

No: AEC/GAC/24-06

15-05-2024

## Audit Certificate

This is to certify that that **M/s Euphrasia Training College for Women Kattoor, Thrissur** have successfully completed the **Green Audit** of their buildings and campus conducted on 08<sup>th</sup> & 09<sup>th</sup> 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



*Asak*  
Principal  
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# GREEN AUDIT- 2024



## EUPHRASIA TRAINING COLLEGE FOR WOMEN KATTOOR, THRISSUR

EXECUTED BY



**ATHUL ENERGY CONSULTANTS PVT LTD**

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**May 2024**



*[Signature]*  
Principal  
Euphrasia Training College For Women  
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## PREFACE

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Every institution should be imparting knowledge about the campus environment and its surroundings through activities that follows the principles of sustainability. Hence an evaluation is needed to understand where it stands in the path to be an environment friendly, talent nurturing educational institution. This Green Audit was done with the aim to assess and rate the sustainable nature of the campus. The college vision to mould a new generation in integrity of virtues and in maturity of values and to form them in true wisdom according to their God-given talents for the good of the human beings by means of the noblest activity of study and by way of the most gracious quality of friendship. And in the **social goals**, "to make the students aware of the pressing global issues and the moral responsibility to handover to the coming generation an eco-friendly life style and an earth free from pollution, filth, bigotry and corruption". It was observed by us from the students' participation during the green audit.

This report is compiled by the BEE certified energy auditor and A GRIHA Certificate holder 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 preparing an initial skeleton for the report.



*[Signature]*  
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## ACKNOWLEDGEMENTS

We express our sincere gratitude to the management of M/s Euphrasia Training College for Women Kattoor Thrissur for giving us an opportunity to carry out the project of Green 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 Green audit.

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

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

### GREEN AUDIT TEAM

- 1. Mr. Santhosh A**  
Registered Energy Auditor of Bureau of Energy Efficiency (BEE – Govt. of India)  
Accredited Energy Auditor No – EA 7597
- 2. Mr. Ashok KMP** Registered energy Auditor of BEE and Certified GRIHA Professional
- 3. Mr. Harikrishnan**  
Project Engineer , Energy Manager

Yours faithfully

Managing Director  
Athul Energy Consultants Pvt Ltd



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**GENERAL DETAILS**

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

**Table 1 GENERAL DETAILS**

SL. NO	PARTICULARS	DETAILS
1	Name & Address of college	Euphrasia Training College for Women Kattoor , Thrissur Pin:680702
2	Contact person	<b>Sr. Leena CP</b> <b>9400314636,euphrasiyatrg@gmail.com</b>
3	Location: Latitude & Longitude	
4	No. of students	100
5	No: of teaching staff	10
6	No: of non teaching staff	07
7	Courses in college and No : of departments	05
8	Building area	1600 Sq.m
9	Land area	5.38 acres
10	Average annual working days	210 days
11	Are they conducting outreach programmes	Yes
12	Cross ventilation and natural light penetration into class rooms, labs	Good
13	No: of variety of trees	10
14	No: of trees	30
15	Sports	Cricket and Football ground, court Badminton court



*A. Leena*  
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## EXECUTIVE SUMMARY

- ❖ Varieties of living eco systems such as trees of varies varieties, Mashy land and natural fish water ponds ,gardens, are present in the campus along with open spaces
- ❖ Staff and student's collaboration of Nature club is held responsible for maintenance of greenery inculcating a sustainable culture among the student's community.
- ❖ By recognizing the importance of making healthy youth, management taken initiatives and built a badminton and , food hall ground
- ❖ Initiated vegetable garden and tree plantation by the NSS wing of college.

## Suggestions for improvement

- ❖ Cordoned area to be provided with suitable plants in the herbal garden
- ❖ Started to plant Star garden( Nakshthra vanam) in the college
- ❖ Water meter to be installed for measuring water consumption per day.
- ❖ Practice Institutional Ecology- Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation.
- ❖ Road map for the tree plantation to be done along with the master plan of the college. Gave importance for the oxygen generating plants and lush green trees.



