output and reduced energy consumption)	
Financial Analysis	
Annual working hours (hr)	2400
No of fittings	6
Total load (kW)	0.24
Annual Energy Consumption (kWh)	173
Expected Annual Energy saving for replacing all fittings (kWh)	95
Cost of Power	8.30
Annual saving in Lakhs Rs (1st year)	0.01
Investment required for complete replacements [@Rs 300 per fittings](Lakhs Rs)	0.02
Simple Pay Back (in Months)	27.30



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OTTOTRACTIONS- ENERGY AUDIT	
Energy Saving Proposal 2	
Energy Saving in Lighting by replacing existing 69 No's T8 (40W) Lamps to 18W LED Tube	
Existing Scenario	
69 numbers of T8(40 W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%.	
Proposed System	
The existing T8 may be replaced to LED Tube of 18W in phased manner and the savings will be of 55% (inclusive of improved light output and reduced energy consumption)	
Financial Analysis	
Annual working hours (hr)	2400
No of fittings	69
Total load (kW)	2.76
Annual Energy Consumption (kWh)	1987
Expected Annual Energy saving for replacing all fittings (kWh)	1093
Cost of Power	7.10
Annual saving in Lakhs Rs (1st year)	0.08
Investment required for complete replacements [@Rs 300 per fittings](Lakhs Rs)	0.21
Simple Pay Back (in Months)	32.01




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OTTOTRACTIONS- ENERGY AUDIT	
Energy Saving Proposal 3	
Energy Saving by replacing existing 276 No's in-efficient ceiling fans with Energy Efficient Five star fans	
Existing Scenario	
There are 276 numbers of ceiling fans installed in the facility with minimum 8 hrs a day operation. All are conventional type and most of them are very old.	
Proposed System	
There is an energy saving opportunity in replace the existing fans with new five star labelled fans. The five star labelled fans give a savings up to 30% with higher service value (air delivery/watt).	
Financial Analysis	
Annual working hours (hrs)	2400
Total numbers of ordinary fans	276
Total load (kW)	19.32
Annual Energy Consumption (kWh)	27821
Expected Annual Energy saving, for total replacement(kWh)	7790
Cost of Power (Rs)	7.10
Annual saving in Lakhs Rs (1st year)	0.55
Investment required for a total replacement (Lakhs Rs)[@3000 Rs per Fan with 50W at full speed]	8.28
Simple Pay Back (in Months)	179.65




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OTTOTRACTIONS- ENERGY AUDIT	
Energy Saving Proposal 4	
Energy Saving in Lighting by replacing existing 17 No's CFL(15W) Lamps to 9W LED Bulb	
Existing Scenario	
24 numbers of CFL (15W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%.	
Proposed System	
The existing CFL may be replaced to LED Bulb of 9W in phased manner and the savings will be of 40% (inclusive of improved light output and reduced energy consumption)	
Financial Analysis	
Annual working hours (hr)	2400
No of fittings	17
Total load (kW)	0.26
Annual Energy Consumption (kWh)	184
Expected Annual Energy saving for replacing all fittings (kWh)	73
Cost of Power	7.10
Annual saving in Lakhs Rs (1st year)	0.01
Investment required for complete replacements [@Rs 90 per fittings](Lakhs Rs)	0.02
Simple Pay Back (in Months)	35.21




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Energy Saving Proposal 5	
Installation of 25kWp Solar Power Plant	
Existing Scenario	
There is a good potential of solar power electricity generation. The availability of sunlight is very high. There are some canopies available in the proposed site, but by having proper trimming of trees this may be avoided. If the SPVs are placed in the roof top it will help improving RTTV (Roof Thermal Transmittance Value) of the building.	
Proposed System	
It is proposed to have a Solar Power Plant of 50kW at the beginning stage. The state and central government is pushing and giving good assistance to the installation. It can be installed as an internal grid connected system which is much cheaper than off grid system. Now days the technology provides trouble free grid interactive and connected system. The installation will provide 25yrs trouble free generation with only 20% efficiency loss at the 25th year.	
Financial Analysis	
Proposed Solar installed Capacity (kW)	25
Total average kWh per day expected (3.5kWh/day average)	93.75
Total annual Generating Capacity (kWh)	34219
Cost of energy generated annually Lakhs Rs	4.55
Investment required (INR lakh)(Approx)	13.75
Simple Pay Back (in Months)	36.26
Life cycle in Yrs	25
Total Saving in Life Cycle (Approx) RS lakh	113.78




