ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

DETAILS OF THE CLIENT

LEAD COLLEGE OF MANAGEMENT
Dhoni, Palakkad, Kerala, India – 678009
www.lead.ac.in I info@lead.ac.in

DATE OF AUDIT

7 July 2023

(Audited and Accounted for the period of 2022-23)

AUDIT CONDUCTED AND SUBMITTED BY

P S QUALITY CERTIFICATION PVT LTD

No.415, F4, Ist Floor, Asha Vignesh Apartment, Ambattur, Tamil Nadu 600 053.

Mobile: +91- 81240 88335, 80567 19372

ACKNOWLEDGEMENT

P S QUALITY CERTIFICATION PVT LTD, No. 415, F4, I Floor, Asha Vignesh Apartment, Ambattur, Tamil Nadu-600053 is thankful to the Directors, Faculty, Technical team members and volunteers of **LEAD COLLEGE OF MANAGEMENT** Dhoni, Pallakad, Kerala –678009, India for providing an opportunity to conduct a detailed Energy, Environment and Green Audit process for the college premises.

It is our great pleasure, which must be recorded here that the management of**LEAD COLLEGE OF MANAGEMENT** extended all possible support and assistance resulting in expeditious completion of the audit process. The audit team appreciates the cooperation and guidance extended during course of site visit and measurements. We are also thankful to all those who gave us the necessary inputs and information to carry out this very vital exercise of green audit.

Finally, we offer our sincere thanks to all the members in the Faculty/ technical/non-technical and office members who were directly and indirectly involved with us during collection of data and conducting field measurements.

Management Team Members	
Dr. Thomas George	Director
Dr.R .Krishnakumar	Deputy Director

Audit Team Members	
G.ARIVARASAN,B.E	**BEE Certified Energy Auditor (EA-21875)** Lead Auditor-ISO-50001:2018 (EnMS), **Mobile: +91-9788254552, 8610873106**
SARAVANAN	Audit Associate

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

1. INTRODUCTION TO ENERGY-ENVIRONMENT-GREEN AUDIT

A Thing which Burns Never Returns....

1.1 The LEAD Story

LEAD College of Management, a state -of -the -art, standalone MBA institute, approved by AICTE and affiliated to University of Calicut was established in 2011. LEAD is an acronym derived from 'Leadership & Entrepreneurship Academy, Dhoni'. LEAD envisions in creating an academic environment where highest standards of academics and professionalism are met and besides the expectations of all stakeholders are consciously addressed.

LEAD College of Management, Dhoni Palakkad is a brain child of Dr. Thomas George, a professional life-skill trainer for various Engineering & MBA students in and around Kerala for years. Dr Thomas' training of students at various levels in a culture obsessed with measuring talent and ability opened his sense of creating an institution that gives importance to inspiration that might lead to entrepreneurship, social commitment and values. According to him, inspiration awakens to new possibilities by allowing one to transcend his ordinary experiences and limitations. Inspiration propels a person from apathy to possibility, and transforms the way one perceives his own capabilities. The idea of starting a business school in a three tier city of Kerala got conceived, germinated, nourished and became a reality in 2011.

M/s. Prompt Charitable Trust., the promoter of LEAD college of Management Palakkad was registered at Palakkad to establish educational institution imparting a holistic education, which will promote human excellence, encompassing knowledge skills, attitude and values so that the students reveal their full potential. Educationalists, entrepreneurs and socially committed people are founders. LEAD is an acronym derived from "leadership & Entrepreneurship Academy, Dhoni.

The institute endoavors to be one of the most preferred management institutes catering to the diverse communities from inside and outside the country. The institute incubated entrants into excelling executives with an edge in their attitude and professional outlooks. The institute strives continuously to enhance the quality teaching, curricular and co-curricular activities so that the students of this institute play a significant role in the development of humanity

We at 'LEAD' cherish the endeavors as 'LEAD' is to become a place, where leadership is promoted and nurtured with a long-term vision in crafting highly engaging outgoing students who possess the attributes of competency, leadership and empathy.

LEAD is armed with proficient and experienced faculty members and state-of-the-art academic infrastructure, supported by efficient management team. The team consists of industry oriented professionals, distinguished personalities who have contributed significantly to the industry and the society.

The task of this magnitude demands efforts of faculty, academic staff and students. People have been working beyond the call of the duty. Harnessing the skills to a focused task of visualizing the leaders, entrepreneurs and managers. we started working to prove that teams develop naturally to bring the best.

1.2 Objective of the Institution

1. Committed to deliver carefully designed blend, which includes rigorous learning from international academicians, regular exposure to thought leaders, entrepreneurs and industrial experts.
2. Provide more scope for student driven initiatives, peer learning, experiential learning, community service, and numerous other societal activities that make 'LEAD' experience a transformational one for our students.
3. To make the students realise and utilise their potential to the maximum.

1.3 LEAD VISION

- To be one of the World-Leading Management Institutions, developing Socially Committed Leaders and Entrepreneurs

1.4 LEAD MISSION

- Contribute to the intellectual development of individuals, to enhance theircompetence as Business Leaders and Entrepreneurs.
- Provide more scope for Student-driven initiatives, Peer learning, Experiential learning, Community service and Intellectual contributions.
- To enhance the interaction between the Institute's Learner community and the broader community through our service and outreach efforts.

1.5 MBA PROGRAM VISION & MISSION

MBA Program Vision

- To be recognized as a leading Business School in the country, developing Global Leaders, and Ideas that significantly impact the society

MBA Program Mission

- M1. To provide a transformational learning experience, that enables the students to realize their true potential to be global leaders.
- M2. To attract the best global talents and enable them to together create and disseminate new knowledge.
- M3. To foster a teaching-learning environment that forges moral values and ethical behavior.

1.6 Program Educational Objectives

The MBA postgraduates of LEAD College of Management, Palakkad are expected to achieve or attain the following Program Educational Objectives within five years of completion of the program.

PEO 1: Demonstrate updated knowledge and superior skill as management professionals.

PEO 2: Possess and promote an aptitude for research, innovativeness and life-long learning.

PEO 3: Display ability in setting Organizational goals and building/motivating multi-dimensional teams to achieve them.

PEO 4: Formulate and implement Corporate Governance policies, practices, decisions, as true global leaders upholding Societal, Environment and Ethical values

1.7Program Outcomes

On completion of the MBA program, the students will be able to

PO 1: Problem Solving
Apply the knowledge of management theories, concepts and practices in Management to solve business problems.

PO 2: Decision-Making
Foster Analytical and critical thinking abilities for data-based decision-making.

PO 3: Value Based Leadership
Ability to develop Value-based Leadership ability

PO 4: Communication
Ability to understand, analyze and communicate global, economic, legal and ethical aspects of business

PO 5: Team Work
Ability to lead themselves and others in the achievement of organizational goals, contributing to a team environment.

PO 6: Self Initiative
Develop and ability to be self –initiated and resourceful.

PO 7: Transferable Skills
Build competencies in Transferable Management skills, Information Technology skills and Digital communication skills.

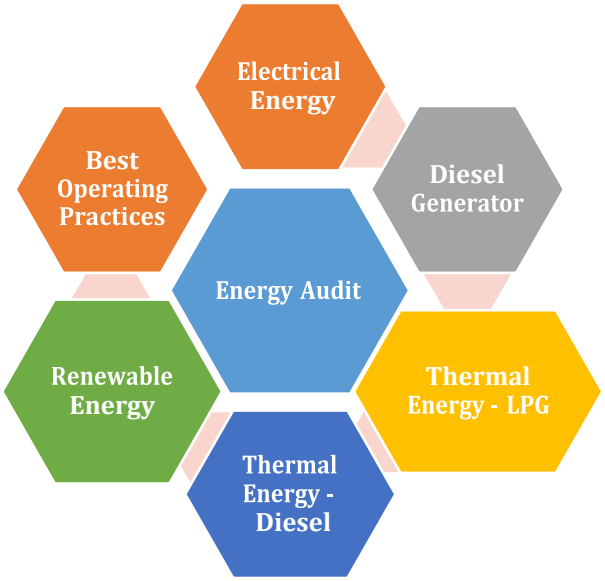
1.8 Scope of the Audit Process:

- **Energy Audit:** Conduct a detailed energy audit in the college campus with a main focus to identify judicious usage of electrical and thermal energy (where, when, why and how energy is being utilized).
- To ascertain the best practices to be followed in energy conservation, energy management, recommended safety measures and continuous energy monitoring system.
- **Environmental Audit:** Identification of history of activities, present environmental practices followed, monitoring records and known sources of environmental issues inside the college.
- Adoption of natural resources as input (such as energy and water), processing and utilization and generation of wastes (including hazardous and toxic),
- Handling and storage of all types of wastes (Solid, liquid and grouses), transportation of waste from source to yard, reuse and recycling possibilities, storage mechanism and effective disposal.
- Measurement of effectives of pollution control (air, water and soil pollution), maintenance logs, emission test reports and routine analytical reports.
- Providing constant awareness to all stakeholders on Environment impacts, risk analysis and Ecology.
- **Green Audit:** Assessment on Campus greenery in terms of matured trees, flowing shrubs, bushes, medical plants, adoption of green energy generation and utilization, reduction of CO2 due to green energy system and identification of possible implementation and enhancement of current greenery practices.

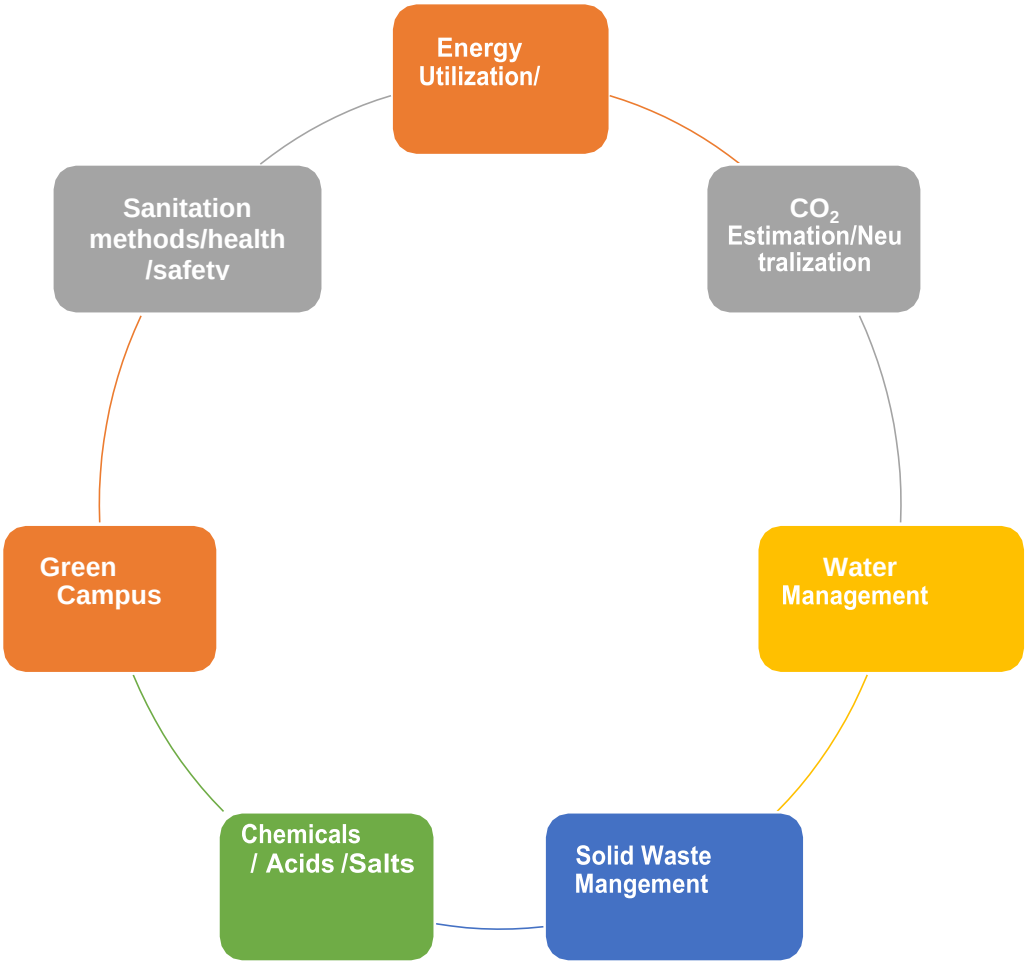
1.9 Outcomes of the Audit Process:

- Recommendations based on field measurement with achievable **En**ergy **Con**servation (ENCON) proposals under **No cost/Low cost and Cost investment categories.**
- **Minimization of present energy cost** by adjusting and optimizing energy usage and reduction of energy wastage without affecting the regular activities.
- Determination of operating efficiency of each electrical system (more specifically on individual machines), comparison of design values and to identify feasible technical ways to improve it further in a cost effective manner.
- Formation of methodology for long term road map for energy savings and continuousimprovements.
- Use as a basis for the development of environmental management policies or efforts to improve the existing plants.
- Identification of possible cost and energy saving from energy conservation, waste reduction, reuse and recycling.
- Development of rule based system to become a sustainable environment inside the college campus and nurture the importance of less energy and less environmental impacts.
- Formation of methodology for long term road map for maintaining green environment within the campus and encourage the stakeholders for continuous improvements.

1.10 Coverage in Energy Audit Process:



1.11 Focus Areas in the Environment & Green Audit Process:



ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

PART-A: ENERGY AUDIT REPORT

2. EXECUTIVE SUMMARY

Leaks Make your Future Bleak….

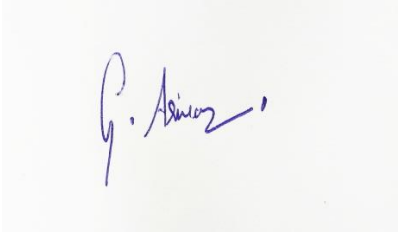
EXECUTIVE SUMMARY

After conducting detailed energy audit in **LEAD COLLEGE OF MANAGEMENT** Dhoni, Pallakad, Kerala –678009, India, Audit team come out with ***8 Energy*** **conservation Proposal (ENCONs) +1 ENCON on Renewable Energy System.**

Summary of audit conducted for **June2022-May2023** is given below.