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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 MAIN ENTRANCE



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## GREEN AUDIT

The whole world is on the road to a sustainable development, and the environment conservation is the top priority among the list as every human activity has its effect on their surroundings, which is the environment. Hence be it a house, a commercial building, an industrial building, or any other construction will disturb the balance of the environment. It is very important to do a detailed study about the effects on the environment. This is conducted under the name of *Green Audit*, which can be defined as *the official examination of the effects organization has on the environment, especially the damage that it causes*. The objectives of the green audit can be listed as follows:

- Including participants from every section of the organization in the auditing process..
- Identifying the activities in the premises and listing them.
- Calculating the resource consumption like the land and water.
- Study the energy usage pattern.
- Identify the good practices.
- Suggest the viable solutions to improve the sustainable nature of the organization.
- Compile the report with the above-mentioned details.
- Conduct a walkthrough audit to check the suggestions implemented by the institution and suggest for further improvements
- Verify all the points with actual measurements is it is meeting the performance and gave suggestions for improvement



  
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## CAMPUS ENVIRONMENT

The environment in and around the college campus plays an important part in maintaining a healthy atmosphere in nurturing talents. Trees are the major source of the oxygen we breathe, and receiver of the carbon dioxide we exhale. The sustainability of an ecosystem depends on the number of plants and trees in and around the surroundings. The open space in the college is used for gardening and maintain, open ground, silent zone etc. Ultimately the campus is maintaining natural equilibrium with nature



FIGURE 2: CAMPUS BUILDINGS VIEW

Scientific studies are proved that the nature can able to cure any diseases and this will reduce the stress among students during their studies and also increase the compassion among them and to nature. Ultimately the campus is maintaining natural equilibrium trees and water bodies with human beings. Gardens and landscape are an aesthetic delight and it promotes attentiveness of students. Persons exposed to plants have higher level of positive feelings (pleasant, calm) as opposed to negative feelings (anger, fear).



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## SUSTAINABLE CONSTRUCTION OF BUILDINGS

Energy consuming devices installed to achieve the comfort levels for the occupants of the building gives rise to heat generation which adversely affects the environment within the building and in the surrounding. Buildings are thus the major pollutants that affect the urban air quality and contribute to climate change. Buildings are the major consumers of energy during their construction, operation and maintenance.

Euphrasia Training College management has developed an ecological design in their buildings and adopted minimum negative impact on ecosystem. Their approach to the constructional activities consciously is to conserve energy and ecology and avoid the adverse effects of ecological damage.

Euphrasia Training college management constructed the building to optimum utilisation of land and classrooms and with abundant light and natural ventilation. Maximum day light ingress and natural ventilation increases the indoor air quality and avoid the sick building syndrome. The whole facility and buildings are designed to maximum and optimum utilisation of land without affecting the nature. They give the maximum open spaces in the front areas, sufficient spaces in the class rooms and open verandas. The stair cases provided also have sufficient spaces for easy movement without any congestion.

### 1. CARBON DIOXIDE LEVELS

Air quality is a major area of concern inside a building. The percentage share of oxygen and carbon dioxide should be such that the occupants are able to perform their tasks without any discomfort. This is generally done through a provision of fresh air duct for the air conditioning systems or by providing windows. Numerous factors need to be considered for the design and fabrication of the fresh air supply system like the number of occupants, weather pattern and air quality of the location, and so on. For the human comfort, production of carbon-dioxide (CO<sub>2</sub>) within a building space is the prime area of consideration. This is associated with respiration which produces CO<sub>2</sub>. As a result, the carbon-dioxide levels will increase if ventilations are not provided.

As per various standards (like the ASHRAE Standard 62.1-2016), indoor CO<sub>2</sub> concentrations up to 1200 ppm is considered acceptable. For a typical outdoor condition, this value may change from 300 to 500 ppm.