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Executive Summary					
Consolidated Cost Benefit Analysis of Energy Efficiency Improvement Projects					
KAHM Unity Women's College, Manjeri					
SI No	Projects	Investment	Cost saving	SPB	Energy saved
		(Lakhs Rs)	(Rs)/Yr	Months	kWh/Yr
1	Energy Saving in Lighting by replacing existing 6 No's T5 (28W) Lamps to 18W LED Tube	0.02	0.01	27.38	95
2	Energy Saving in Lighting by replacing existing 69 No's T8 (40W) Lamps to 18W LED Tube	0.21	0.078	32.01	1093
3	Energy Saving in Lighting by replacing existing 17 No's CFL(15W) Lamps to 9W LED Bulb	0.02	0.005	35.21	73
4	Energy Saving by replacing existing 276 No's in-efficient ceiling fans with Energy Efficient Five star fans	8.28	0.553	179.65	7790
4	Installation of 25kWp Solar Power Plant	13.75	4.551	36.26	34219
	Total	22.25	5.19	62.10	43175

(The saving are projected as per the assumed operation time observed based in the discussions with the plant officials. The data of saving percentages are taken from BEE guide books and field measurements.)




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CONCLUSION



The carbon emission from different sectors namely, Energy, Transportation and wastes were calculated using standard procedures. Carbon sequestration by the trees present in the campus was also estimated. From these the total carbon footprint of the campus was arrived at.

Net Carbon Emission after implementing Energy Efficiency projects and Renewable Energy Projects Proposed		
1	Total Carbon Foot Print tCO ₂ e/yr	89.18
2	Carbon Sequestered tCO ₂ e/yr	10.80
3	Carbon mitigated by Renewable Energy tCO ₂ e/yr (Installed)	47.14
4	Carbon mitigated by Renewable Energy tCO ₂ e/yr (Proposed)	24.98
5	Carbon mitigated by Energy Efficiency (Proposed) tCO ₂ e/yr	6.61
6	Effective Carbon footprint tCO ₂ e/yr	-0.35
7	Total No of Students	1704
8	Specific Carbon Footprint kg CO ₂ e/Student/Yr	-0.21

From this study it was found that carbon footprint of the campus to be **-0.21 kgCO₂e/ Student/ Year** in place of current footprint i.e., **17.28 kgCO₂e/ student/ Year**. To achieve this an investment of **22.27 lakhs Rs** is required through energy efficiency and renewable energy projects proposed. It will be around **1307 Rs per student** to make the campus the carbon negative.

Cost to make the campus Carbon Negative		
1	Cost of implementation in Energy Efficiency Lakhs Rs	8.52
2	Cost of implementation in Renewable Energy Lakhs Rs	13.75
3	Total Lakhs Rs	22.27
4	Total number of students	1704
5	Cost per student to make the campus carbon negative Rs/ Student	1307