Summary of Energy Conservation (ENCONS) Proposal		
S.No	**Description**	**Parameters**
1	Present Annual Energy Consumption	380198 KWH+13870Kg of LPG
2	Present Annual Energy Cost	41.5 Lakhs
3	**Proposed % of energy saving**	**5.76% Electrical+5% LPG**
4	**Proposed renewable energy saving**	**21900KWH+693.5Kg of LPG**
5	**Proposed Financial saving**	**2.8 lakhs**
6	**Initial Investment**	**3.2 Lakhs**
7	**Simple Payback Period**	**1.2 Years(Approx)**

Audit Conducted & Compiled by,



G.ARIVARASAN

BEE Certified Energy Auditor

(Reg No.EA-21875)

Table-1: POSSIBLE ENERGY CONSERVATION PROPOSALS (ENCONS)

S. No.	Proposed Energy Conservation Measures	% Saving & Source	Remarks
1.	Reduction of Belt &Pulley Transmission Losses from Motor to Machine in Kitchen Equipment Motors	15 % on Kitchen Motors	Measure the power and Calculate energy and financial Savings
2.	Reduction of kVA Demand and Active Power Consumption using Load End Capacitor Compensation	0.5 % on Total Consumption	Shift some of existing capacitors from PH and to load end
3.	Reduction of Energy Consumption in AC Compressors using Mist Pre-Cooler	10 % on HVAC	Try with low TR unitary AC and ensure energyand financial savings
4.	Installation of nature switch for automatic switch ON/OFF for street light	15% of street lighting consumption	Considering 2 hours of saving per day. Re-route the street lights wiring by proving nature switch.
5.	Replacement of Existing convention Ceiling Fans into EC - BLDC Fans	50 % of Fan Consumption	Replace the conventional ceiling fans with BLDC in a phased manner
6.	Reduction of LPG Consumption usingRegular Burner Cleaning	2 % on Stove LPG Consumption	Swap the burners at regular Interval and achieve considerable savings
7.	Installation of Solar Water heater and reduce KWH billing from 30nos of electric water heater each of 5litres capacity	**3*500litre**s solar water heater Save 5% of total import	3*500litres solar water heater roughly save 60units per day & total of 21900KW per year with payback period of less than 2 years.
8.	Preheat the boiling water and steamer for cooking using Solarthermal hot water system	5 % of LPG system	Try with minimum Litres per day solar hot water generation (increasing water temperature from ambient to nearly 70 ^{0}C). Payback is less than 2 years.
9.	Periodic maintenance and cleaning of Installed Roof Top Solar Photovoltaic Power Plant (SPP) to increase the output to at least 200 units per day	**50 kW** roof top solar PV system	Total export per year from current solar pv system is only 210 units per year which is very less.

ENCON-I:

- Even though the operating hours of kitchen machines are less; it is a right time to replace the existing pulley into taper lock pulley with cogged belts.
- It is recommended replacing the existing V-belts into less no. of raw cogged belt (also known as energy efficient belt) which reduces the slippage loss between the motor to machine also provides good life to the system.
- Replacement of cogged belts is much easier and quick to retrofit without any change in the system unlike the flat belt. Raw cogged belts ensure possible savings of around 8 % and also improve the output power for the same motor power consumption.
- This increases the lifespan of the belt and pulley and provides superior grip in the mechanical transmission. Also the temperature rise due to this configuration is also less and hence the motor life enhanced.

ENCON-II:

- In general, the college type loads are having wide variation especially i) during day & night time, ii) week days to weekend and iii) college working days and holidays. For this type of loads, it is highly recommended to connect the APFC at the load end distribution panels and dedicated APFC must be fixed and function at the transformer end to maintain the PF close to unity.
- All the individual motor loads above 5HP to be load end compensated with PF compensating capacitor along with isolation MCB for the capacitor at the motor end or at its motor panel end.

ENCON-III:

- It is recommended to install the mist cooling system in higher power and continuous running AC system and ascertain the performance (especiallyCoP).
- Implement the mist pre-cooler system and coupling of water mist with condenser reduces the compressor power up to 25%.The application of water mist condenser, inlet air pre-cooling could decrease the Specific Energy Consumption(SEC).
- Install a kWh meter and observe the result before and after the installation and ensure the specific power consumption. Compare the results and ensure the saving.

ENCON-IV:

- It is recommended to reroute street light through nature switch, which will switch ON/OFF according to the Sunlight intensity.
- Currently street light and outside light are made ON/OFF manually. Which they made ON early in evening or OFF late in morning.
- By providing nature switch we can save around 2 hours per day. Making 85%saving in street light consumption

ENCON-V:

- Recommended to replace the existing conventional fans into EC-BLDC fans in a phased manner and ensure good energy saving.
- Further implementation of EE fans not only saves the kWh;but also saves kVA demand. A conventional fan draws nearly 100VA,where as the EE fan draws only 40VA.

ENCON-VI:

- The LPG commercial burners are made up of iron burner which is less in cost. However the smoke formation is high and frequently able to crack due to aging.
- It is recommended to clean the burner every week with solvent rinsed and gently clean the holes with ordinary fine cloth. Also it is highly encouraged to swap with active spare burners. The investment on spare burners is less expensive and let us makes it a practice to swap the burner every week.
- Also look for an alternative with Stainless Steel burners (slightly costlier compared with existing one).But the life span is longer and replace cost is much reduced.

ENCON-VII:

- Its observed that electric water heater is used for hot water requirement for bathing. Nearly 30 numbers of 5litre capacities each.
- By considering 2hour working of this electric heater consumes 120 units per day. Which account for Rs.1080rs per day (taking electricity charge per unit minimum of Rs.9).
- It's recommended to install 500 litre capacity solar water heater to meet the requirement. Payback period of this installation is less than 2 years.

ENCON-VIII:

- The hybrid PTC model produces steam (assumed as saturated at 5 bar pressure) + hot water system.
- A steam separator inbuilt in the system separates the steam and the hot water is either taken separately through pipe system or stored in a hot water tank (later taken for application).

ENCON-IX:

- Roof top solar PV system with installed capacity of 50 KVA. Export just 210 units per year.
- Maintenance to be done in a periodic manner to ensure proper function of PV system.
- Periodic cleaning of solar panel to prevent dirt deposit over solar panel.

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

PART-A: ENERGY AUDIT REPORT

3. STUDY ON ENERGY CONSUMPTION & GENERATION PATTERN

Take Control of your Energy Bills….

3.1: Energy Consumption Pattern (Electrical and Thermal):

S. No.	Description	Details	
Electrical Energy (Consumption)			
1.	Name of the customer (As per the utility bill)	**THOMAS GEORGE(MBA COLLEGE,AMBEDKAR)**	
2.	Type of Utility Supply, Service No.& Tariff	Bill area-M01/1 DTR-AMBEDKKAR Consumer number-1165324014048 Traiff/Phase/Pole –LT-6F/Three/TD167/1	
3.	Tariff Structure	Rs. 9.25/kWh(energy charge) + Rs. 0.925/Kw(electricity duty) + Rs.250/KW/MONTH as demand charges (fixed charges accounted for MAX DEMAND)+Penalty charge of Rs125/RMD exceed Contract Demand of 94.6KW	
4.	Energy Suppliers	Kerala State Electricity Board Limited	
5	Permitted Demand (PD)	**94.6 KW**	
6.	Capacity of Diesel Generator (DG) Sets	**125KVA & 65kva capacity**	
		All are air-cooling. Internal fuel tank & separate earthing done	
7	Annual Diesel Consumption for DG (L)	**5713 Litres** **(16.6 %** of total annual diesel&petrol Consumption **)**	
Thermal Energy (Consumption)			
9.	Types of Thermal Energy Used	Liquefied Petroleum Gas (LPG)	Cooking
		Diesel+ Petrol(Ordinary)	Transport + DG
10.	Annual LPG/Petrol/Diesel Consumption for Transport	**13870 kg(average of 2 cylinder per day) /** **3,325 litres/25,048 Liters**	
General Loads (Both Electrical and Thermal)			
11.	Lighting System	**Lighting:** All lightings are LED based energy efficient lamps.	

12.	Fan Loads (Ceiling)	• All the ceiling fans are conventional fans.
13.	HVAC System	• Unitary air conditioning system installed in the required places. • Most of the AC units are **BEE star rated** and the outdoor units are mostly placed in shade. • A welcome step in the energy conservationis; all the air conditioned rooms are set with 24^0C as room temperature as per BEE norms.
14.	Motors and Pump loads	• Mainly used for water distribution, purification, waste water treatment. • Small motors used in kitchen equipment's.
15.	Uninterrupted Power System (UPS)	• All the computers, server, surveillance system, projectors, telephonic units are connected with UPS with nominal back up

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STATEMENT OF ENERGY CONSUMPTION FOR THE PERIOD 2022-23

LEAD College of Management is a fully residential campus where all enrolled stay and work 24/7 and currently houses approximately 600 in their accommodations annually and a guest inflow for temporary stays which totals around 8000 per annum.

The electricity bills for the period are given below. Total is in rupees.

	Import Unit	Export of surplus unit to grid	Nett units Billed	Unit Charge	Fixed Charge	Charge	Ele Duty	Total	Sur Charge	Grand Total
Jun-22	33940	0	33940	9	21230	305460	30546	357236	-5579	351657
Jul-22	4740	14	4726	9	21809	42534	4253.4	68596.4	464.6	69061
Aug-22	34080	80	34000	9.25	18000	314500	31450	363950	68	364018
Sep-22	27020	20	27000	9.25	20250	249750	24975	294975	0	294975
Oct-22	34400	20	34380	9.25	22500	318015	31801.5	372316.5	388.5	372705
Nov-22	34272	20	34252	9	15840	308268	30826.8	354934.8	4.2	354939
Dec-22	25560	20	25540	9.25	23500	236245	23624.5	283369.5	256.5	283626
Jan-23	41300	0	41300	9.25	19800	382025	38202.5	440027.5	6301.5	446329
Feb-23	31720	20	31700	9.25	27000	293225	29322.5	349547.5	5646.5	355194
Mar-22	47080	0	47080	9.25	36800	435490	43549	515839	5705	521544
Apr-23	48100	0	48100	9.25	33425	444925	44492.5	522842.5	6472.5	529315
May-23	18200	20	18180	9.25	18000	168165	16816.5	202981.5	4452.5	207434
	380412	**214**								**4150797**
							average per capita/day(indicative)			**16**

There are frequent power outages and the institute has a diesel generator for which the fuel costs incurred for the period 2022-23 is **5.26 lakhs per Annum**. A judicious mechanism is used to ensure that non-essential use is minimized and such power generated is used for essential and core activities in the campus. The campus also hosts over 200 events in a year of diff erent scales from small 5-10 people to large 300-600 count gathering for which additional load is required and needs to be planned for. As a part of the energy management plan for 2022-23 smart lighting systems and pre-set a/c temperatures and timers are being installed. Once the now hostel block is completed, there is a plan to install another 6 Kw solar panel system and solar heaters for water with a total capacity of

The campus is in a rural setting and is approximately 6 kms from the main railway station and 9 kms from the curry center. Public transport is limited and late night travel/movement is often restricted due to animal movement/risks. The institute off ers safe transport to students, external visitors , alumni and faculty members to and from transport points in the city. A vehicle is always on standby for emergencies and a summary of the fuel expenses is given below. The institute also has onebus and charters third-party buses for eld visits, industry visits, placement programs and an inter-city pickup and drop service at the beginning and end of the semester breaks to students who are in Kerala. This is approximately 10 times a year as we work on an oil-rig model of 40 days no-break schedule followed by a 7-9 day break with extended break at endsemester II for internships etc.

FUEL CONSUMPTION PATTERN FOR THE ACADEMIC YEAR JUNE 2022-MAY 2023	
Transport Fuel	
Petrol reimbursement for cars(5 cars)	355820
Diesel charge for the bus	22938
Additional fuel charges for transport and buses from third parties	2369176
total	**2747934**
Diesel charge for the generator	548486
TOTAL	3296420
PER DAY	9031

Dr. Thomas George K, Director

LEAD COLLEGE OF MANAGEMENT PALAKKAD - 678 009 DHONI

KERALA STATE ELECTRICITY BOARD LIMITED

DEMAND CUM DISCONNECTION NOTICE

(As per Regulation 122 & 123 of Kerala Electricity Supply Code 2014)

Section	**[6532]-Electrical Section Olavakkode**	**Phone#**	0491-2555213	**Customer Care**	1912
Consumer#	**1165324014048**	Reg. Mob# **859xxxx763**	**Regular CC Bill**	**KSEBL GSTIN: 32AAECK2277NBZ1**	

Name & Mailing Address

[NO NAME]

For redressing complaints/grievance approach the concerned CGRF

South: Chairperson,CGRF(South),KSEBL,Vydyuthi Bhavanam, Kottarakkara-691506, Ph:0474-2451300

Central: Chairperson,CGRF(Central),KSEBL,220KV SubStation,Kalamassery-683503,Ph:0484-2556500

North: Chairperson,CGRF(North),KSEBL,Vydyuthi Bhavanam,Gandhi Rd.,Kozhikode-673011,Ph:0495-2367820

State Electricity Ombudsman,D.H.Rd & Foreshore Rd Jn.,Near GandhiSquare,Ernakulam-682016,Ph:0484-2346488

Bill#	**6532230707428**	**Bill Area**	M01/1	**DTR**	AMBEDKKAR
Billing Period	**7/2023**[Monthly]	**Tariff/Phase**	LT-6F/Three	**Pole#**	TD167/1
Bill Date	**07-07-2023**	**Due Date**	**17-07-2023**	**DC Date**	**01-08-2023**
Contract Demand	**95000** VA [75% : 72KV, 130% : 124KV]	**Connected Load**	176000 Watts	**Security Deposit**	Rs.172272.00

Meter#	L&T0netm0018184709	**Average consumption(Monthly)**			
Meter Digits	6.2	**Power Unit/Zone**	**NORMAL**	**OFF PEAK**	**PEAK**
Meter Type/	NET Meter	KWH	20	2	1
Meter Owner	Customer	RMD	0		

Last Billed Rdg. Date	**Prev. Rdg. Date**	**Prev. Meter Rdg. Status**	**Prst. Rdg. Date**	**Prst. Meter Rdg. Status**
05-06-2023	**05-06-2023**	**Working**	**07-07-2023**	**Working**

Power Unit	**Zone**	**Trading**	**Initial Reading(IR)**	**Final Reading(FR)**	**OMF**	**Units***
KWH	Normal	Import	23224.00	23657.00	20	8660
KWH	Normal	Export	907.00	908.00	20	20
KWH	Off Peak	Import	18599.00	18893.00	20	5880
KWH	Off Peak	Export	0.00	0.00	20	0
KWH	Peak	Import	11193.00	11376.00	20	3660
KWH	Peak	Export	0.00	0.00	20	0
RMD	Cumulative	Import	7.30	3.20	20	64

Continued...