The measurements were recorded along different locations inside the campus and the peak values are given in the following sections. The key concentration was on the study of carbon dioxide levels.



  
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TABLE 2: CARBON DIOXIDE LEVELS

Sl. No.	AREA	Measured CO2	Standard CO2 level (Range)	Remarks
<b>Main Block</b>				
1	Administrative Office	550	300-500	Good
2	Principals room	500	300-500	Good
3	Seminar Hall	520	300-500	Good
4	Media room	510	300-500	Good
5	Class room in ground floor	525	300-500	Good
6	Lab	520	300-500	Good
7	Class room in first floor	580	300-500	Good
8	Mathematics lab	640	300-500	Good
9	Library	660	300-500	Good
10	Rest room	650	300-500	Good
11	Sports room	550	300-500	Good



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## 2. HERBAL GARDEN

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The literal meaning of Ayurveda is "science of life," because ancient Indian system of health care focused on views of man and his illness. It has been pointed out that the positive health means metabolically well-balanced human beings. Ayurveda is also called the "science of longevity" because it offers a complete system to live a long healthy life. It is an interactive system that is user-friendly and educational. It teaches the patient to become responsible and self-empowered. It is a system for empowerment, a system of freedom, and long life. A significant part of knowledge and tradition is currently being eroded due to modernization, acculturation and availability of alternatives. Therefore, it is urgent to inculcate young minds to realize the fascinating knowledge and tradition associated with these resources, and help them understand the immense potentials the Kerala medicinal plants possess for the future.

The "Promoting Herbal Gardens in Schools and colleges" has been a fun-filled learning activity for the students where they got the opportunity to learn about the medicinal plants by actually planting the medicinal herbs and watching them grow in their gardens, and by exploring information about them from various sources.

The task of making the garden itself has been enriching in terms of making students realize the importance of teamwork such as detailed planning, and allocation of tasks within a team. For the teachers, herbal garden project has been useful in terms of ease with which they could integrate the concept with other subject matter activities, such as writing essays, poems and stories, making posters, drawing and painting, making herbariums, and even preparing food recipe using some of the culinary herbs students have planted in their gardens. Kerala Government is also making lot of initiatives to developing and inculcating the herbal gardens in schools and colleges.

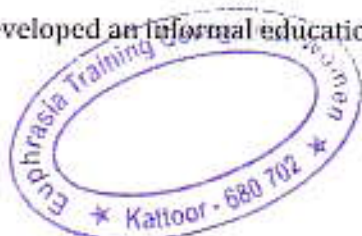
### Recommendation

Develop and nurture herbal garden in the college in the open area in the side of college. Maintain the herbal garden in plastic pots due to the slightly consented water and soil . The area is heavy prone for water logging.

## 3. LEISURE PARK

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Open atmosphere will reduce the academic stress developed among the students which will well understand by Euphrasia Training college management and they develop little natural open space in the college. This open ventilated space is useful foe open debate and fruitful discussion and developed an informal education among students.



  
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Figure 3 LEISURE PARK

#### 4. NAKSHRAVANAM (STAR GARDEN)

In Vedic astrology, the zodiac is divided into 27 Nakshatras or stars. An individual is born under a particular star, known as his or her birth star. From ancient times, particular trees have been associated with birth stars. The concept of Nakshatra Vanam involves the planting of these trees in a nurturing them.. Gardening can provide students with hands-on learning opportunities while increasing environmental awareness and vital experience in problem-solving.