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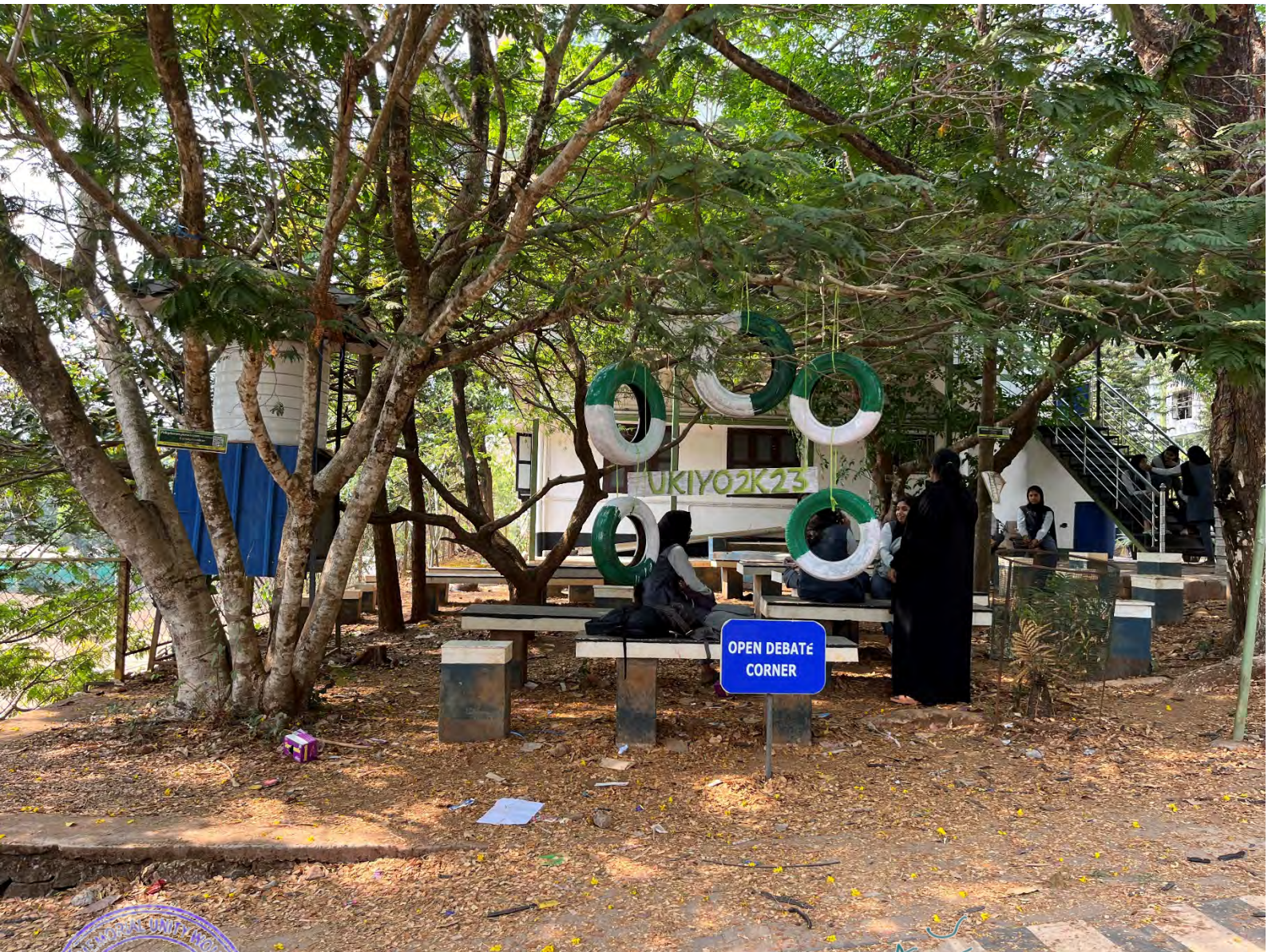



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TECHNICAL SUPPLEMENT



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KAHM Unity Women's College, Manjeri																		
SI.No	Location	Lights						Fans				IT			Others			
		LED-T	LED-B	T8	T5	T12	CF L	CF	EF	WF	Printer	Projector	PC	TV	AC (1TR)	AC (1.5)	AC (3TR)	Others
1	Psychology department	1						1				1		1				Purifier-2
2	4 Classrooms		8					8										Centrifuge-2
3	Maths	3	1					4										Weigh Machine-4
4	Corridor	8	1															Double Distillation-2
5	Classrooms	3			1			2		2								Calorimetre-2
6	Hall										4		1				3	Shaker-1
7	Zoology Department			2				2	1									Ph Meter-1
8	Zoology Lab		12		5			4		4				1				Spectrometer-1
9	Zoology Class	3		1				4										
10	Psychology	2		2				3										P/A System-3
11	Malayalam department	1						1						1				
12	Bsc Chemistry		1					3										
13	Bsc		1					3						1				
14	Bsc Botany	3						3										
15	Msc Hsc		3					1				1	2					
16	BA History	1	1					4					1	1				
17	Biochemistry Lab	2	26					14	1					2		1		
18	Home science Department	1						2										
19	Home science Lab	2	8	12		1		5	1									
20	Department	1						1										



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Korambayil Ahamed Haji
Memorial Unity Women's
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21	Manager Room	2					2							2			
22	Department of Language	1					1	1			1						
23	Library		24				16				27						
24	Botany Department	9	2	2			10		1	1	1						
25	Lab	17	1	1			12			2							
26	Instrumentation Room		1								7						
27	Studio	6	2								4	1			2		
28	IQAC					16			2	1		2					
29	BA English	1					3										
30	SeminarHall		35											4			
31	Physics Department			1			1										
32	Corridor	6	4	3													
33	Store		1			1	1										
34	B.Com			2			4					1					
35	BA History		2				2										
36	Computer Lab							10		1	49			4		4	
37	Bsc CS		1				2										
38	Bsc CS		1				2			1							
39	Bcom		1				3					1					
40	Msc CS		1				2										
41	Exam Hall	2		8			21										
42	History Department	1					2		1		1						
43	Class Room			1			4										
44	Department of Computer science			2			5				1						
45	Class Room	1					3					1					
46	Reception Block	1					1		1		1						
47	Canteen	12	5				8										
48	Auditorium		20				20		6								



