

No: AEC/GAC/24-05

15-05-2024

Audit Certificate

This is to certify that **M/s Euphrasia Training College for Women Kattoor, Thrissur** have successfully completed the **Environment Audit** of their buildings and campus conducted on 08th & 09th May 2024 for the Academic year 2023-2024. They have submitted all necessary data and credentials for scrutiny.

We, **Athul Energy Consultants Pvt Ltd, Thrissur** congratulate the Management, Executive Director, Principal, staff members and students for the successful completion and participation in the audit report process.

Managing Director



Athul Energy Consultants Pvt Ltd



J. Lakshmi Principal
Euphrasia Training College For Women
Kattoor

ENVIRONMENT AUDIT - 2024



**EUPHRASIA TRAINING COLLEGE FOR WOMEN
KATTOOR THRISSUR**

EXECUTED BY



ATHUL ENERGY CONSULTANTS PVT LTD

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May 2024



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Principal
Euphrasia Training College For Women
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PREFACE

The phenomenal growth of population and industrial development exploits the environment in different ways. By this greenhouse effect and other allied problems are threatening the mankind world over. Protection and up gradation of environment is our prime concern for regaining of its original nature required for sustainable development. This context institutions have a major role to play.

Every institution should be imparting knowledge about the campus environment and its surroundings through activities that follows the principles of sustainability and waste management. Hence an evaluation is needed to understand where it stands in the path to be an environment friendly, and in talent nurturing educational institution.

This Environment Audit was done with the aim to assess mainly on waste management of the campus. The college envisages students are to become a centre par excellence of learning, where the best in humans is unveiled, based on human values, focused on life enhancement and constructive in adapting to the needs of the world. This will indicate through the management and students participation in the environment activities

This report is compiled by the BEE certified energy auditor and Environment management (ISO 140001) Consultants along with the project engineers who are experienced in the field of energy, environment and management. The student volunteers made a mammoth contribution with data collection and in preparing an initial skeleton for the report.




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ACKNOWLEDGEMENTS

We express our sincere gratitude to the M/s Euphrasia Training College for Women Kattoor Thrissur for giving us an opportunity to carry out the project of Environment Audit. We are extremely thankful to all the staffs for their support to carry out the studies and for input data, and measurements related to the project of Environment audit.

- | | | |
|---|-------------------|------------------|
| 1 | Dr. Sr. Vimala | Manager |
| 2 | Dr. C Salim Kumar | Principal |
| 3 | Sr. Leena C P | IQAC Coordinator |

Also congratulating our Environment audit team members for successfully completing the assignment in time and making their best efforts to add value.

ENVIRONMENT AUDIT TEAM

- 1. Mr. Santhosh A**
Registered Energy Auditor of Bureau of Energy Efficiency (BEE - Govt. of India)
Accredited Energy Auditor No - EA 0275
- 2. Mr. Krishnakumar G.**
Lead Auditor, ISO 140001, Environment Management and Certified energy auditor.

Yours faithfully

Managing Director
Athul Energy Consultants Pvt Ltd




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ENVIRONMENT AUDIT SUMMARY

- ❖ College segregated the waste from college, treated in a scientific manner.
- ❖ Separate storage provisions are done for metal and plastics in college.
- ❖ Incinerator is installed in the college for incinerating sanitary napkin

Suggestions for improvement

- ❖ Vermin compost plant to be installed in the college to treating plant leaves etc.
- ❖ Display the weight of segregated wastes that collected from the canteen, hostels and college in prominent locations which will be an eye-opener for all and it will help in reduce the waste generation.
- ❖ Monthly Records should be kept for segregated wastes which will give the administration to pinpoint the source and can take necessary steps to reduce it.



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GENERAL DETAILS

The general details of the M/s Euphrasia Training College for Women are given below in table.