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Section	**[6532]-Electrical Section Olavakkode**	**Phone#**	0491-2555213	**Customer Care**	1912
Consumer#	**1165324014048**	**Bill#**	**6532230707428**		**Regular CC Bill**

Remarks :

Security Deposit Interest refund @4.25% - Rs.6590.00

Fuel Surcharge[FS] @9 Ps./Unit

(Vide Order dt. 25-01-2023)

Last Paid Amount - Rs.489690.00

Last Payment Date - 22-06-2023

Solar Generation

Description	Date	Zone	Tr.	IR	FR	MF	Units
Regular Reading Point	07-07-2023	WNL	I	11445.00	11740.00	15	4425
Regular Reading Point	07-07-2023	WOP	I	8.00	9.00	15	15
Regular Reading Point	07-07-2023	WPK	I	19.00	20.00	15	15

Bill Details			**[INR] Amount(Rs.)**
a)	Demand Charges	Demand Charge	18000.00
		Sub Total	**18000.00**
b)	Energy Charges	Energy Charge[EC]	168165.00
		Fuel Surcharge[FS]	1636.20
		Auto Recovery FS[FSM]	1636.20
		Sub Total	**171437.40**
c)	Other Charges	Electricity Duty[ED]	16816.50
		ED[Self Generation]	53.46
		Sub Total	**16869.96**
		Sub Total	**0.00**
e)	Round Off		-0.36
e)	**Total Amt.(Bill#6532230707428)** *(a+b+c+e)*		**206307.00**
f)	Surcharge		1127.00
g)	Reconnection Fee		0.00
h)	Interim Bills		0.00
i)	Arrears		-0.00
j)	Less paid/adj.		-0.00
k)	Less Advance		-0.00
	Net Payable*(e+f+g+h+i-j-k)*		**207434.00**

Demand for 7/2023 is Rupees Two Lakhs Six Thousand Three Hundred and Seven Only

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

Senior Superintendent

OrumaNET Ver#2.3.8 dtd.04/07/2023 printed @ 08/07/2023 06:07:25

Solar OnGrid Consumer (Generator)

Consumer No.	1165324014048	Consumer Name	THOMAS GEORGE(MBA COLLEGE,AMBEDKAR)
SPIN	653200004	Plant Capacity	50 KW
Grid Connected On	24-04-2019		

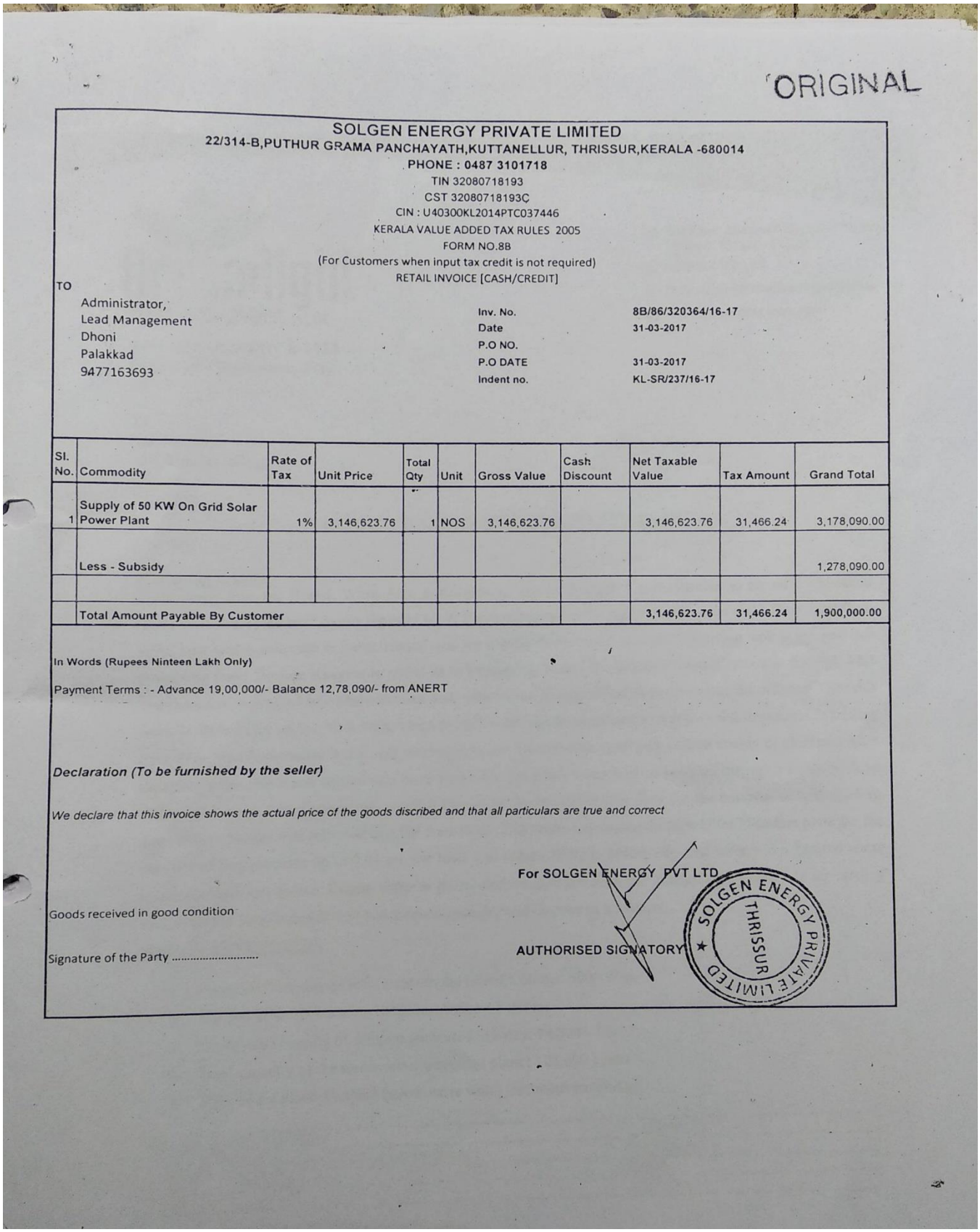
Bank Statement for 202307 (Generator)

Units Imported	18264 kWh	Units Exported	20 kWh
Bank Opening	0	Billed Consumption	18180 kWh
Bank Closing	0		

Consumption Adjustment Report

Bill Month	Consumer #	Zone Code	Import	Export	Export + Bank	Solar Energy (Bank Energy X Factor)	Adjusted from bank	Billed Cons.	Banked Balance
202307	14048	N	8660	20	20	20	20	8640	0
		P	3660	0	0	0	0	3660	0
		O	5880	0	0	0	0	5880	0

50KVA ROOF TOP SOLAR POWER PLANT IMPLEMENTED BY SOLGEN ENERGY PVT LTD



ORIGINAL

SOLGEN ENERGY PRIVATE LIMITED
22/314-B,PUTHUR GRAMA PANCHAYATH,KUTTANELLUR, THRISSUR,KERALA -680014
PHONE : 0487 3101718
TIN 32080718193
CST 32080718193Ç
CIN : U40300KL2014PTC037446
KERALA VALUE ADDED TAX RULES 2005
FORM NO.8B
(For Customers when input tax credit is not required)
RETAIL INVOICE [CASH/CREDIT]

TO
Administrator,
Lead Management
Dhoni
Palakkad
9477163693

Inv. No. 8B/86/320364/16-17
Date 31-03-2017
P.O NO.
P.O DATE 31-03-2017
Indent no. KL-SR/237/16-17

Sl. No.	Commodity	Rate of Tax	Unit Price	Total Qty	Unit	Gross Value	Cash Discount	Net Taxable Value	Tax Amount	Grand Total
1	Supply of 50 KW On Grid Solar Power Plant	1%	3,146,623.76	1	NOS	3,146,623.76		3,146,623.76	31,466.24	3,178,090.00
	Less - Subsidy									1,278,090.00
	Total Amount Payable By Customer							3,146,623.76	31,466.24	1,900,000.00

In Words (Rupees Ninteen Lakh Only)

Payment Terms : - Advance 19,00,000/- Balance 12,78,090/- from ANERT

Declaration (To be furnished by the seller)

We declare that this invoice shows the actual price of the goods discribed and that all particulars are true and correct

For SOLGEN ENERGY PVT LTD

Goods received in good condition

Signature of the Party .....

AUTHORISED SIGNATORY

SOLGEN ENERGY PRIVATE LIMITED THRISSUR

ENERGY, ENVIRONMENT &GREEN AUDIT REPORT

PART-B: ENVIRONMENT & GREEN AUDIT REPORT

4. ESTIMATION OF CO_2 EMISSION AND NEUTRALIZATION

(ELECTRICITY, DIESEL,PETROL & LPG)

Reduce, Reuse, Recycle

4.1 STATEMENT OF GREEN INITIATIVES AT LEAD COLLEGE OF MANAGEMENT

Main Campus :The main campus has a good canopy of local and fruit bearing trees. An indicative list is given below for fully matured trees. There is a scope and plan to enhance this canopy once the hostel annexure building is completed and the frontage landscaped:

	TYPES	COUNT
1	Jackfruit Tree	5
2	Neem Tree	1
3	Nadhuca Tree	2
4	Bamboo Tree(big)	4
5	Bamboo Tree(small)	2
6	Tamarind Tree	1
7	Coconut Tree	33
8	Tulsi	1
9	Conzattia	1
10	Guava	3
11	Palm Tree	2
12	Wax apple Tree	2
13	Pink wheel flower	9
14	Sapota	1
15	Teak	10
16	Plumeria	1
17	Red sealing wax palm	1
18	Areca palm(yellow)	5
19	Benjamina	1
20	Bottle palm	1
21	Mango	1
22	Cinnamon Tree	3
23	Veetti Tree(Dalbergia latifolia)	1
	TOTAL	91

The Farm:A 11.2 acre farm owned by the Chairman and his family is extensively used by LEAD College ofManagement and supplies fresh produce, chicken, greens and vegetables(ladies Finger, brinjal, gourds and pumpkins) to the canteen. In addition, natural farming is encouraged and student teams from LEAD College regular visit to engage with farming and experiencing agriculture. The farm also is the eld-base for conducting outbound training programs around 100 days in a year. Around 70 exotic birds, pigeons and poultry are also housed in the farm.

Dr. Thomas George KDirector

4.2 Assessment of Annual Energy Usage:

Table-2 shows the types of energy carriers used for their regular operation in the college campus along with application area and their source.

Table-2: Energy Carriers, Application area and their sources used for College Operation

S. No.	Type of Energy Carrier	Application Area	Source of Procurement
1.	Electricity (LT Service)	Powering to all electrical / electronic / HVAC equipment's	From KSEB LTD
	Diesel	Transport vehicles and Diesel Generator (Captive Generation)	From authorised distributor
3.	Liquefied Petroleum Gas (LPG)	Used only for cooking	
4.	Matured Trees	The college has nearly (**90 no's in main campus + roughly 105 nos in farm)** of varieties of matured trees with more than 10 years old.	

4.3 Environmental System: CO_2 Balance Sheet (2022-23):

Environment audit is the best tool to assess the CO_2 emission and neutralization and chalk out the plans to reduce it from the present values. Table-3 provides the balance sheet indicating various energy carriers associated with the regular activities of the college and their CO_2 mapping.

Table-3: Environmental System: CO_2 Balance Sheet (2022-23)

S. No.	Energy Consumption & CO_2 Emission				CO_2 Neutralization		
	Description	**Energy Quantity (Annum)**	Conversion factor	**CO_2 Emission (Tons/Annum)**	**Description**	**Energy Usage**	**CO_2 Neutralized (Tons/Annum)**
1.	Electrical Energy	380412 kWh	0.85	323.3	Due to energy generation from PV solar	214 kWh	0.182
2.	Diesel&Petrol (Transport + DG)	30761 Litres/ 3325 litres	2.296/2.653	81.6/7.63	CO_2 Neutralized due to Matured Trees	195 No's	4.3
3.	LPG Consumption	13870 kg	2.983	40.75			
4.	**Total Emission**			**453.28**	**Total-Neutralized**		**4.482**
	Balance CO_2 to be Neutralized = 448.8 Tons/Annum & Per Capita CO_2 Consumption = 0.64Tons/Annum [1]						

([1] Total strength of students, staff & = 700)

4.4Observations:

- From the above table; it is evident that the college is now trying to neutralize their CO_2 emission through various initiatives like i) Installation of additional roof top solar PV system and solar water heater, ii) Reduction of LPG consumption, iii) Planting more no. of trees and iv) implementing various energy conservation measures (conventional fan to BLDC fans, Energy efficient motor replacement, judicious use of all types of energy etc.,).
- Reduction of LPG consumption by replacing the entire boiler cooking system into biomass wood pellets reduces considerable amount of CO_2. The management has to think and go for fuel substitution.
- A matured tree can able to absorb nearly CO2 at a rate of 48 lbs./year (nearly 21.8 kg); hence total CO2 to be neutralized is (21.8 *x* 195)/ 1,000 = **4. 3 Tons Annua**l
- 50KVA roof top solar power project to use renewable energy which helps for co2 neutralization by exporting power below picture show the site geomap photo of solar panel

4.5 References:

http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm

http://www.ghgprotocol.org/calculation-tools/alltools

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

PART-B: ENVIRONMENT & GREEN AUDIT REPORT

5. TRANSPORT & REFRIGERANT GASES IN AIR CONDITIONING SYSTEM

Air Pollution does not need a Visa to travel across the Border

5.1 List of Transport Vehicles:

The college is committed to provide green environment not only in the campus; but also to the entire atmosphere. College has brought cycles to promote cycle instead of bikes and car, and its for everyone to use it.The list of transporting vehicles available in the college campus along with their type of engine are represented in Table-4;

Table-4: List of Transporting Vehicles available in the College

S. No.	Type of Vehicle & YOM	Type	Fuel Used	No. of Vehicles	Non pollution certificate
1.	BUS&2016	AL- FBV1 17	Diesel	1	Yes
2	CAR (SUV)	4-SEATER	PETROL	5	Yes
3	Bikes(by students)	2 SEATER	PETROL	12(AVG)	YES
3	CYCLE	-	-	4	-
Total No. of Vehicles				**22**	--

Details of Bus

KL09AL3693

Owner Details

Name	THE ADMINISTRATOR
Son / Daughter / Wife of	NA

Chassis No.	MB1PAEAD3GEDU6370
Engine No.	GEEZ201513
Maker Name	ASHOK LEYLAND LTD
Model Name	ASHOK LEYLAND FBV 1 17
Registration Date	01-Aug-2016
Tax Valid UpTo	30-Jun-2023
Vehicle Class	MPV
Vehicle Description	Educational Institution Bus(MPV)
Fuel Type	DIESEL
Emission Norm	Not Available
Color	GOLDEN YELLOW WITH B
Seat Capacity	37
Standing Capacity	8
Financier	NA
Insurance Company	Oriental Insurance Co. Ltd.
Insurance Policy No.	442000/31/2023/6211
Insurance Valid UpTo	14-Jul-2023
Fitness Valid UpTo	28-Oct-2023
PUCC No.	KL00900070012545
PUCC Valid Upto	28-Apr-2022
Permit Valid UpTo	14-Nov-2026
Registering Authority	PALAKKAD RTO, Kerala

5.2List of Air Conditioning System along with its Refrigerant:

The list of AC available is shown in Table-5: indicating their quantity, tonnage, type of refrigerant, GWP and ODP.