Principal Signature
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49	Chemistry Block	2	21					24				1						
50	Indoor Stadium			32														
51	Block 3		63					47										
52	Non Resident student	10	9					15										
Total		102	256	69	6	1	17	276	3	29	5	9	100	7	7	6	7	
Wattage		20	10	40	28	55	18	80	60	60	100	120	200	100	1200	1800	3500	
Power		2040	2560	2760	168	55	306	22080	180	1740	500	1080	20000	700	8400	10800	24500	




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College, Manjeri

CALL
1912
CUSTOMER CARE 24x7
KSEB

250/23

Demand/Disconnection Notice
As per Reg 122 of Supply Code-2014)
Manjeri South Section
0483-2766170
KSEBL-GSTIN: 32AAECK2277NBZ1



C#: 1165460033834

Bill# : 6546230319630
Conn Id : 9721965
Name : M. P. H. HASSAN MAHMOO
SECRETARY, MUSLIM E
Status : Connected
Pole : AU-51/1
Trans : UNITY COLLEGE
Meter# : 4511791
Bill Area : A06/13/170
Bill Date : 16/03/2023
Due Date : 27/03/2023
Disconn Dt : 13/04/2023
Tariff : LT-6B NDon
Purpose : Hostel of NON-S
S Deposit : 23103

32034

Prev. Payment

Prv Paid Dt : 20-01-2023
Prv Paid Amt : 25904

Main Meter

Meter(MM) Status OK
Load : 8 KW
C Demand : 7.75 KVA
Phase : 3
Prv Rd Dt : 18/01/2023
Prs Rd Dt : 16/03/2023
Mtr Rd(OHF) : 1

Readings & Cons. (MM)

Unit	Curr	Prev	Cons	Avg
KWH/A/1	15465	12212	3243	2460

Bill Details

Fixed Charges	1440.00
Meter Rent	35.40
Energy Charges	23187.45
Duty	2318.74
Fuel Sur.	214.04
Round off	0.37

Bill Amount : 27196.00
Payable : 27196.00

Remarks

Fuel Sur. @ Rs. 09/unit
Mtr Rent: 30 CGST 9%; 2.7 SGST 9%; 2.7

Pay Online <https://vsa.kseb.in>

AKSHAY H
9207124
Meter Reader
SBM:VT -1.46 /11002226
16-03-2023 10:59:46 AM

Handwritten signature

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Korambayil Ahamed Haji
Memorial Unity Women's
College, Manjeri

Gas Electricity bill
16/3/23



KSEB KERALA STATE ELECTRICITY BOARD LTD

RECEIPT

Ele. Section: 547-Manjeri North(Coll)Center: Electrical Section Manjeri North
 Receipt No: 45070220530101172 Original # 1 Date: 30-05-2022 15:26:04 IST
 Consumer No: 11654467009325 THE PRINCIPAL of Electrical Section Manjeri South
 Payment Mode: Cash

Sl.	Bill No.	Description	Amount due	Surcharge	Total paid	Balance
	450702205300075-RnCC		15826.00 0		15826.00 4.00	
Total			15826.00		15830.00	

15830.00 (Rupees Fifteen Thousand Eight Hundred and Thirty Only) 23/6/22

Principal incharge
KAHM Unity Women's
College, Manjeri

Remarks: QUITE

Next-time pay online visit was: kseb.in

AMBILI U R 11071511

Last Billed Rdg. Date		Prev. Rdg. Date		Prev. Meter Rdg. Status		Prst. Rdg. Date		Prst. Meter Rdg. Status	
01-04-2022		01-04-2022		Working		03-05-2022		Working	
Power Unit	Zone	Trading	Initial Reading(IR)	Final Reading(FR)	OMF	Units*			
KWH	Cumulative	Import	464.00	554.00	20	1800			
KWH	Cumulative	Export	454.00	457.00	20	60			

Remarks :