TABLE 1: GENERAL DETAILS

Sl. No	Particulars	Details
1	Name of the College	Euphrasia Training College for Women
2	Address	Kattoor , Thrissur
3	Contact Person	Pin:680702 Sr. Leena CP 9400314636,
4	Contact Phone numbers & Fax	0480-2877364
5	E-mail ID	euphrasiyatrg@gmail.com
6	Type of Building	Educational Institution
7	Annual Working Days	210
8	No: of Shifts	Day Shift (One) (9AM -4PM)
9	No: of students enrolled	100
10	No: of Teachers	10
11	No: of non-teaching staff	7
12	Total campus area	5.38 Acre
13	Total Built Up area	1600 m ²
14	No of class rooms,	30
15	No of labs	04
16	No: of departments	07
17	Incinerator	Yes
18	Segregation of waste	Yes




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ABOUT EUPHRASIYA TRAINING COLLEGE FOR WOMEN

Euphrasia Training College for women, Kattoor is a self-financing college of education for conducting B.Ed course, which is affiliated to the University of Calicut and recognized by the NCTE. It is situated in the Heart of Kattoor Panchayath ,Mukundapuram Taluk,in Thrissur Dt.Kerala State. It is organized and managed by CMC Udaya Province Irinjalakuda. College started its functioning on 20th July 2005 and was formally inaugurated 4th March 2006, by Mar James Pazhayattil, Bishop of Irinjalakuda. It was started One year B.Ed course with six Optional subjects in the year 2005 and 2015 onwards college has two year B.Ed course for five optional subjects.

Vision

To uplift women for the betterment of the society; to train them to be responsible teachers of tomorrow, with apt skills and strong ethical values and to kindle the light & life to the younger generation & love to the fellow beings

Mission

To mould outstanding teachers with high social commitment and radiate moral and spiritual values by providing quality education and systematic training.



FIGURE 1: EUPHRASIYA TRAINING COLLEGE FOR WOMEN CAMPUS



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ABOUT ENVIRONMENT AUDIT

The ICC defines Environmental Auditing as: **“A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of safeguarding the environment and natural resources in its operations/projects.”**

A clean and healthy environment aids effective learning and provides a conducive learning environment. There are various efforts around the world to address environmental education issues. Environmental conditions may be monitored from angles that are relevant to Indian requirements, without stress on legal issues or compliance. This innovative scheme is user friendly and totally voluntary. The environmental awareness helps the institution to set environmental examples for the community and to educate young learners.

Here we can mainly divide this report waste management initiatives and installations of systems such as bio gas plant, vermin compost, and incinerator. E-Wastes and collection and segregation of waste in the campus etc and students initiates in waste management as a social cause.

WASTE MANAGEMENT

Waste is generally termed as ‘a resource at the wrong place’. The college authorities are aware of the possible methods and have installed waste management measures like biogas systems. The waste clearance measures associated with different types of wastes are briefly given below. In this college normally three types of wastes are generated and we can divide the same as,

1. Bio degradable
2. Non bio degradable and
3. E-waste

1. BIODEGRADABLE WASTES

Biodegradable waste includes any organic matter in waste which can be broken down into carbon dioxide, water, methane or simple organic molecules by micro-organisms and other living things by composting, aerobic digestion, anaerobic digestion or similar processes also includes some inorganic materials which can be decomposed by bacteria. These materials are non-toxic to the environment and mainly include the natural substances like plants and animals waste, even the dead plants and animals, fruits, paper, vegetables, etc. get convert into the simpler units, which further get into the soil and are used as manures, biogas, fertilizers, compost, etc.

The biodegradable wastes are mainly from student’s food. Now these food wastes are collected by piggery farm and used as secondary food chain for pigs by maintaining quality manner.




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I. BIO GAS PLANT

Biogas is the mixture of gases produced by the breakdown of organic matter in the absence of oxygen (anaerobically), primarily consisting of methane and carbon dioxide. Biogas is a renewable energy source. Biogas is produced by anaerobic digestion with methanogen or anaerobic organisms, which digest material inside a closed system, or fermentation of biodegradable materials. This closed system is called an anaerobic digester, bio digester or a bioreactor.

Biogas is a renewable, as well as a clean, source of energy. Gas generated through bio digestion is non-polluting; it actually reduces greenhouse emissions. No combustion takes place in the process, meaning there is zero emission of greenhouse gasses to the atmosphere; therefore, using gas from waste as a form of energy is actually a great way to combat global warming. Another biogas advantage is that, unlike other types of renewable energies, the process is natural, not requiring energy for the generation process. In addition, the raw materials used in the production of biogas are renewable.