Table-5: List of Multi-variant AC System, Type of Refrigerant, GWP and ODP Values

S. No.	TYPE	TR Capacity	Quantity	Refrigerant Used	Global Warning Potential (GWP)	Ozone Depletion Potential (ODP)
1	SPLIT A/C	1	85	R22	1,810	Medium
2	CHILLER UNIT	5	2	R22	1,810	Medium
3	LARGE A/C UNIT	7	7	R22	1,810	Medium

- **Note:** The most environment-friendly refrigerants that are available in Indian market currently are "R-290" and "R-600A". They are Hydrocarbons and their chemical names are "Propane" for R-290 and "Iso-Butane" for R-600A.
- They are completely halogen free, have no ozone depletion potential and are lowest in terms of global warming potential. They also have high-energy efficiency but are highly flammable as they are hydrocarbons. (Kindly refer: https://www.bijlibachao.com/air-conditioners/comparison-of-various-refrigerants-r-410a-r-22-r-290-r-134a-used-for-air-conditioners-and-refrigerators.html).

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

PART-B: ENVIRONMENT & GREEN AUDIT REPORT

6. WATER UTILIZATION, CONSERVATION & WATER MANAGEMENT

Our Earth, Our Habitat, Our Home

6.1 Source of Water, Storage and Distribution:

Water is one of the main consumable in the college campus**. LEAD College of Management** gets water from different i)Fresh water from the bore well and ii) RainWater Harvesting (RWH). Table-6 shows the source of water, location of storage along with their application.

Table-6: Source of Water, Location of Storage and Application

Type of Water	Source	Location of Storage	Application
Fresh water	Borewell -2nos	Stored in separate tanks located in each buildings.	Cooking, Utensil Cleaning, Bathing, Clothing washing
Rain Water	Rain Water collected through i) buildings run offs, ii) road run-offs and iii) collected in bottom of building	Collected and stored underground of the each building	Used for Campus gardening and other uses

6.2 Reverse Osmosis (RO) Plant and Treated Water for Drinking Application:

- The college management is keen on providing uninterrupted, safe and healthy drinking water to all; throughout the year.
- The specifications of RO purifer and Source of water to the entire campus is givenin Table-7.

Table-7: Specifications of RO purifier and Potable Water Distribution System

S. No.	Parameters	Description
1.	Total no. of RO Purifier	• 15 Nos (Located in the Admin,cateen,outside campus, building & Boys/girls hostel)
2.	Source of raw water-boreweel of 10HP each	BorewellOne :Average Run/day: Front use: 60 minute cycles x 3 times a day. Estimated daily draw 8100Liters at peak
		Borewell Two: Average Run/day: Admin block and Kitchen annex: 60 minutes x 4 times a day. Estimated daily draw : 10800 Liters at peak

3	Per captia water demand is **27 litres/person/day**	Daily water usage is 18900litres/day
4	Best Procedures to be done	• Paste the Dos and Don'ts Chart. • Posture regarding water saving and importance of water saving shall be pasted.

IRTC
Integrated Rural Technology Centre
Grant-in-aid institution of KSCSTE, Government of Kerala

Mundur (PO), Palakkad (Dist.), Kerala
0491-2832663, 2832324, 9188183296
mail@irtc.org.in
www.irtc.org.in

ENVIRONMENT LABORATORY
Approved by: Kerala State Pollution Control Board
Approval No.: PCB/CL/RL/34/2021

No. IRTC/311/ENVL/ WS287/23

WATER QUALITY ANALYSIS REPORT

Name and Address of the Client	Location/Sample Code	Date of receipt	Source of sample
Principal Lead College Dhoni, Palakkad	Not Given	06/03/2023	Bore Well
		Sample No	Date of report
		WS 287	10/03/2023

Sl. No	Parameter	Unit	Test Result	Acceptable Limit as per IS 10500:2012 For Drinking Water
1	pH @ 25°C	-	6.9	6.5-8.5
2	Colour	Hazen	-	-
3	EC @ 25°C	µs/cm	215	-
4	TDS	ppm	113	500
5	Turbidity	NTU	3.1	05
6	Alkalinity as mg $CaCO_3$ / L	mg/L	70	200
7	Chloride	mg/L	10	250
8	Total Hardness as mg $CaCO_3$ / L	mg/L	76	200
9	Calcium	mg/L	18	75
10	Magnesium	mg/L	7	30
11	Fluoride	mg/L	0.4	1.0
12	Total Iron	mg/L	0.24	0.3
13	Sulphate	mg/L	<1	150
14	Nitrate	mg/L	1.0	45
15	Total Coliform	MPN/100 ml	9	Absent
16	E.coli	-	Absent	Absent

Tested in accordance with : APHA, AWWA, WEF 2017

- *EC - Electrical Conductivity, TDS - Total Dissolved Solids, NTU-Nephelometric turbidity unit, MPN- Most Probable Number, µs-Micro siemens, BIS-Bureau of Indian Standards, mg/L- milligram per litre*
- *Coliform & E.coli should not be present in 100 ml of sample as per BIS standard.*

***Disclaimer**: The sample was taken and brought to the lab by the person with name and address mentioned above and not by IRTC.*

Ankitha Saji
Chemist

Kavyakrishna M.R
Microbiologist

Sivadas.A. N
Head Of Laboratory

Administrative Officer
Integrated Rural Technology Centre
Mundur, Palakkad

6.3 Rain Water Harvesting (RWH) - from Building Roof Area & Run-off Area:

- The audit team appreciates the effects taken by the management of **LEAD College of Management** for harvesting the rain water .
- The roof area is so arranged to collect the rainwater and then passed through proper piping system and then bring back to the RWH pits which is located bottom of building.

Fig.1: Rain Water Harvesting (RWH) system implemented in the Academic Building -7,39,500liters

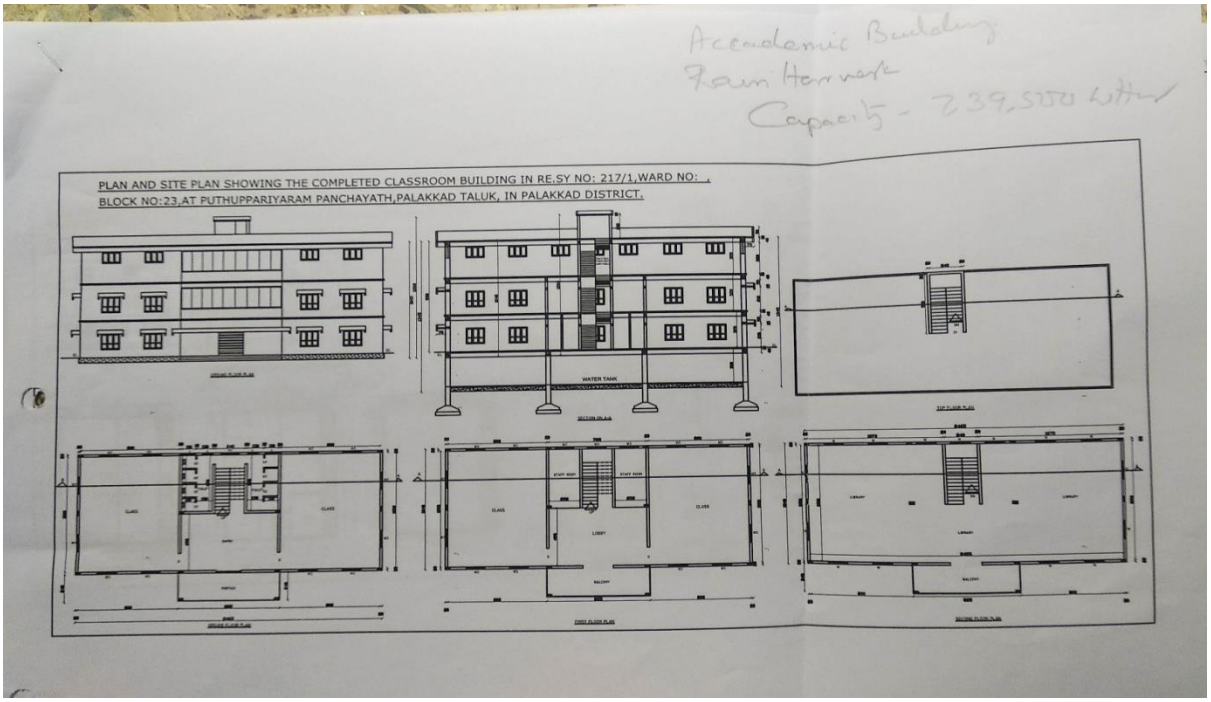


Fig.2:Rain Water Harvesting (RWH) system implemented in the Guest room Building -4,38,000liters

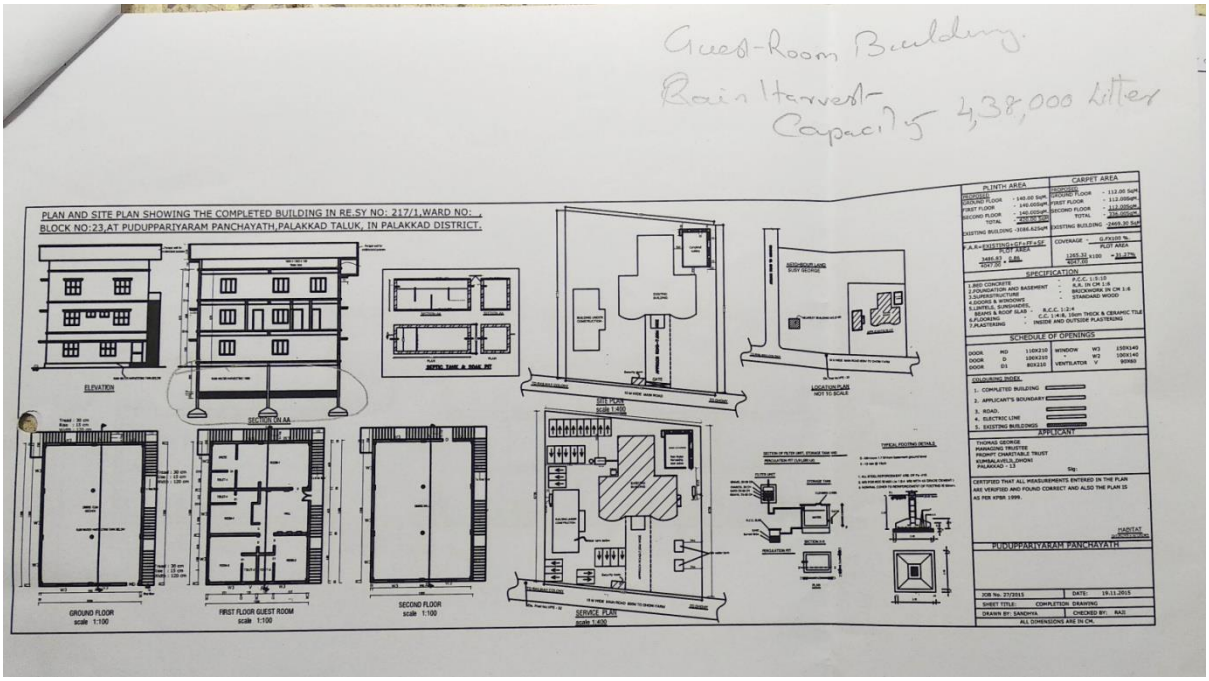
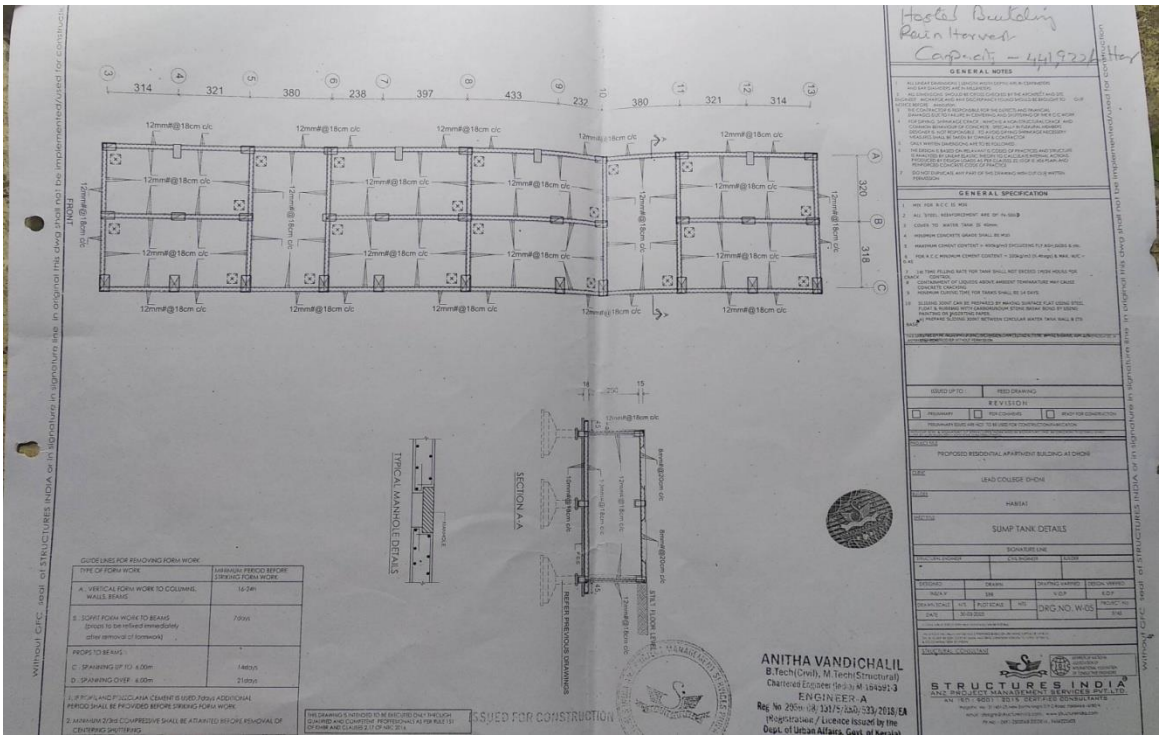


Fig.3:Rain Water Harvesting (RWH) system implemented in the Hostel Building -4,41,922liters



6.4 General Recommendations for Rain Water Harvesting:

- Numbering must be done each RWH pits. All the RWH pits must be properly numbered (based on location like 1/7, 2/7 and so on).
- Similar to numbering, all the RWH has been fitted with their specifications indicating their i) year of installation, ii) approximate average rainfall and duration in the RWH location and iii) type and layers of filters along with their dimension
- Conduct a GIS based study on the improvement of ground water table especially before the rainy session and after rainy session. Compare the data and ensure that the water table improves due to percolation of rain water.

