

# Report of Green, Environment and Energy Audits



*Submitted to*

**IDEAL COLLEGE FOR ADVANCED STUDIES,  
MALAPPURAM – 679 573, KERALA, INDIA**

*Date of Audit: 05.12.2022*

*Valid Till: 03.12.2025*



*Submitted by*

**NATURE SCIENCE FOUNDATION**

**(A Unique Research and Development Centre for Society Improvement)**

**[ISO Certified and Ministry of MSME Registered Organization]**

**No. 2669, LIG-II, Gandhi Managar, Peelamedu**

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## NATURE SCIENCE FOUNDATION

(A Unique Research and Development Centre for Society Improvement)  
 ISO 9001:2015, 14001:2015, 45001:2018 & 50001:2018 Certified and Ministry of MSME Registered Organization  
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 Secretary

### *Certificate of Declaration*

The **Office of Nature Science Foundation**, Coimbatore, Tamil Nadu declare that

1. Nature Science Foundation has conducted onsite green audit at ***Ideal College for Advanced Studies, Malappuram – 679 573, Kerala, India*** by deputing certified Lead Auditors and Technical Experts.
2. On the basis of audit observations by the auditors and pertinent data collected from the Auditee, the Technical Report has been prepared and being submitted.
3. Data presented in the Technical Report are verified and to best of our knowledge, the data are authentic and reliable.
4. Nature Science Foundation declares that data generated were not shared with any third parties and the soft copy of the report is available with Nature Science Foundation's Office.
5. Provided the Auditee desired to publish or share the data with other agencies, Nature Science Foundation has no conflict of interest.

Date: 12.12.2022  
 Place: Coimbatore

Authorized Signatory  
 Nature Science Foundation

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### 3. ENVIRONMENT AUDIT

#### 3.1. Introduction

Environmental (Eco) audit is quantitative and qualitative data to track air, soil and water and to gain actionable insights to improve the operational performance in the atmosphere. It provides a 360° view of a surrounding campus and makes it easy for Owners / Managers / Environmentalists to collaborate, measure, control and reduce environmental negative impacts. Finally, it leads to enhance the quality of life of all living organisms. Eco audit initiatives are the need of the hour across the world due to changing environmental conditions and global warming besides ever-increasing human population and anthropogenic activities (NCP, 2016). Eco audit aims to make a sustainable and friendly environment for the stakeholders. In this context, to conserve eco-friendly atmosphere of an organization, well-developed environmental objectives and targets should be undertaken to reduce the harmful effects to a greater extent (Gnanamangai *et al.*, 2021).

The audit process can remarkably minimize the environmental pollution in the campus which in turn reduces the impact of global warming scenario. As per the Rules and Regulations laid by Government, the environmental legislations should be followed by all the Institutions and Organizations and make sure that their activities should not degrade the environment. The environmental audit involves systematic documentation of periodic objective review by a regulated entity on available facilities, their operations and practices related to resolve the environmental requirements. In general, environmental audit is planned to achieve an optimum resource utilization and improved process performance in the audit sites. Venkataraman (2009) stated that it is a 'Common Sense Approach' to identify the problems and solve those problems pertaining to curb eco-friendly atmosphere. Environmental audit enables an overall and complete overview at the audit sites to facilitate our understanding of flow of materials and to focus the priority areas where waste reduction is achieved thereby cost saving is made possible.

Purpose of the audit is to determine performance of the environmental management systems and equipment related to environmental safety. Audit reports can provide key information to the management in relation to risk areas, progress towards strategic objectives and targets. Audit work can be undertaken voluntary for the benefit/advantage of the company and it can be executed with the help of environmental auditing authorities. As mentioned earlier, it helps in the proper natural resource utilization and on the whole, it improves the quality of environment.

An environmental auditor will study an organization's performance towards the environmental sustainability in a systematic manner where environmental management systems and equipment are performing with the aims of a) facilitating management control of environmental practices, b) assessing compliance with company policies, c) facilitating professional competence, d) sustenance activities without harming the environment and e) practicing the environmental conservation.

### 3.2. Organization Details

**Table 3. Campus details**

S.No.	Details / Descriptions	Quantity
1.	Total strength of Students	545
2.	Total strength of Employees	43
3.	Total number of Buses in the campus	4
4.	Number of Cars entering in the campus	51
5.	Number of Motorcycles entering in the campus	200
6.	Number of other vehicles (Lorry, Ambulance, Jeep, Trucks, Cranes, Poclairn, and etc. entering in the campus)	Nil
7.	Number of E-Vehicles	Nil
8.	Number of RO Water Plants	02
9.	Number of Borewells	02
10.	Number of Open wells	04
11.	Number of Water Reservoirs	Nil
12.	Number of Wastewater treatment facility	Nil
13.	Number of Rain harvesting system	2
14.	Number of Composting pits and Vermicompost units	1

### 3.3. Environment audit observations.

- Human comforts are implemented and observed like ramp walk, fire safety, etc.,
- To reduce the demand of water, rain water harvesting system is implemented and used for irrigation facilities.
- Fire extinguishers are available in the building to consider the safety of all the Stakeholders and maintained properly.
- Parking is provided under the tree shade to reduce the Heat Island effect (Temperature).
- Rain water harvesting unit is maintained well without using any chemical, the water is used for irrigation purpose.
- Use of potable and non-potable waters are identified and differentiated to conserve water.
- Public transport facilities are available in the campus to control air pollution.
- Bicycle for internal mobility is implemented and used inside the campus.
- The pedestrian pathways are maintained with adequate shading facilities by planting more number of trees.
- No offsite and subsidized parking are encouraged in the campus.
- Waste are segregated before the disposal.
- Biodegradable waste are used in the vermicomposting as a recycling practice.