Bio gas plant reduces soil and water pollution. Consequently, yet another advantage of biogas is that biogas generation may improve water quality. Moreover, anaerobic digestion deactivates pathogens and parasites; thus, it's also quite effective in reducing the incidence of waterborne diseases.

Bio gas generation produces organic fertiliser. The by-product of the biogas generation process is enriched organic (digestive), which is a perfect supplement to, or substitute for, chemical fertilizers. The fertilizer discharge from the digester can accelerate plant growth and resilience to diseases, whereas commercial fertilizers contain chemicals that have toxic effects and can cause food poisoning, among other things.

Recommendation

1. Maintain a register for the food waste collection and inspection of secondary food chain up to the piggery farm such as to ensure the quality of food wastes to pig .or Install portable bio gas plant to cater the food wastes and generate bio gas (methane) for cooking in the canteen and slurry as manure for garden.

II. VERMI-COMPOST

It is the product of the decomposition process using various species of worms, usually red wigglers, white worms, and other earthworms, to create a mixture of decomposing vegetable or food waste, bedding materials, and vermin cast. Vermin compost contains water-soluble nutrients and is an excellent, nutrient-rich organic fertilizer and soil conditioner.^[3] It is used in farming and small scale sustainable, organic farming.

The major source of raw material for vermin-compost is the leaves in the college campus and also the wastes generated which are not fed into biogas such as Chicken bones etc. The vermin-compost plants installed near to the scrap yard in the college campus




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Benefits of Vermin-compost

- a. **For Soil**
 - ❖ Improves soil aeration
 - ❖ Enriches soil with micro-organisms (adding enzymes such as phosphatase and cellulose)
 - ❖ Microbial activity in worm castings is 10 to 20 times higher than in the soil and organic matter that the worm ingests
 - ❖ Attracts deep-burrowing earthworms already present in the soil
 - ❖ Improves water holding capacity
- b. **For Plant growth**
 - ❖ Enhances germination, plant growth, and crop yield.
 - ❖ Improves root growth, Enriches soil with micro-organisms, adding plant hormones such as auxins and gibberellins.
- c. **For Economic**
 - ❖ Bio wastes conversion reduces waste dumping in landfills.
 - ❖ Elimination of bio wastes from the waste stream reduces contamination of other recyclables collected in a single bin (a common problem in communities practicing is single-stream recycling)
 - ❖ Creates low-skill jobs at local level.
 - ❖ Low capital investment and relatively simple technologies make vermicomposting practical for less-developed agricultural regions.
- d. **For Environmental**
 - ❖ Helps to close the "metabolic gap" through recycling waste on-site.
 - ❖ Large systems often use temperature control and mechanized harvesting, however other equipment is relatively simple and does not wear out quickly
 - ❖ Production reduces greenhouse gas emissions such as methane and nitric oxide (produced in landfills or incinerators when not composted).

Recommendation

We recommend install one vermin compost plants in the college due to its wise area tree coverage and for easiness for maintenance of vermin compost plant. Manure requirements are divided into two area for gardens and plantation.




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2. NON-BIODEGRADABLE WASTE

Materials that remain for a long time in the environment, without getting decompose by any natural agents, also causing harm to the environment are called non-biodegradable substances. These materials are metals, plastics, bottles, glass, poly bags, chemicals, batteries, etc. But as these are readily available, convenient to use, and are of low cost, the non-biodegradable substances are more often used. But instead of returning to the environment, they become solid waste which cannot be broken down and become hazardous to the health and the environment. Hence are regarded as toxic, pollution causing and are not considered as eco-friendly.

Many measures are taken these days, concerning the use of non-biodegradable materials. The **three 'R'** concept which says **Reduce-Recycle -Reuse** is in trend, which explains the use of the non-biodegradable materials. As we already discuss that these substances do not decompose, or dissolve easily so can be recycled and reuse. And one can help in reducing this waste by instead of throwing the plastics and poly bags in the garbage; it can be put in the recycling bags to use again.