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

PART-B: ENVIRONMENT & GREEN AUDIT REPORT

7. USAGE OF CHEMICALS, SALTS & ACIDS

(STORAGE, HANDLING, AND BEST OPERATING PRACTICES)

Say no to pollution & Yes to Recycle

7.1 Cleaning Agents (Soap & Powders) used for Vessel & Floor Cleaning:

In order to maintain hygiene in the College campus, the administration regularly clean the floors and restrooms. In addition to this; the hostel management has to clean i) the vessels, kitchen floor, dining hall, store room and gas station. Table-8 shows the cleaning agents used to clean the above area;

Table-8: Cleaning Agents used for Floor and Vessel Cleaning

S. No.	Cleaning Agent	Application
1.	Cleaning Powder & Vessel Cleaning Soap	Vessel Cleaning
2.	Soap Oil & Bleaching Powder	Floor Cleaning

7.2: Recommendations: Eco Friendly - Green Cleaning Agents:

- On an average; the cleaning agents used today have about 62 harmful chemicals like Paraben, Phosphates or Chlorides. A lot of them come from multi-purpose cleaners.
- It is recommended to use natural ingredients like orange peel extract & vinegar. It leaves a mild and pleasant fragrance after use. The formula is free from all harmful chemicals & toxins. It is pH-neutral, gentle on the skin as well as the surface on which it is used.
- Also these products are **IGBC GreenPro** certified. GreenPro is a mark of guarantee that the product is environment friendly throughout its life cycle.
- Fig. 7 shows the sample eco-friendly Green Pro certified cleaning agents.

Fig.5: Green Pro Certified Eco Friendly Cleaning Agents (ZERODER)

KERALA STATE POLLUTION CONTROL BOARD

Online Application Receipt

Date : 07-07-2023

Phoenix Login ID : 9447163693

Your application has been successfully submitted in the PHOENIX portal of the Kerala State Pollution Control Board with details below :

1. **Application number : 10001943**
2. **Application for : ICE Consent**
3. **Industry Name : THOMAS GEORGE K AND PRATHEESH V RESIDENTIAL APARTMENT**
4. **Category : ORANGE**
5. **Industry Type : Flats/Apparments/Commercial building(Area 2000 Sqm-20000 Sqm)**
6. **Scale of Industry : Medium**
7. **Month and Year Of Commissioning : February & 2023**
8. **Gross Fixed Capital Investment including cost of Land, Building, Plant & Machinery without Depreciation (Rs in Lakhs) : 952.61846**
9. **Cost of Land (Rs in Lakhs) : 18.7385**
10. **Cost of Building (Rs in Lakhs) : 923.87996**
11. **Cost of Plant & Machinery : 10.0**
12. **Fee Details: Amount : 43000.0**

Receipt no. : 10007599

13. **Registered Address :STUDENTS OF LEAD COLLEGE OF MANAGEMENT, DHONI POST,PALAKKAD,PIN-678009**
14. **Pin : 678009**
15. **Village : Puthupariyaram - 2**
16. **Survey No. : 217/28,217/1**
17. **District : PALAKKAD**
18. **Taluk : Palakkad**
19. **Phone Number : 9447163693**
20. **E-mail Address : pratheeshv@gmail.com**
21. **Occupier Name and address : THOMAS GEORGE K**
22. **Designation of Occupier : DIRECTOR**
23. **Office Address : THOMAS GEORGE K AND PRATHEESH V RESIDENTIAL APARTMENT, STUDENTS OF LEAD COLLEGE OF MANAGEMENT, DHONI POST,PALAKKAD,PIN-678009**

A SYNOPSIS OF ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

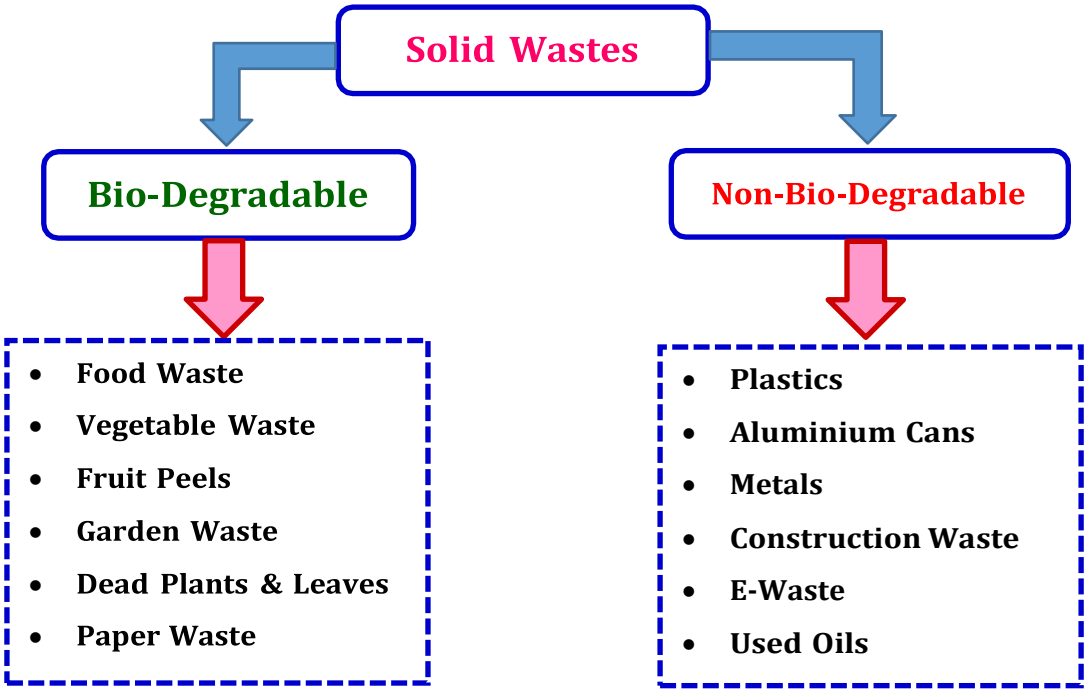
PART-B: ENVIRONMENT & GREEN AUDIT REPORT

8. WASTE HANDLING & MANAGEMENT

Save the environment in present for better life in future

8.1: Solid Waste Management System:

Different types of wastes generated inside the college promises are represented in the below block diagram.



8.2Process of Waste Management:

The college management practiced some methods to treat the waste generated and Table-9 shows the process of treating the solid waste generated inside the college campus.

Table-9: Process of Waste Management

S. No.	Waste Type	Waste Treatment
Bio-Degradable Waste Management		
1.	Food and Vegetable Waste	Collected and fed to College owned farm
2.	Garden Wastes and Plant Leaves	collected and dumped in a yard
3.	Paper Waste	Collected and stored in a separate place.
		Sale to third party for recycling
Non-Bio-Degradable Waste Management		
4.	Plastics	Banned in the college campus (Welcome step). However the storage plastic containers being disposed to Local authorities
5.	Construction Waste	Mostly used by their own construction and used for internal land filling
6.	Metals	Construction metals or from any other sources are stored in a separate place.
		Sale to third party for recycling

7.	Transport Oil + Tyres	Stored in a separate place and sale to third party.
8.	Transport Vehicle and Computer Batteries	Procuring new batteries with buyback offer (old battery replacement)
9.	Used edible oil	Almost zero waste. Mostly used for internal cooking and frying.
10.	E-Waste Management	Separately given below. Sale to third party for recycling

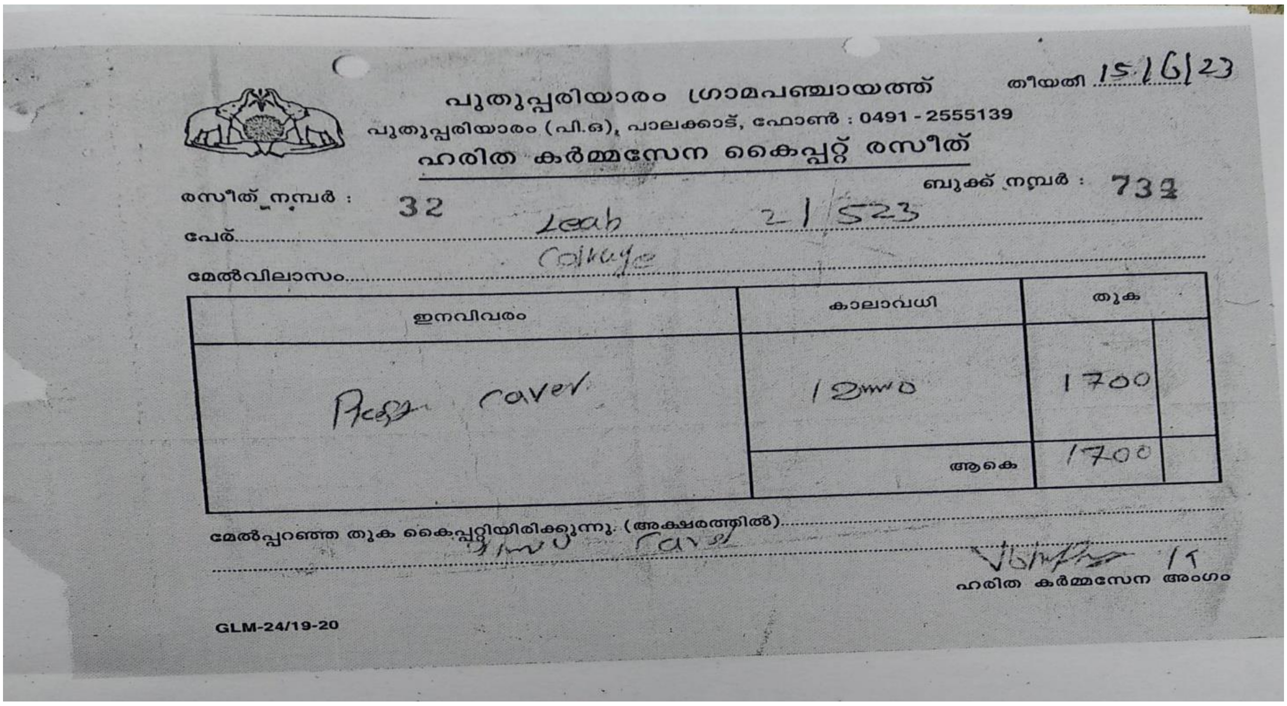
8.3 List of Approved E Waste:

E-Waste – Electrical	E-Waste – IT & Communication
• Motors and Starters	• Copier/Printers & Fax Machines
• Fans, Lamps and Luminaries	• Power Stripes & Power Supplies
• Electrical Drives	• UPS/Servo Stabilizers/Inverters
• Heater Coils	• Batteries
• Broken/Fired Cables	• Wi-fi-Modems, Routers, Toggle
• Air Conditioning System	• Network Cables, Switches, Hubs
• Power Distribution Panels	• Phone, Intercom & PBX
• Electronic Music Instruments	• Audio & Video Equipment's/Remote Controls, Projectors
• Electronic GYM Equipment's	
• Electronic Attendance System	• Printed Circuits Boards
• Analog & Digital Measuring Instruments	• Barcode/QR scanners

8.4 General Note:

- Prepare a flow chart for collection of E-waste from Generation to Disposal and paste it on appropriate places
- An electronic weighing scale (with suitable capacity) must be installed in the storage yard and should be properly calibrated.
- One emergency lamp (with UPS supply) must be installed along with suitable fire extinguisher. Ensure proper ventilation in the yard.
- Form rule for declaring the waste as E-Waste & Assign the singing authorities
- Identify a third party vendor to procure the E-waste from the college.
- Establish MoU with that party. Disseminate the following information at appropriate places i) E-Waste Policy, ii) Process Methodology, iii) Copy of MoU with third party vendor, iv) Contact persons mobile no. and E-mail.
- Identify certain vehicle to carry the waste from generation to storage yard.
- Provide training to the man power those are handling the waste.
- Maintain separate Delivery Challan, Billing, Weighing mechanism for handling the E-Waste.
- Update the status of E-waste (through digital circular) to all the concerned management representatives, faculty members and staff at regular interval (month wise is good).