Every student and staff has a birth star which is related to a tree, animal and bird in Nature. Gardens area wonderful way to use the college campus as a classroom, reconnect students with the natural world and the true source of their food, and teach them valuable gardening and agricultural concepts and skills that integrate with several subjects ,such as math, science, art ,health and physical education, and social studies, as well as several educational goals, including personal and social responsibility

Sl No:	Star Name	Tree Name	Botanical Name
1	Aswathy	Kanjiram	<i>Strychnosnux-vomica</i> ]
2	Bharani	Nelli	<i>Embliaofficinalis</i> ]
3	Karthika	Aathi	Ficusracemosa
4	Rohini	Njaval	<i>Syzygiumcumini</i> ]
5	Makayiram	Karngali	<i>Acacia catechu</i> ]
6	Thiruvathira	Karimaram	<i>Diospyrosebenum</i> ]





7	<b>Punartham</b>	Mula	<i>Bambusabambos</i>
8	<b>Pooyam</b>	Arayal	<i>Ficusreligiosa</i>
9	<b>Ayilyam</b>	Nangu	<i>Mesuaferrea</i>
10	<b>Makam</b>	Plassu	<i>Butea monosperma</i>
11	<b>Uthram</b>	Ithi	<i>Ficustinctoria</i>
12	<b>Atham</b>	Ambazham	<i>Spondiaspinnata</i>
13	<b>Chithira</b>	Koovalam	<i>Aegle marmelos</i>
14	<b>Chothi</b>	Nerrmaruthu	<i>Terminalia arjuna</i>
15	<b>Visakham</b>	VayamKaitha	<i>Flacourtiajangomas</i>
16	<b>Anizham</b>	Elanji	<i>Mimusopselengi</i>
17	<b>Triketta</b>	Vetti	<i>Aporusalindleyana</i>
18	<b>Moolam</b>	Vella Pine	<i>Vateriaindica</i>
19	<b>Pooradam</b>	Vanchi	<i>Salix tetrasperma</i>
20	<b>Uthradam</b>	Plavu	<i>Artocarpusheterophyllus</i>
21	<b>Thiruvonam</b>	Erukku	<i>Calotropisgigantea</i>
22	<b>Avittam</b>	Vanni	<i>Prosopisjuliflora</i>
23	<b>Chathayam</b>	Kadambu	<i>Anthocephaluscadamba</i>
24	<b>Pooruttathy</b>	Mavu	<i>Mangiferaindica</i>
25	<b>Uthrattathy</b>	Karimbana	<i>Borassusflabellifer</i>
26	<b>Revathi</b>	Elippa	<i>Madhucalongifolia</i>



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Figure 4 RECOMMENDED SPACE FOR NAKSITRAVANAM

### Recommendation

The star garden can be structured as in this area. The large trees are can be planted in the open spaces in the college instead of planting in limited space. The NSS and students related their star can be made into custodian of the corresponding there star trees.



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## 5. VEGETABLE GARDEN

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It is a garden that exists to grow vegetables and other plants useful for human consumption. Gardening can provide students with hands-on learning opportunities while increasing environmental awareness and vital experience in problem-solving. The school gardens are changing the eating habits of the students

Gardens are a wonderful way to use the college campus as a classroom, reconnect students with the natural world and the true source of their food, and teach them valuable gardening and agriculture concepts and skills that integrate with several subjects, such as math, science, art, health and physical education, and social studies, as well as several educational goals, including personal and social responsibility. They gain self-confidence and a sense of "capableness" along with new skills and knowledge in food growing — soon-to-be-vital for the 21st century students become more fit and healthy as they spend more time active in the outdoors and start choosing healthy foods over junk food.

## 6. SILENT ZONE

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Nowadays, silent zones are getting important in academic institutions. Noise pollution leads to stress and other medical and neurotic problems in children. Besides, creativity and knowledge absorption capacity is also going down. For reduction of academic stress level there is place for complete relaxation. This is the importance of silence zone. Euphrasia College has have certain silent zones in the college itself. Natural silence zones are also created in the college campus where there is no sound other than natural sound



Figure 5 SILENT ZONE



## 7. LIST OF TREES IN THE CAMPUS

Trees release oxygen when they use energy from sunlight to make glucose from carbon dioxide and water. Like all plants, trees also use oxygen when they split glucose back down to release energy to power their metabolisms. Averaged over a 24-hour period, they produce more oxygen than they use up; otherwise there would be no net gain in growth.