Last Paid Amount - Rs.33515.00
 Last Payment Date - 02-04-2022

Bill Details			[INR] Amount(Rs.)
a)	Fixed Charges	Fixed Charge[FC]	5200.00
		Sub Total	5200.00
b)	Energy Charges	Energy Charge[EC]	11310.00
		Sub Total	11310.00
c)	Other Charges	Electricity Duty[ED]	1131.00
		Sub Total	1131.00
		Sub Total	0.00
e)	Total Amt.(BILL#6546220500075) (a+b+c)		17641.00
f)	Surcharge		0.00
g)	Reconnection Fee		0.00
h)	Interim Bills		0.00
i)	Arrears		0.00
j)	Less paid/adj.		-1815.00
k)	Less Advance		-0.00
Net Payable(e+f+g+h+i+j-k)			15826.00

Demand for 5/2022 is Rupees Seventeen Thousand Six Hundred and Forty One Only

Payment Options: Cash, Cheque, DD, MO. Online: www.kseb.in (Debit/Credit Cards, Net Banking). Other Platforms: BBPS, Friends, Akshaya, CSC, NACH

Senior Superintendent

* dt: 11/05/2022 printed @ 30/05/2022 02:05:04



Principal incharge
KAHM Unity Women's
College, Manjeri
 PRINCIPAL
 Korambayil Ahamed Haji
 Memorial Unity Women's
 College, Manjeri

KERALA STATE ELECTRICITY BOARD LTD

RECEIPT

3
3971197

Ele Section :
 Receipt No : 5970320992101101 Original # 1
 Consumer : 1165467009325 THE PRINCIPAL of Electrical Section Manjeri South
 Date :
 Payment Mode :

Sl.	Bill No.	Description	Amount due	Surcharge	Total paid	Balance
1	Advance		0		33515.00	
Total			0.00		33515.00	

Received Rs. 33515.00 (Rupees Thirty Three Thousand Five Hundred and Fifteen only)

Remarks: Direct Advance @ ONCOUNTER

[Signature]
 23/6/22
Principal incharge
KAMM Unity Women's
College, Manjeri

Next time pay online visit www.kseb.in

AMBILI U T 110



C#: 1165467009325

ll# : 6546220400070
 nn. Id : 9692014
 : THE PRINCIPAL
 UNITY WOMENS COLLEG
 itatus : Connected
 e : AU-51/8
 ns : UNITY COLLEGE
 erf# : X1413909
 i Area : MD1/1/66
 i Date : 01/04/2022
 Date : 11/04/2022
 :onn Dt: 26/04/2022
 ff : LT-6A HDon
 ose : Educational Ins
 posit : 38250
 r(MM) Status OK
 : 80 KW
 iand : 79.505 KVA
 l : 3
 id Dt : 02/03/2022
 d Dt : 01/04/2022
 (OHF): 20

iv. Payment

id Dt : 04-03-2022
 id Amt : 27520

dings & Cons.

Curr	Prev	Cons	Avg
464	265	3980	173
454	453	20	



Details

arges : 5200.00
 nt : 0.00
 : 0.00
 arges : 25740.00
 : 2574.00

nt : 33514.00
 ile : 33514.00

Make Payment
[Signature]
 20/6/22

PRINCIPAL
 Korambayil Ahamed Hajji
 Memorial Unity Women's
 College, Manjeri

Remarks
 aster

KORAMBAYIL AHAMED HAJI MEMORIAL UNITY WOMEN'S COLLEGE, MANJERI

STUDENTS STRENGTH AS ON FEBRUARY 2023

Sl. No	Nature & Name of	At the beginning of the			Admission during the			Withdrawal during			At the end of the Month		
		3	4	5	6	7	8	9	10	11	12	13	14
1	2	1 Year	II Year	III Year	1 Year	II Year	III Year	1 Year	II Year	III Year	1 Year	II Year	III Year
											45	40	47
1	B.Sc. Computer Sc	46	41	47				1	1				
2	B. Sc. Chemistry	41	45	50							41	45	50
3	B. Sc. Botany	43	48	46							43	48	46
4	B. Sc. Family & Community Science	40	39	44							40	39	44
5	B. Sc. Mathematic	39	45	50							39	45	50
6	B.A. English	64	53	47							64	53	47
7	B.A. History	69	64	63							69	64	63
8	B. Com. Co-operati	67	66	60							67	66	60
9	M. A. Englsih	29	3	0							29	3	0
10	M. Sc. Chemistry	19	20	0	1						20	20	0
11	M. Sc. Botany	19	11	0							19	11	0
	Year - wise Total	476	462	407	1			1	1		476	461	407
	Grand Total	1345			1			2			1344		



(Handwritten signature)

PRINCIPAL
Korambayil Ahamed Haji
Memorial Unity Women's
College, Manjeri

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