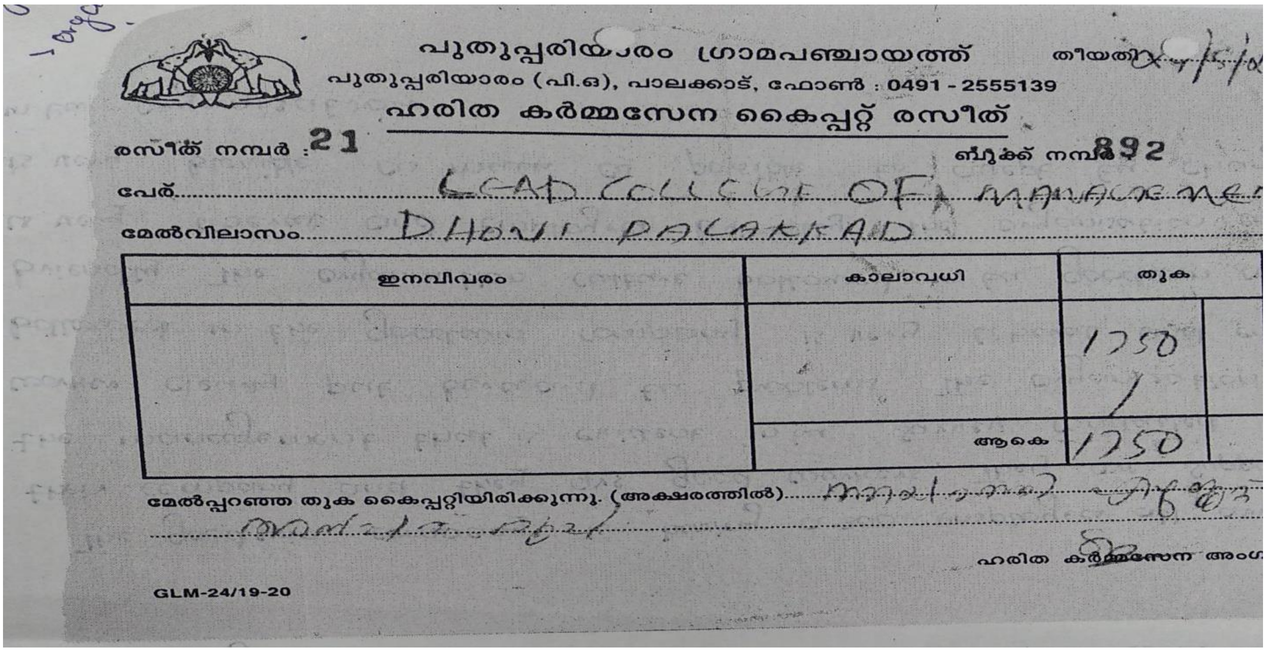
Note: For scientific disposal of waste.of non degradable waste .College dispose these waste to local Government authorities .below fig show the waste disposal bill



പുതുപ്പരിയാരം ഗ്രാമപഞ്ചായത്ത് തീയതി 15/6/23
പുതുപ്പരിയാരം (പി.ഒ), പാലക്കാട്, ഫോൺ : 0491 - 2555139
ഹരിത കർമ്മസേന കൈപ്പറ്റ് രസീത്
രസീത് നമ്പർ : 32 ബുക്ക് നമ്പർ : 734
പേര് Lead 21/523
മേൽവിലാസം College

ഇനവിവരം	കാലാവധി	തുക
Plastic cover	12 mo	1700
	ആകെ	1700

മേൽപ്പറഞ്ഞ തുക കൈപ്പറ്റിയിരിക്കുന്നു. (അക്ഷരത്തിൽ) [illegible]
ഹരിത കർമ്മസേന അംഗം
GLM-24/19-20



പുതുപ്പരിയാരം ഗ്രാമപഞ്ചായത്ത് തീയതി [illegible]/5/[illegible]
പുതുപ്പരിയാരം (പി.ഒ), പാലക്കാട്, ഫോൺ : 0491 - 2555139
ഹരിത കർമ്മസേന കൈപ്പറ്റ് രസീത്
രസീത് നമ്പർ : 21 ബുക്ക് നമ്പർ 892
പേര് LEAD COLLEGE OF MANAGEMENT
മേൽവിലാസം DHONI PALAKKAD

ഇനവിവരം	കാലാവധി	തുക
		1750
	ആകെ	1750

മേൽപ്പറഞ്ഞ തുക കൈപ്പറ്റിയിരിക്കുന്നു. (അക്ഷരത്തിൽ) [illegible]
ഹരിത കർമ്മസേന അംഗം
GLM-24/19-20

8.5Sewage treatment Plant

All sewage and drainage from college campus is collected treated by separate STP(Sewage treatment Plant) maintained by **Dreamlight water technologies.Pvt Ltd.** College made agreement to treat drainage water

Dreamlight Water Technologies. Pvt. Ltd

2nd Floor, Shameela Complex, TB Road
Thrissur, Kerala - 680021
0487 2445404/05
dreamlightwatertechnologies@gmail.com
www.watercarecentre.com

REF : GC/2023/DLT-B-1523
Date : 13th September, 2022
To

To
The Director
M/S Leads College
Dhoni
Palakkad

REPORT: WASTE WATER TREATMENT PLANT

Dear Sir,

Treatment Scheme

Waste water from the Hostel, Wash Area & Kitchen are passed through a grid chamber to separate suspended solids followed by an oil Trap to separate oil & Fat content and collected in a collection tank. Over flow from septic tank is also collected in the collection tank separately. Waste water from the collection tank is pumped into processing tank. Organic Enzyme is added in to Processing Tank (by dripping /manually/online dosing). This Treated water is pumped into neutralization tank with online dosing of NaOH to neutralize the effluent .Then this water is shifted into settling tank with adequate online dosing of coagulants and settle solid impurities in settling tank. This clear supernatant water will be shifted into a dis-infection tank with Online dosing of chlorine. After the chlorination this water shifted into filter feed tank. Then this water will be pumped through a Pressure Sand Filter for the removal of suspended solids followed by Activated Carbon filter for the removal of foul smell & excess free chlorine and collected in a UF feed Tank .This water is pumped through Ultra Filtration plant for the removal of tiny particles up to 0.01 micron level (to reduce BOD to below 10) and collect in a Treated water collection tank and re-use. Excess water is percolated through the soak pit. Sludge accumulated in the settling tank is shifted into sludge drying bed frequently to dry and dispose as a manure.

DESIGN PHYLOSOPHY

1. Maximum Number of inhabitants in the hostel/College: 600/- Nos.
2. Number of staffs working in the institution : 100 Nos
3. Maximum Quantity of effluent generated in a day: 94,500/- Ltrs.
4. Total capacity of the waste water treatment plant : 100,000 Liters
5. Type of the Plant: Enzyme based waste water treatment technology.

SR. NO.	DECRIPTION	CAPACITY
01.	Total volume of Sewage to be treated	100 m3/day
02.	Operation hours	12 hrs.
03	Flow Rate / hour	8.33 m3

Dreamlight
Water Technologies. Pvt. Ltd

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Thrissur, Kerala - 680021
0487 2445404/05
dreamlightwatertechnologies@gmail.com
www.watercarecentre.com

TREATED SEWAGE ANALYSIS

SR. NO.	DECRIPTION	CAPACITY
01.	PH	6.5 – 8
02.	T.S.S.	< 10mg/L
03	BOD	<10 mg/L
04	COD	<50 mg/L
05	OIL & Grease	<5 mg/L

ORGANIC ENZYME

ORG-Enzyme

This is Peroxide based complex and catalyst, eco-friendly and very effective in odor control & sewage treatment. It can also be used for treating waste water from restaurant / bakery/Hospitals and fruit pulp like coffee etc.....

This enzyme acts as fly repellent too and thus, helps to prevent enteric diseases, viz. typhoid, cholera, diarrhea, jaundice, etc.

Organic Enzyme's method of working is by oxidation process and is quite opposite to the treatment process in sewage treatment plants.

The moment Organic Enzyme dilution is applied in the collection well of STPs., all types of bacterial population start getting wiped out, faucal solids (even with high fat content) get disintegrated, dissolved and digested.

When the bacterial population thins out, contamination is checked, production of Harmful gases, viz. methane, hydrogen sulphide & C.O2 is stopped / curtailed.

Because of the dissolving of feces solids, initially the TSS level will go up but after 8 to 12 hours' processing time, this will come down to prescribed limits.

Organic Enzyme does not require mechanical aeration for a long time as in STPs. or electricity for running blowers 24x7. Hence, there is lot of saving on capital cost of machinery, equipments, electrical installations, stand by diesel generator set, O&M, AMC., repairs & renewals, consumables, etc.

Organic Enzyme is user-friendly, non-hazardous, non-toxic, non-allergic and non-corrosive. It is safe for children, birds, animals and aquatic life. No harm even if it comes into direct contact with food stuff, fruits, vegetables, fish, meat, etc whether raw or cooked.

Processing Details

Grid Chamber

Waste water carrying suspended solids like all floating and big size matter such as plastic bottles, polythene bags, glasses, stones, leafs, vegetable pieces, wrappers etc., will be removed which may otherwise choke the pipeline and pumps.

Dreamlight
Water Technologies. Pvt. Ltd

2nd Floor, Shameela Complex, TB Road
Thrissur, Kerala - 680021
0487 2445404/05
dreamlightwatertechnologies@gmail.com
www.watercarecentre.com

Collection Tank:

Waste water from the hostel, wash area & kitchen are collected in collection tank. Over flow from septic tank is also collected in the collection tank separately.

Processing Tank

Processing tank is a place where **Organic enzyme is added**. The moment **Organic Enzyme** dilution is applied in the collection tank, all types of bacterial population start getting wiped out, faucal solids (even with high fat content) get disintegrated, dissolved and digested.
For proper mixing of Enzyme and to increase the supply of oxygen in to the effluent, **30 minutes aeration is given in every hour.**

Neutralization Tank

Waste water from the processing tank will be shifted in to Neutralization tank for neutralizing PH. **NaOH is added** to increase the pH as per the requirement.

Settling Tank

Water shifted into the settling tank will have more time to settle down all the remaining tiny solid impurities which increases the clarity of the water. To fasten the settling **coagulant (Alum)** is dossed in to this tank.

Disinfection Tank

In disinfection tank, **Sodium hypo Chlorite (NaOCl)** is added for disinfecting.

PSF & ACF

Chemically pre-treated water, from the **Disinfection Tank** is pumped through Pressure Sand Filter for the removal of any suspended solids followed by **Activated Carbon Filter** For the removal of foul smell excess free chlorine etc.

UF Feed Tank

Treated water is stored in **UF Feed Tank.**

UF Plant

Treated water is pumped through Ultra Filtration plant for the removal of tiny particles up to 0.01 micron level and collect in a Treated water collection tank and re-use.

Soak Pit

UF treated water can be collected in a Soak pit for percolating through the earth or it can be used for gardening or cleaning purpose. In the event of scarcity of the water this treated water can be collected in a treated water collection tank for necessary applications.

SDB [Sludge Drying Bed]

Backwashed impurities & slurry from Settling Tank will be shifted into **Sludge Drying Bed** periodically. The same will be dried and disposed as manure.

Dreamlight
Water Technologies. Pvt. Ltd

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Thrissur, Kerala - 680021
0487 2445404/05
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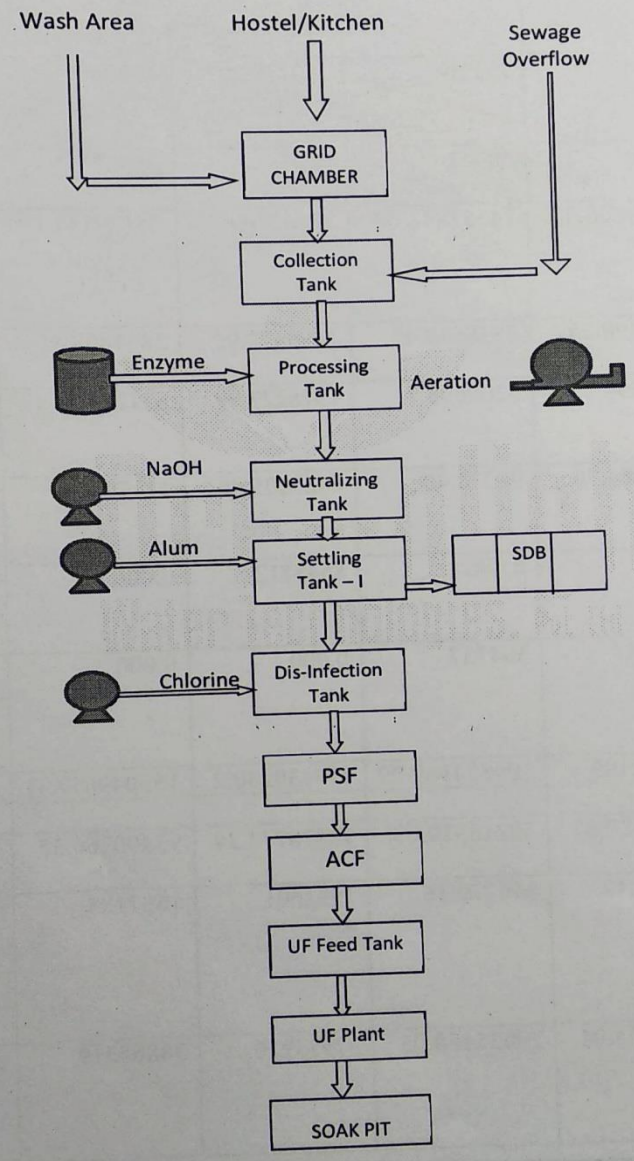
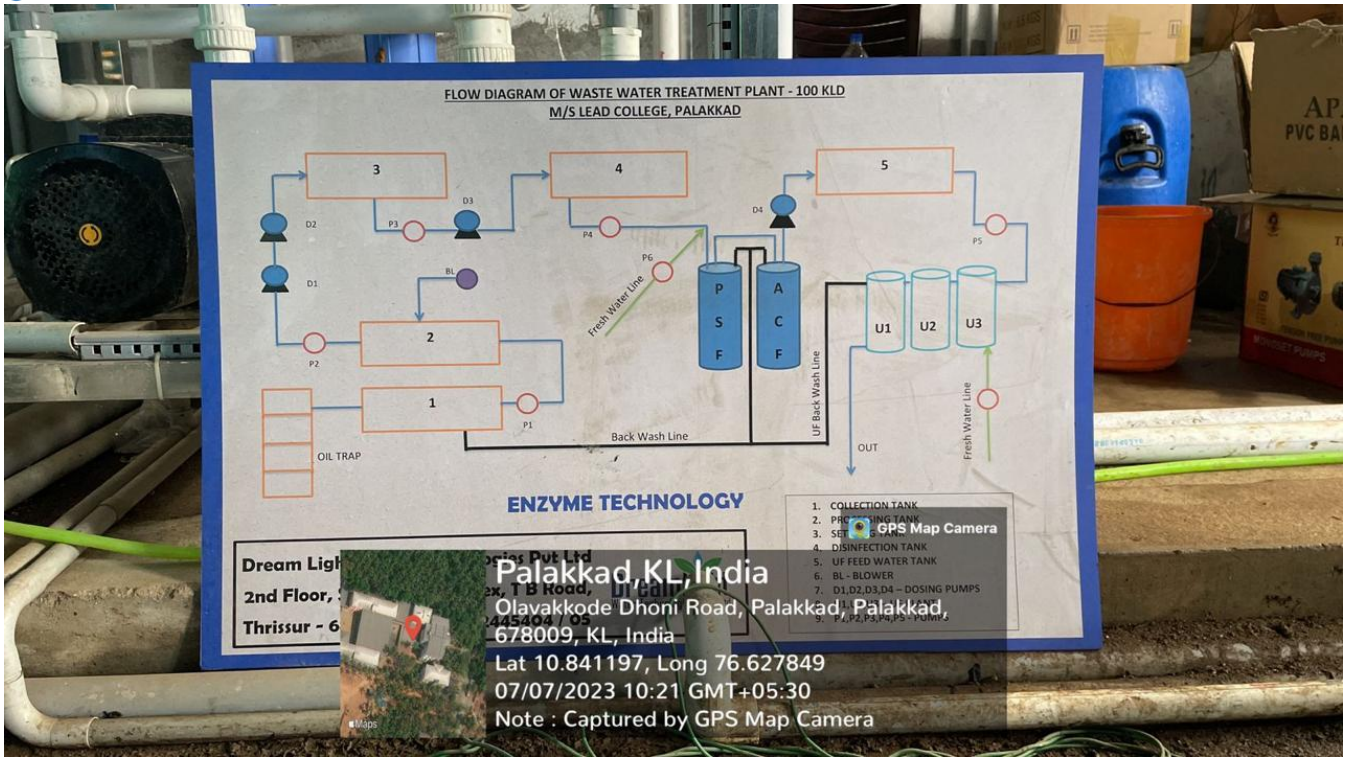
www.watercarecentre.com