Non-recyclable wastes are collected and burned once in a month using incinerator places inside the campus itself. The recyclable wastes are sorted out into categories and supplied it to the collecting units.

INCINERATOR



Figure 2 INCINERATOR

The objective of waste incineration, in common with most waste treatments, is to treat waste to reduce its volume and hazard, whilst capturing (and thus concentrating) or destroying potentially harmful substances. Incineration processes can also provide a means to enable recovery of the energy, mineral and/or chemical content from waste. Basically, waste incineration is the oxidation of the





combustible materials contained in the waste. Waste is generally a highly heterogeneous material, consisting essentially of organic substances, minerals, metals and water. During incineration, flue-gases are created that will contain most of the available fuel energy as heat. The organic substances in the waste will burn when they have reached the necessary ignition temperature and come into contact with oxygen. The actual combustion process takes place in the gas phase in fractions of seconds and simultaneously releases energy. Where the calorific value of the waste and oxygen supply is enough, this can lead to a thermal chain reaction and self-supporting combustion, i.e. there is no need for the addition of other fuels.

The incinerator is used for incinerating non-biodegradable waste such as paper, plastic, sanitary napkins etc. The ash generated are as for manouvre after mixing with cow dung for plants. The ash generated from plastic will be treated separately.

The ash generated from incinerator were used as a fuel is used as manouvre for plants. The college campus promoting biodegradable packaging and reducing the consumption of plastic to a large extent.

3. ELECTRONIC WASTE

Electronic waste or e-waste describes discarded electrical or electronic devices. E-waste or electronic waste is created when an electronic product is discarded after the end of its useful life. The rapid expansion of technology and the consumption driven society results in the creation of a very large amount of e-waste in every minute. Used electronics which are destined for refurbishment, reuse, resale, salvage recycling through material recovery, or disposal are also considered e-waste. Informal processing of e-waste in developing countries can lead to adverse human health effects and environment pollution. Certain components of some electronic products contain materials that render them hazardous, depending on their condition and density.

College collecting all old computers, and other electronic wastes and stored in a separate room

Recommendation

We recommend to dispose the E wastes through KSPCB OR CPCB (Kerala state or central pollution control boards) approved agencies in a regular manner or kept all E-wastes in a separate place till the disposing of these items through approved agencies.




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FACILITIES PROVIDED BY COLLEGE FOR WASTEMANAGEMENT COLLECTION

- Toilets in every floor of all buildings separately for girls and staff.
- Certain toilets are facilitated for disable friendly with suitable hand rails and support mechanisms.
- Bins are provided in various areas of Campus for segregated collection of bio degradable (food,) and non-bio degradable wastes (Plastic, bottles)
- Every day cleaning and sanitisation is done at each and every toilet by cleaning personnel which used to check by housekeeping supervisor.
- Separate team is maintained by college for maintain the clean campus, removal of wastes from pets, collection wastes from bins, which is supervised by maintenance supervisor.




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CONCLUSION

Environment audit is the best way to analyse and solving the critical issues of waste management. Environment audit can add value to management approach being taken by college for identifying, collecting, segregating and processing of waste generated in the college campus. By analysing the waste generation in each segment such as biodegradable, non-degradable, R waste etc, gave an indication of waste generation and thus put control for the same to reduce the environmental impacts in due course.

The findings in the report shows that college perform fairly well in waste management issues and taken considerable efforts in a responsible manner. During audit and the conversations with the college team, we observed that M/s Euphrasia Training College for women Kattoor done various approaches in the past few years to performing well to sustainable environment. Even though there is space for further improvement that mentioned in the executive summary, the college is a good example for the minimisation of environment issues in the existing conditions.




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ANNEXURE

➤ EnMs Certified Professional



G KRISHNAKUMAR

has attended the following live virtual classroom course:

Transition training for Environment Management System as per ISO 14001:2015

Course is designed to explain:

- Requirements of ISO 14001:2015 in context of audit.
- Key changes from ISO 14001: 2004 to 14001:2015

Session Duration: 16 Hours

CERTIFICATE NUMBER
2020260507

TRAINING DATE:
25th & 26th May, 2020

Authorising Signature:



Intertek India Private Limited



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