The college campus is divided into various locations for listing out the trees. The college campus contains 10 various species.

### Advantages of trees

1. Maintain the equilibrium of air and food: Humans and animals need food and oxygen and excrete carbon dioxide and water. The plants, algae, etc, in the forest use carbon dioxide and water and release or produce oxygen and food.
2. Filter and store water, and drastically reduce storm-water runoff: Forests filter and regulate the flow of water. The litter over the forest floor acts as a sponge which filters, stores and gradually releases the water to natural channels and ground water.
3. Conserve valuable topsoil and reduce soil erosion: A forest is like a protective green cloth over Mother Earth's fragile body.
4. Conserve biodiversity and balance ecology: In a natural environment, the populations of species are balanced to an optimum minimum level
5. Reduce pollution: Plants can remove and/or Phyto remediate pollutants and contaminants from soil and water.
6. Arrest or reverse global warming: Global warming can cause extinction of species, tropical cyclones, extreme weather, tsunamis, abrupt climatic change, sea level rise, increased human stress resulting in violence, etc. These are just a few of its catastrophic effects. Plants can lock CO<sub>2</sub> in their bodies to save our planet and the life on it.



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## 1. OPEN GROUND

Education is incomplete without sports and games. Sports and games are **beneficial in teaching us punctuality, responsibility, patience, discipline, and dedication towards our goal.** The importance of games and sports in student's life is immense. It has proved to be very therapeutic in nature. Sports help improve stronger social skills, such as dispute management and sport-based interaction. **Sports inculcate the feeling of fairness in a child and it encourages them to be committed, taking defeat in a positive manner.** It teaches us to be joyful, united, and appreciative in life. Students are the youth of our Nation, and they need to be energetic, physically active, and mentally fit. By understanding the responsibility to make its students as healthy Euphrasia Training College management built and maintained football ground, cricket ground in a greenery surroundings.



Figure 6 OPEN GROUNDS



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## 1. WATER CONSERVATION AND AUDIT

The requirement of water for the college met by supply from one Open wells. And gardening and other outside requirements water from the pond is used. . The water from OPEN well are collected in THREE tanks of capacity of 3 KL synthetic tanks. The water from different wells are checked in an accredited laboratory in time to time to ensure its portability



Figure 7 FISH POND

### WATER UTILITIES

The labs have the highest tap points whereas the toilet accounts for the major consumption. The water outlet points in the college campus and hostel are listed in the following table

Table 3 WATER USING TAPS

Location	No: of taps
Washing area taps	12
Toilets	14
Flushes	12
College compound and garden	04
Staff and other rooms	5
Total	47