Flow Chart




FLOW DIAGRAM OF WASTE WATER TREATMENT PLANT - 100 KLD
M/S LEAD COLLEGE, PALAKKAD
ENZYME TECHNOLOGY
OIL TRAP
Back Wash Line
Fresh Water Line
UF Back Wash Line
OUT
U1
U2
U3
1. COLLECTION TANK
4. DISINFECTION TANK
5. UF FEED WATER TANK
6. BL - BLOWER
7. D1,D2,D3,D4 – DOSING PUMPS
GPS Map Camera
Palakkad,KL,India
Olavakkode Dhoni Road, Palakkad, Palakkad, 678009, KL, India
Lat 10.841197, Long 76.627849
07/07/2023 10:21 GMT+05:30
Note : Captured by GPS Map Camera


PAPER
PLASTIC
METAL
GLASS
GPS Map Camera
Palakkad,KL,India
Olavakkode Dhoni Road, Palakkad, Palakkad, 678009, KL, India
Lat 10.841094, Long 76.628293
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ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

PART-B: ENVIRONMENT & GREEN AUDIT REPORT

9. ASSESSMENT ON GREEN CAMPUS & HEALTH AND SAFETY

Trees are life, don't cut them

9.1: Campus Greenery:

The college is completely covered with matured trees grown for more than 10 years. The total number of matured trees available in the college campus is ***195 with more than 22 varieties of trees.(Campus+Farm).*** Apart from the mature trees; preserving the ecology; the entire collegecampus is planted with various flowing shrubs and pushes.

Table-10: List of Matured Trees available in the College

	TYPES	Botanical name	COUNT
1	Jackfruit Tree	Artocarpus heterophyllus	5
2	Neem Tree	Azadirachta Indica	1
3	Madhuca Tree	Madhuca longifolia	2
4	Bamboo Tree(big)	Mangiferaindia	4
5	Bamboo Tree(small)	Mangiferaindia	2
6	Tamarind Tree	Tamarindus indica	1
7	Coconut Tree	Cocsnucifera	33
8	Tulsi	Ocimum tenuiflorum	1
9	Conzattia	Cassiano Conzatti	1
10	Guava	Psidium guajava	3
11	Palm Tree	Arecaceae	2
12	Wax apple Tree	Syzygium samarangense	2
13	Pink wheel flower	Tabernaemontana divaricata	9
14	Sapota	Manilkara zapota	1
15	Teak	Tectonagrandis	10
16	Plumeria	Plumeria rubra	1
17	Red sealing wax palm	Cyrtostachys renda	1
18	Areca palm(yellow)	Dypsis lutescens	5
19	Benjamina	Ficus benjamina	1
20	Bottle palm	Hyophorbe lagenicaulis	1
21	Mango	Magnifera Indica	1
22	Cinnamon Tree	Cinnamomum verum	3
23	Veetti Tree	Dalbergia latifolia	1
	TOTAL		91

Total No. of Matured Trees available in the college campus is **195** which contributes for reduction of **2.6 Tons of CO_2 emission/Annum**


GPS Map Camera
Palakkad,KL,India
Olavakkode Dhoni Road, Palakkad, Palakkad,
678009, KL, India
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Note : Captured by GPS Map Camera

Table:11 List of animal inside campus& Farm:

S.no	TYPES	Botanical name	COUNT
1	Dog	Canis lupus familiaris	2
2	African love bird	genus Agapornis	2
3	White-eyed parakeet	Psittacara leucophthalmus	2
4	Conure bird	Aratinga auricapillus	8
5	lorikeet bird	Trichoglossus moluccanus	2
6	Cinnamon green-cheeked parakeet	Pyrrhura molinae	4
7	squirrel	Sciuridae	1
8	Persian cat	Felis catus	1
9	Emu bird	Dromaius novaehollandiae	2
10	Geese Duck	Anatidae	16
11	Turkey	Meleagris	2
12	Chicken	Gallus gallus domesticus	3
13	Farm chicken	Gallus gallus domesticus	25
14	Flower Horn Fish	Cichlasoma Trimaculatus	1
15	Ball Phython	Python regius	1
16	Koi Fish	Cyprinus rubrofuscus	40
17	Terrapin	Malaclemys terrapin	1
18	Totoise	Geochelone elegans	2
19	Red chameleon	Chamaeleonidae	1
20	Green Chameleon	Chamaeleonidae	1
21	Camel	Camelus dromedarius	1
22	Donkey	Equus asinus	1


GPS Map Camera
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678009, KL, India
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GPS Map Camera
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678009, KL, India
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Note : Captured by GPS Map Camera


GPS Map Camera
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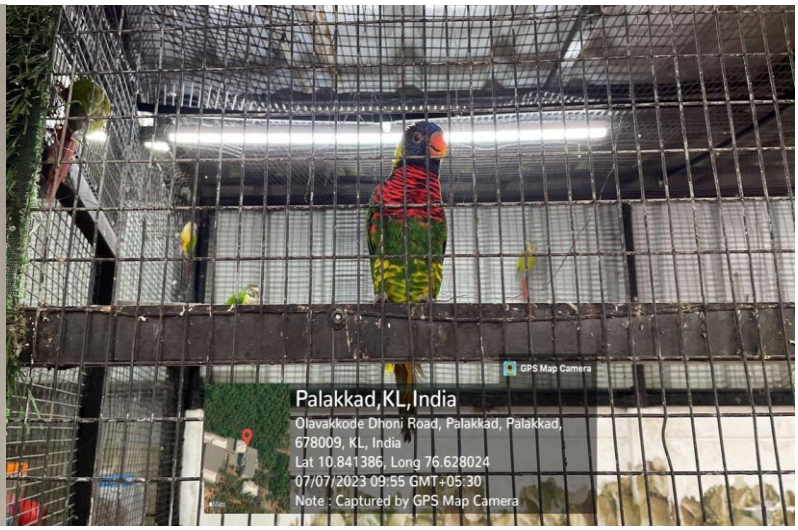
Note : Captured by GPS Map Camera



9.2 Safety And Emergency Preparedness

Total campus is 24*7 monitored by surveillance camera all area. Control room is locked and provided with emergency power backup power supply.

Medical Emergency:

In front of campus OP Clinic is functional by college management . Local doctor visit periodically. This run for not only for staff and student. local people also can visit for free treatment. In case of emergency college car is used to drop to nearby hospital.

9.3***Sanitary Facilities:***

In College Campus separate toilets for, students, staff both male/female is there in all building. Separate toilet facility is made for disabled person in main building. 16 staff is employed for toilets cleaning, and also for canteen and cleaning 13 staff is employed.

9.4List of fires extinguisher as follow:

1. ABC Stored 6Kg Capacity -5nos
2. ABC Stored 2Kg Capacity -1nos all are refilled to up to date

EMIRATES SAFETY PRIVATE LIMITED
An ISO 9001:2015 Certified Company

Reg No : UDYAM-KL-10-0013914

ESPL /PKD/2022-23/CR/00806
LICENCE NO.B 771/2021

Date : 25/02/2023

TO
M/S LEAD COLLEGE OF MANAGEMENT
Dhoni
Palakkad
(Vehicle No : KL 9 AL 3693)

CERTIFICATE

This is to Certify that, We have done all the Refilling of Fire Extinguishers as per the standard prescribed in IS : 13849 CM/L 3831054 in your firm. (ABC Stored Pressure 2 Kg Cpty – 01 Nos). **Refilling date : 25-02-2023 , Next Due Date : 24-02-2024.** All Fire Extinguishers are in good condition.

FOR Emirates Safety Private Limited

Authorized Sign

Fire NOC (No Objection Certificate), Supply and Installation of Fire fighting equipments (Fire extinguishers, Fire Hydrants, Fire Alarms, Sprinklers and detectors etc.) Supply of PPE'S (Personal Protective Equipments), AMC (Annual maintenance Contract) Contractor, Servicing and Refilling of Fire Extinguishers

0491 2544222, 7994442219
7994442220, 7994442221
emiratessafety2018@gmail.com
www.emiratessafety.life
16/657, Mini Eternity Tower, Manali Junction
Koppam (P.O.), Palakkad, Pin: 678 001, Kerala

COCHIN FIRE TECH INDIA PVT. LTD.
BE PREPARED

2nd Floor, 64/4252, Vadhyar Lane, Thammanam Pullepady Rd, Kathrikadavu, Ernakulam, Kerala - 682 017
0484 - 2346409, 2341159, 2341169 info@cochinfiretech.com www.cochinfiretech.com
An ISO 9001-2015 certified company

CFTI\PKD\2023-2024\CR\012
Date : 06-04-2023

M\S lead college of management
Dhoni
Palakkad

CERTIFICATE;

This is to Certifying that, we have being **SERVICING & REFILLING** accordingly '5' Numbers of Fire Extinguishers (**ABC stored pressure 6 kg cpty**) on 06-04-2023 and found all are in Good working Condition.

Also bring your kind notice; the next due will be on 05-04-2024

Thanking You

FOR COCHIN FIRE TECH INDIA PVT LTD

Authorized Signature

COCHIN FIRE TECH INDIA PVT LTD KANJIKODE PALAKKAD 678 621

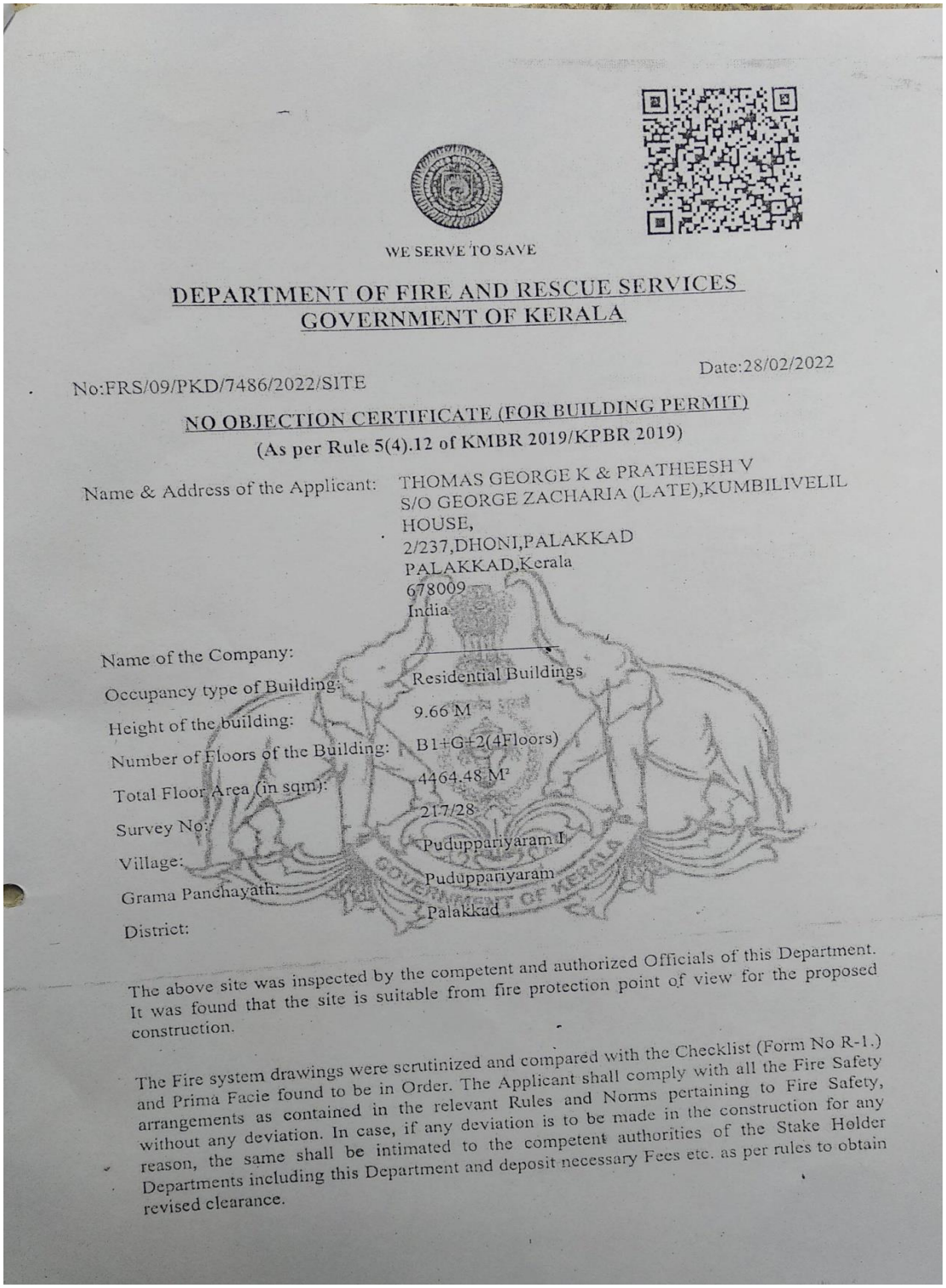
Specialized In: Designing & Installation of Fire Protection | Fire Alarm | Gas Suppression & Co2 Flooding System | Public Addressing & Talk Back System | Maintenance of Fire Fighting System & Equipments | Fire Approvals

GSTIN NO 32AABCC9881F1ZN • SSI No. 32 008 2 1 18110 PART II • NSIC/GP/COC/2014/0003736 • Maharashtra Fire Licence No - MFS-LA/RF-0464

Palakkad, Kanjikode - 678 621 +91 949 600 1619 / +91 944 608 1681 / +91 491 256 7660 cftpkd@cochinfiretech.com

9.5 Construction site safety:

Campus building got no objection certificate from Kerala government. Which prove that campus is full safe and prepared for any emergency.