### 3.3.1. Integrated Water Management System

Water is one of the major source of living. Per capita water consumption in the building is calculated as per the water management plan (litres / person/ day). To reduce the demand of water consumption rain water harvesting unit is implemented and practiced. Proper monitoring plan is made evident to reduce the water consumption in the leakage areas.



**Water Management Activities observed in the campus**

### 3.3.2. Corporate Governance

Training and awareness programmes are conducted to the stake holders to maintain sustainability. Some of the programmes conducted by the Organization are World water and environment day.



**Tree Plantation Programmes were conducted by the Organization**

### 3.3.3. Safety measures and green building conservation code

Environmental safety measures are very important in the buildings as far as students, staff members and other stakeholders are concerned and it requires vigilance and awareness. Management should extend by issuing guidance and the best safety tools. The organization has have a police force, escort services, call boxes, first aid box,



fire extinguishers, fire alarms, security systems and staffs towards the safety measures. Organization has very good safety measures as per the green building conservation code such as fire extinguisher and fire bell and alarms in all the place.

### 3.3.4. Applicability and Implementation

Guidelines of Architect, Designer and Civil contractor for the existing building addresses the choice of material, design methodology, operation and maintenance related options, etc., and also addresses the applicability.

### 3.3.5. Parking facilities to reduce Heat Island Effect

Heat island effect denotes the temperature level. It is observed that the vehicles are parked under the Tree shade and shed to reduce the heat island effect for the benefit of stakeholders and to maintain sustainability. To reduce the heat island effect parking areas are made up of high albedo materials with light colored paints observed in the organization.

### 3.3.6. Public transport, low emitting vehicles and control of car smokes

Utility of public transportation (buses) reduces carbon emissions greatly and decreases the development of smog within the towns. This means that human beings have healthy air to respire. Comparing a bus travelling with a car transport for a person, it has been observed that buses are the most effective system by producing lower quantum of emission of carbon when compared to that of car transport. This will be a huge decrease in utility of natural resources per person. Other than this, it also gives more benefits like less noise and traffic congestion. Whenever possible, try to take public transport in place of one's own vehicle. The audited Organization is provided two E- Vehicles to maintain eco-friendly environment in the campus and to reduce carbon dioxide emissions. Apart from the e-vehicles, students are encouraged to use bicycles. The tree species are planted abundantly to provide shade to the pedestrian.



**Vehicles parked under the shades and shed to reduce the Heat Effect**

### 3.3.7. Pedestrian path facility at the campus

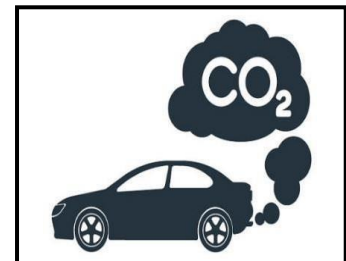
The concept of pedestrian path is to give safe space to walk freely by the pedestrian. It is very important in the green campus in terms of freely walk pedestrians or people going on foot without any obstacles. The pedestrian path is otherwise called as zebra crossing by the combination of black and white stripes remained to characterize the zebra. In addition, pedestrian path is created in the green campus along with road side which meant for walking only using special cement bricks and stones. The pedestrian path aims to end circulation not only cars, buses, vans, trucks and other vehicles but also giving safe space to the pedestrians, where cross and pass through blocks and also forcing vehicles to comply with it. The audited organization is having very good facility in creating pedestrian path for stakeholders with all the facilities such as accessible public toilets, barrier free environment, dustbins, stone benches, etc. Use of bicycles are encouraged in the Campus to control carbon emission and air pollution.



**Wood benches and pedestrian paths were observed in the campus**

### 3.3.8. Carbon footprint

Carbon footprint means measuring/recording the greenhouse gases (GHG) emissions of an organization within its defined boundary. Observations on carbon dioxide and oxygen levels monitored in different parts of the campus are presented under Air Quality Audit section while observation on carbon footprint due to electricity usage per year at the Organization along with other fossil fuel utility are presented under Energy Audit portion of this Technical Report.



### 3.3.9. Selection of Building Material

Building materials are selected as per the Guidelines to Architect, Designer and Civil contractors. Low carbon emitting cements, bricks, etc., are used for the construction and recycled glass materials are used for windows. Construction material are not stored in the campus.

### 3.3.10. Waste and Water management activities

Management of water and waste are the two important parameters which plays a vital role to maintain sustainability. Rainwater harvesting is implemented and maintained properly for water conservation, this water is used for irrigation and domestic purpose. It is observed that different colored dustbins are used in the Organization to segregate the waste at the source of generation.

### **3.3.11. Post Occupancy maintenance**

Post occupancy maintenance is the activities performed after the completion of construction work and handed over to the owner for further maintenance. The following activities are observed during the onsite visit as post occupancy maintenance

- Vegetation and plants are maintained properly with regular watering through manual facilities.
- Soil is maintained well without adding any chemical fertilizers and pesticides.
- To reduce the energy consumption HVAC system are maintained properly.