  
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## GROUND WATER RECHARGING

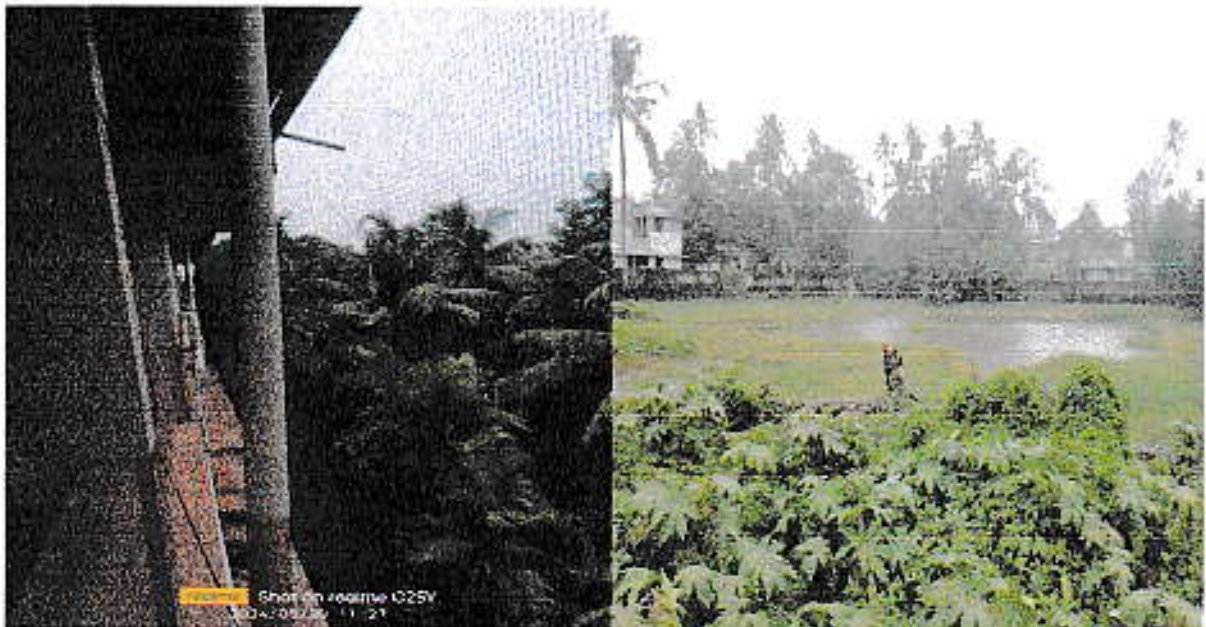
Rainwater harvesting (RWH) is a technique of collection and storage of rainwater into natural reservoirs or tanks, or the infiltration of surface water into subsurface aquifers (before it is lost as surface runoff). One method of rainwater harvesting is rooftop harvesting. With rooftop harvesting, most any surface — tiles, metal sheets, plastics, but not grass or palm leaf can be used to intercept the flow of rainwater and provide a household with high-quality drinking water and year-round storage. Other uses include water for gardens, livestock, and irrigation, etc.

### Rainwater harvesting for ground water recharge.

Aim and Objectives:

- Conservation of rainwater for future use
- To use rainwater for gardening Activity: Conservation of rainwater in soil or in a container is known as rainwater harvesting.

The rainwater from entire college campus and roof top of building is collected through PVC pipe s and feed into ground at four locations in the campus and details are given below table The entire rain water is directed two type open pond in the college campus for storing and for natural penetration to the earth.



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## CONCLUSION:

Green Audit is the most efficient & ecological way to solve such an environmental problem. Green Audit is one kind of professional care which is the responsibility of each individual who are the part of economic, financial, social, environmental factor. Green audits can "add value" to the management approaches being taken by the college and is a way of identifying, evaluating and managing environmental risks (known and unknown). The green audit reports assist in the process of attaining an eco-friendly approach to the development of the college.

The auditors observed during the campus visit and after the conversation with the staff and students of M/s Euphrasia Training College Management have taken many initiatives for maintaining the over the campus which is being well appreciated by us. There is still opportunity to attain the perfection some of the identified suggestions are listed in the executive summary.



*[Signature]*  
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**ANNEXURE-1**



**GREEN RATING FOR INTEGRATED HABITAT ASSESSMENT**

**GRIHA CERTIFIED PROFESSIONAL CERTIFICATE**

This is to certify that

Ashok K M P

has qualified as a GRIHA Certified Professional For V. 2015

Date of issue: 19th June 2020

Note : This certification is valid only for GRIHA version 2015.

  
Chief Executive Officer  
GRIHA Council



  
Principal  
Euphrasia Training College For Women  
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No: AEC/GAC/24-04

15-05-2024

## Audit Certificate

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

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# ENERGY AUDIT - 2024



## EUPHRASIA TRAINING COLLEGE FOR WOMEN KATTOOR, KERALA

*Conducted By*



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**MAY 2024**



  
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