WE SERVE TO SAVE

DEPARTMENT OF FIRE AND RESCUE SERVICES
GOVERNMENT OF KERALA

No:FRS/09/PKD/7486/2022/SITE

Date:28/02/2022

NO OBJECTION CERTIFICATE (FOR BUILDING PERMIT)

(As per Rule 5(4).12 of KMBR 2019/KPBR 2019)

Name & Address of the Applicant: THOMAS GEORGE K & PRATHEESH V S/O GEORGE ZACHARIA (LATE),KUMBILIVELIL HOUSE, 2/237,DHONI,PALAKKAD PALAKKAD,Kerala 678009 India

Name of the Company:

Occupancy type of Building: Residential Buildings

Height of the building: 9.66 M

Number of Floors of the Building: B1+G+2(4Floors)

Total Floor Area (in sqm): 4464.48 M²

Survey No: 217/28

Village: Puduppariyaram I

Grama Panchayath: Puduppariyaram

District: Palakkad

The above site was inspected by the competent and authorized Officials of this Department. It was found that the site is suitable from fire protection point of view for the proposed construction.

The Fire system drawings were scrutinized and compared with the Checklist (Form No R-1.) and Prima Facie found to be in Order. The Applicant shall comply with all the Fire Safety arrangements as contained in the relevant Rules and Norms pertaining to Fire Safety, without any deviation. In case, if any deviation is to be made in the construction for any reason, the same shall be intimated to the competent authorities of the Stake Holder Departments including this Department and deposit necessary Fees etc. as per rules to obtain revised clearance.

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

10. AUDIT SUMMARY & CONCLUSION

Save Energy: Save Future Generation….

SUMMARY OF THE AUDIT PROCESS:

In order to make the **LEAD College ofManagement** campus 100 % energy efficient; Environmental sustainability and lush Greenery; the audit team recommends to implement the following measures:

I. Energy Conservation & Management - Electrical Energy:

1. Highly recommended to revamp the power house with proper Energy Monitoring System (EMS) and fitted with adequate Automatic Power Factor Controller (APFC) & Fixed Capacitors in order to maintain the supply power factor near to unity.
2. Conduct Infrared Thermograph audit at regular interval on all electrical panels, joints, cables, switch gears, boilers skin, steam pipes, and other external parts producing heat. Practice the audit in the maintenance schedule.
3. Also conduct voltage drop test for the longest electrical path and determine the voltage regulation at each points. This regulation must be within the limit of 5 %.
4. Maintenance log book must have the installation details like date of installation, fault history, repair/replacement of system, Mean Time between Failure (MTBF), repetitive faults etc.
5. All SSB must be fitted with digital energy meters and are the readings must be taken daily. Or connect those meters with EMS and monitor the energy pattern of each building.
6. Replace the existing analog meter located in each distribution panels from powerhouse side with smart kWh meter and connect them through networking. This must enable the user to monitor the energy pattern of each block remotely.
7. DG- kWh generation, fuel consumption, Unit per Litre (UPL) for each run.
8. Energy consumption for hostel, seminar hall, auditorium and library must be separately noted
9. Block wise maintenance checklist of electrical and thermal system
10. In a phased manner, ceiling fans must be changed from conventional fans into BLDC fans.
11. Implement automatic street light controller to turn on and off based on different time in a day. Use astrological timer for better results and energy savings.
12. Diesel flow meter must be fitted with each DG and calculate the UPL accurately.

13. Regularly conduct i) Illumination study, ii) Thermal comfort study, iii) Flue gas study on DG, and Boiler, iv) Water quality assessment (for all type of water utilized) and v) Indoor and ambient air quality study.

14. **Essentials in PH**

- Place the Single Line Diagram (SLD) – Available
- Details of connected load in the campus.
- Name of the PH officials along with their contact mobile number & E-mail.
- Name of the nearest substation, emergency contact no. of TANGEDCO officials and fire officials.

15. ***Best Practices of Earth Pit Maintenance:***

- Earth pits must be visible for easy access, regular maintenance and yearly measurement.
- Numbering of individual earth pits and maintain along with a diagram is always preferred.
- It is always good practice to represent the earth resistance value (last check value) either on the earth pit or inside the earth pit for ready reference.

16. **Retrofit of AIRCON Energy** Saver, AC House Keeping and Optimization of Air Conditioning Operation. Install AIRCON energy saver gadget which works on dynamic un-saturation principle with the sensor algorithms so that the air conditioners run hours are cut by 20 to 25 %.

17. **BLDC AC System:** Similar to Fan, now BLDC based AC is available in the market which consumes less amount of energy (Power) during its starting and running condition. This AC operates at same tonnage capacity and offer 100 % same cooling effect compared to conventional inverter AC.

18. **Replacement of Existing Water Pumps into BEE Star Labelled EE Pumps:** BEE star labelled pump system has i) High efficiency motor, ii) Lightweight materials and iii) Optimized suction-delivery system, ensures greater energy saving.

19. **Implementation of Servo-Stabilizer (SS) for Lighting Load Application:** Lighting loads are most sensitive to voltage variations and supplying a constant voltage provides two major advantages namely i) Reduction of breakdown of lamps and luminaries and ii) considerable amount of energy saving.

20. **Formation of Green Energy Team (GET):** In order to train the students to conserve the energy, each sections of the loads may be allotted with some group of students with a faculty mentor. These groups may fix up with a target for energy conservation and start working to achieve it. An incentive mechanism to the group of students conserving less energy will be moral example for other student.

II. Energy Conservation & Management - Thermal Energy:

1. Regularly clean the stove burners and ensure that the flame should be in light bluish colour.
2. Use TCC painting on hot surfaces and reduce the exposed energy.
3. Try with radiant burner in dosa making machines and saves energy. This provides more convenient to the human working on the stove (reduction of exposure to heat radiation).
4. In future; plan to replace the existing Vapour Off Take (VoT) LPG layout into Liquid Off Take (LoT) system which saves good amount of LPG by reducing the left over LPG in the cylinder.
5. Monitoring of LPG Consumption using Tag System: Measure the weight of each cylinder while purchasing & Paste a cylinder history tag on each cylinders. Mark the date of service and date of relieving on each cylinder (Mention the time)
6. Measure the empty cylinder weight and mark in the tag
7. Replace the conventional insulated (ceramic wool) steam pipes into vacuum insulated pipes. The steam loss in the convention insulated pipe is 50 W/m where as in vacuum insulated pipe; it is 15 W/m (reduced heat loss).

III. Water Conservation & Management:

1. Utilize more amount of treated water from STP plant since most of the approving agencies like AICTE, UGC etc are now requesting to utilize the treated water.
2. Amount of water utilized by each building by connecting digital water flow meter and optimize the water usage.
3. Prepare and maintain a Single Line Diagram (SLD) for water distribution network.
4. Try to reduce water tapped from the ground water source; since it is not environmental friendly.
5. Paste water and energy savings slogans at appropriate places.
6. Generate your own power and water for regular activities and move towards Net Zero Energy and Net Zero Water Building.
7. Retrofit aerator based water taps for good water savings. For hand washing applications; all the pipes must be fitted with aerators.
8. In future; install Bio-Sewage Treatment Plant as it reduces the amount of energy required to operate the plant and environmental friendly operation.
9. Properly follow scientific method of handling chemicals/Acids/Salts and safe disposal through 3rd party.

10. Water treatment log must be maintained indicating the water inlet, treated and outlet water quantity.
11. Install sensor based water controller in each Over Head Tanks and reduce the water waste and power required to operate the pump.
12. Energy required to process the water treatment must be calculated.
13. Overall cost of treated water by accounting i) consumables, ii) manpower iii) energy and iv) other conventional expenses
14. Use the treated water to the maximum in whatever possible areas and try to minimize the fresh water intake (from any source).
15. Set a policy and fix a target for usage of treated water; ensure that the plan is being executed without any deviation. Increase the % of usage of treated water year by year.
16. With advent of smart technologies, it is possible to have centralized monitoring in real-time using Internet of Things (IoT), Geographic Information System (GIS) software, etc. as per **Jal Jeevan Mission,** Department of Drinking Water & Sanitation Ministry of Jal Shakti.
17. In hostel building; try to introduce **"Emergency Water Line**" during day time (usually from 9.00 AM t0 4.00 PM). The gate valve of the common line is closed during that time and hence water wastage is being avoided in the knowingly or unknowingly opened taps.
18. Introduce **Power Wash** floor cleaning mechanism which removes the stains easily with reduced water usage.
19. **Awareness camps** must be conducted to all the stakeholders at regular interval. Through this initiative; Painting, Photography, Slogan and Poster making contest are conducted to create consciousness among the students and faculties.

IV. Waste Management:

1. **Yellow dust bins** must be placed to collect these bio-medical wastes.
2. After the COVID; mask, sanitizer bottles, gloves and other medical items must be trashed only through the yellow bins.
3. This must be informed to all the students and stakeholders. Suitable steps has to be taken to disseminate this information.
4. All the solid wastes are properly stored in a separate place and record is maintained by mentioned its quantity.
5. Install bio-gas plant, revamp the bi-manure facility and utilize the same.

6. The food waste must be weighted and marked in a record before kept into the digester unit. This must be checked with the amount of gas generated using suitable calculation and check with the designed output.
7. Any waste items given to trust office or to the third party must have a record on the respective department.
8. **Reduction of Paper:** Workout a policy to move towards paperless office. Present system of paper usage may be reviewed and wherever possible; digitalize the activities and reduce the paper

9. Use bar code scanning to identify the location, row and seat no. of a candidate during examination and avoid paper information pasted in the notice board.
10. Publish the internal marks, model examination marks through student ERP.
11. Also make attendance report, feedback, payments, salary slip may be converted to digital platform and if necessary take prints (only office copy).
12. Adopt some College Management System (CMS) and try to automate.
13. Automation leads to save energy, save man power, save paper which leads to better transparency, efficient man power utilization and thus saves cost.

V. Impart Training to Faculty and Technical Staffs:

1. **Energy Conservation and Management**
2. **Environmental impact and assessment**
3. **Fire and Safety (Operation and Handling)**
4. **Electrical maintenance, AC, Battery Maintenance & Safety**
5. **Emergency Preparedness**
6. **E-Waste, Chemicals Handling & Solid waste management**
7. **Training for Transport employees** (Improvement in fuel economy, reduce accidents, vehicle cleanness, 100 % attendance, student friendly approach and overall maintenance of the vehicle)
8. **Training for Faculty and Students on Vehicle Operation** (Preferably by PCRA or any other authorised service providers)
9. **Training for kitchen employees** (LPG savings, improvement in productivity, equipment operation and best practices to be followed)
10. **General medical camps for employees**
11. **Training on Stress management and Yoga**

VI. Way Forward towards Energy & Environmental Sustainability:

- Prepare an exclusive **Energy and Environment Policy** based on the energy and environment practices followed in the campus. This must reflect the i) Present energy consumption & generation, ii) Projection of energy need, iii) Commitment by the college to conserve energy (in terms of percentage), iv) Road map to achieve the commitment, v) Facilities need to achieve the same, vi) Roles and responsibilities of all stake holders, vii) Interim and final review mechanism, viii) Corrective measures if the results deviates from the committed value and ix) Benchmarking, Case study preparation, Knowledge sharing and rewards.
- Implement ENCONs and best operating practices proposed in the audit report and measure the results.
- Adopt effective waste management policy and reduce the food print of waste generation (Net zero waste campus).
- Practice appropriate ISO standards for system management. The audit team highly recommend to follow i) ISO-9001 (Quality Management System), ISO-14001 (Environmental Management System) and ISO-50001 (Energy Management System).
- Working towards Net Zero Energy and Net Zero Water Campus and achieve **Platinum rated Global Leadership campus (as per IGBC rating)** and/or **5-star rated campus** (as per GRIHA rating) and/or **GEM-5 rated campus** (as per ASSOCHEM GEM rating).

COMPLETION OF THE REPORT

This synopsis report is prepared as a part of the Energy, Environment and Green Audit process conducted at **LEAD COLLEGE OF MANAGEMENT** Dhoni, Pallakad, Kerala – 678009, India by **P S QUALITY CERTIFICATION PVT LTD,** No.415, F4, I Floor, Asha Vignesh Apartment, Ambattur, Tamil Nadu 600 053.

LEAD COLLEGE OF MANAGEMENT
Dhoni, Palakkad, Kerala, India – 678009

ENERGY, ENVIRONMENT & GREEN AUDIT REPORT

ANNEXURE:

AUTHORISED CERTIFICATES OF THE AUDITOR

LEAD COLLEGE OF MANAGEMENT
Dhoni, Palakkad, Kerala, India – 678009
www.lead.ac.in | info@lead.ac.in

Certificate of Training

TNV hereby certifies that

ARIVARASAN.G

has successfully completed the 40 hours

Lead Auditor Training Course which meets the training requirements of the

Exemplar Global and has been declared as competent in the following competency units

- EnMS: Energy Management System
- AU: Management Systems Auditing
- TL: Leading Management Systems Audit Teams

ISO 50001:2018

Issue Date: 08th Jul. 2023
Training Date : 12th to 16th Jun. 2023
Certificate Number 2307083623020101

Authorised Signatory
(Pragyesh Singh)

This course is certified by Exemplar Global vide registration number: TN006669

Note: The course conforms to the principles and practice of audits of Management Systems for compliance with standards. This certificate remains the property of TNV and this certificate is recognized by Exemplar Global. For verification of this certificate, please write to Mail: info@isoindia.org

LEAD COLLEGE OF MANAGEMENT
Dhoni, Palakkad, Kerala, India – 678009
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Regn No. EA-21875

Certificate No. 8963

National Productivity Council

(National Certifying Agency)

PROVISIONAL CERTIFICATE

This is to certify that Mr. / Mrs. / Ms. Arivarasan G

son / daughter of Mr. Gopalakrishnan R

has passed the National certification Examination for Energy Auditors held in September - 2016, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.

He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.

He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.

This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.

Place : Chennai, India

Date : 10th March, 2017

Controller of Examination